

## **Knowledge, Attitude and Practices of Vaccination among the University Students: A Cross Sectional Study Conducted in the Chittagong City of Bangladesh**

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**Abstract:** The aim of this study was to evaluate the knowledge, attitude and practices toward vaccination among the university students of the Chittagong city of Bangladesh. A questionnaire based survey; cross-sectional study was conducted in a university located in Chittagong district in April-May, 2015. Total four hundred male respondents participated in this study. The term of vaccine and vaccination were known to the 93.75% and 88% respondents respectively. From the total respondents, 87% respondents knew about the concept of health benefits of person who is vaccinated. Among the respondents, 87% respondents were taken a vaccine to prevent disease but other's 13% had no idea about the reasons of vaccine taking. The supreme respondents (73.09%) had known that hepatitis B could be prevented by vaccination, whereas 5.975% had no idea about diseases that could be prevented by vaccination. 50.82% respondents had been suggested to the vaccination that every member of a family should be working to the vaccination of their family members. It is observed that the vaccination knowledge level was very high among respondents of this university.

**Key words:** Vaccination • Questionnaire • Chittagong • Respondents

### **INTRODUCTION**

The efficiency of vaccine as well as vaccination has been broadly studied and demonstrated; for instance, the influenza vaccine [1] the HPV vaccine [2] and the chicken pox vaccine [3]. Vaccines are usually administered through intravenous or intramuscular routes, but can also be administered by mouth or sprayed into the nose. The act of introducing a vaccine into the body to produce immunity to a specific disease is called vaccination while immunization is a process by which a person becomes protected against a disease through vaccination. The two terms Vaccination & Immunization that is being used almost synonymously [4].

World Health Organization stated that, vaccinations are the most successful and cost-effective public health interventions [5]. The report of World Health Organization and the earlier study of Breslow (2002) have illustrated that in every year worldwide more than two million deaths are delayed through immunization [6]. The WHO also

reports that licensed vaccines are presently available to prevent or contribute to the prevention and control of twenty-five infections. The Expanded Program on Immunization (EPI) was introduced in 1974 as a worldwide association of collaborating nations whose goal was to expand immunization services and coverage. The program consists of vaccination against six childhood diseases such as, polio, measles, pertussis, tetanus, diphtheria and tuberculosis. This EPI was given with highest priority to developing countries because the seriousness of these diseases and the problem of immunization service delivery were more severe in these areas [7].

Bangladesh is a country, located at the southern edge of the Asian continent and covering an area of 142,300 sq. km. India and Myanmar are the bordering countries and in the south is the Bay of Bengal [8, 9]. EPI or expanded program on immunization is the vaccination campaign or schedule in Bangladesh. The main aims of EPI, to eradicate or eliminate some vaccine preventable diseases and it's started in 1979 as a pilot

project but until 1985 coverage was less than 2%. Then, government of Bangladesh started works to expanding the program. The intensified immunization program was expanded in phases. It covered 8 thanas in 1985(First phase); 190 thanas in 1988(Second phase) and whole country by the end of 1989 [10].

Till now the government and some private organizations of Bangladesh had tried to expand proper awareness towards vaccination program. But a huge amount of people have no proper ideas about vaccination. This study was therefore designed to evaluate the knowledge, attitude and practice toward vaccination among the university students of the Chittagong city of Bangladesh.

## MATERIAL AND METHOD

**Study Area and Design:** The survey study site was located in a university of Chittagong district. Chittagong is the second largest city of Bangladesh. The population density was 1,400 per Sq. Km. [11, 12]. There are different public and private universities located in this district and International Islamic University Chittagong (IIUC) was selected for this survey study. The samples were taken from several departments like Department of Business Administration (DBA), Department of Electrical and Electronic Engineering (EEE), Computer Science and Engineering (CSE) and English Language and Literature (ELL).

**Study Methodology and Questionnaire:** Questionnaire based survey; cross-sectional study [13, 14] was conducted in International Islamic University Chittagong (IIUC) during April-May, 2015. For this purpose, a self designed standard questionnaire was developed by the principle investigator, Md. Jakaria (a graduate pharmacist) from the Department of Pharmacy, International Islamic University Chittagong (IIUC). Questionnaire was written in English and Bangla language. The questionnaire contained some basic variables: University name, location and department, age and sex of students and some important questions in questionnaire were as follows:

- Q 1. Do you know about vaccine?
- Q 2. Do you have any idea about vaccination?
- Q 3. Does vaccination confer any health benefits to a person?
- Q 4. Why do you take vaccine?
- Q 5. Which diseases can be prevented by vaccination?

Q 6. Do your parents have any idea about childhood vaccination?

Q 7. In which condition do you take vaccine?

Q 8. What's your suggestion about vaccination?

**Data collection:** Students of the Bachelor of Pharmacy (B. Pharm) Honors in the Department of Pharmacy, International Islamic University Chittagong (IIUC) were assigned for conducting this health survey. Each student was said to collect data from respondents, therefore the sample size was four hundred (400). The data collectors were waiting in front of the class room during data collection session. Data were collected from the students of different age, sex, semester, department in this university.

**Data Analysis:** Each student submitted the filled questionnaire to the data collector. The principle investigator then accumulated all the data from data collector. In this regard, descriptive statistics were applied. The collected data was calculated by using Microsoft Excel 2003 and 95% confidence interval calculated by using online calculator, [www.calculator.net](http://www.calculator.net). Results were finally expressed graphically in percentages.

**Ethical Approval:** The study was conducted according to the general principles (Section 12) of WMA declaration of Helsinki. The study protocol was also approved by the Planning and Development committee (Grant No. Pharmacy P&D 68/09-15), Department of Pharmacy, International Islamic University Chittagong, Bangladesh. The human subjects involved in this study did not use any hazardous agents and samples were not collected from them. The human subjects only participated in the interview.

## RESULTS

All respondents had been response to the questionnaires. The age of all students was ranges between 18 and 25 years old. No questionnaires were under exclusion criteria that means all questionnaires were considered for calculation. The term of vaccine was known to the 93.75% respondents and 88% had idea about vaccination. 87% respondents knew about concept of health benefits if any person who vaccinated (Table 1).

Among the total respondents, 87% respondents were taken vaccine to prevent disease but other 13% had no idea about the question, why they taking vaccine? (Table 2).

Table 1: Information towards vaccine, vaccination and health benefits

Questions	Response	
	Yes(% and 95% CI)	No(% and 95% CI)
Q 1. Do you know about vaccine?	93.75% and CI=93.75±2.37	6.25% and CI= 6.25±2.37
Q 2. Do you have any idea about vaccination?	88% and CI=88±3.18	12% and CI=12±3.18
Q 3. Does vaccination confer any health benefits to a person?	89% and CI=89±3.07	11% and CI=11±3.07

CI= Confidence Interval

Table 2: Reasons of respondents taking of vaccine

Questions	Response	
	To protect or prevent some specific disease(% and 95% CI)	Have no idea(% and 95% CI)
Q 4. Why do you take vaccine?	87% and CI=87±3.30	13% and CI=13±3.30

CI= Confidence Interval

Table 3: Diseases prevented by vaccination

Question/options	Response(% and 95% CI)
Q 5. Which diseases can be prevented by vaccination?	
a) Chickenpox	31.41% and CI=31.41±4.55
b) Diphtheria	26.18% and CI=26.18±4.31
c) Influenza	35.14% and CI=35.14±4.68
d) Hepatitis A	66.35% and CI=66.35±4.63
e) Hepatitis B	73.09% and CI=73.09±4.35
f) Human Papilloma virus(HPV)	13.21% and CI=13.21±3.32
g) Measles	11.23% and CI=11.23±3.10
h) Meningococcal Disease	7.98% and CI=7.98±2.66
i) Mumps	16.2% and CI=16.2±3.61
j) Pertussis (Whooping cough)	19.97% and CI=19.97±3.92
k) Pneumococcal Disease	10.24% and CI=10.24±2.97
l) Poliomyelitis	35.98% and CI=35.98±4.70
m) Rubella	20.98% and CI=20.98±3.99
n) Shingles	8.23% and CI=8.23±2.69
o) Tetanus	37.70% and CI=37.70±4.75
p) Not applicable	5.975% and CI=5.975±2.32

CI= Confidence Interval

Table 4: Knowledge of parents towards childhood vaccination of children

Question	Response	
	Yes(% and 95% CI)	No(% and 95% CI)
Q 6. Do your parents have any idea about childhood vaccination?	85.25% and CI=85.25±3.48	14.75% and CI=14.75±3.48

CI= Confidence Interval

Table 5: Conditions of vaccine taking of respondents

Question/options	Response(% and 95% CI)
Q 7. In which condition do you take vaccine?	
a) Chickenpox	27.43% and CI=27.43±4.37
b) Diphtheria	32.68% and CI=32.68±4.60
c) Influenza	35.66% and CI=35.66±4.69
d) Hepatitis A	68.85% and CI=68.85±4.54
e) Hepatitis B	73.34% and CI=73.34±4.33
f) Human Papilloma virus(HPV)	15.94% and CI=15.94±3.59
g) Measles	11.98% and CI=11.98±3.18
h) Meningococcal Disease	13.23% and CI=13.23±3.32
i) Mumps	22.70% and CI=22.70±4.11
j) Pertussis (Whooping cough)	9.73% and CI=9.73±2.90
k) Pneumococcal Disease	7.49% and CI=7.49±2.58
l) Poliomyelitis	6% and CI=6±2.33
m) Rubella	9.73% and CI=9.73±2.90
n) Shingles	6.23% and CI=6.23±2.37
o) Tetanus	50.94% and CI=50.94±4.90
p) Not applicable	9.22% and CI=9.22±2.84

CI= Confidence Interval

Table 6: Suggestion of respondents towards vaccination

Question/options	Response(% and 95% CI)
Q 8. What's your suggestion about vaccination?	
a) Government authority should be works properly	31.44% and CI=31.44±4.55
b) Private organization should be works properly	8.985% and CI=8.985±2.80
c) Every family should works for their family members	50.82% and CI=50.82±4.90
d) I have no suggestion	8.73% and CI=8.73±2.77

CI= Confidence Interval

The greatest 73.09% respondents had known that hepatitis B could be prevented by vaccination but 5.975% had no idea about diseases that can be prevent by vaccination (Table 3).

In the case of childhood vaccination, only 85.25% parents had known their children childhood vaccination (Table 4).

The greatest proportions of 73.34% respondents had taken vaccine for hepatitis B virus and only 9.22% did not take vaccination to prevent reported conditions (Table 5).

In terms of suggestion on vaccination, an about 50.82% respondent had been suggested about vaccination that every members of a family should works for their family members (Table 6).

## DISCUSSION

Immunization is the most effective, safest, efficient and successful components of preventive medicine [15, 16]. When a vulnerable individual is immunized against an infecting organism, then antibodies are produced & as a result the infection can be prevented and the spread of the infection to others can be stopped. In case, the infection occurs in an immunized person the symptoms of the disease can be lessened [4]. Immunization prevents illness, disability and death from vaccine-preventable diseases including diphtheria, measles, pertussis, pneumonia, polio, rotavirus diarrhoea, rubella and tetanus [17]. There is a proverb that “An ounce of prevention is worth a pound of cure” [18, 19, 20]. So, vaccination is important for children and adults. Our study revealed that many students had to know the terms of vaccine and vaccination. They also knew that health benefits of vaccination. It was a positive sign of excellent knowledge on vaccination. It was well known to students that different diseases could be prevented by vaccine and parents also aware of their childhood vaccination. That was the positive attitude towards vaccination of respondents.

Among the vaccination against different diseases, the greatest percentages of students were vaccinated for different diseases like hepatitis A, B and tetanus etc. but

other diseases not practices well. The pattern of vaccination illustrates that the practices towards vaccination was satisfactory.

The knowledge of vaccination spread properly through university students and it will be increase awareness to their self vaccination. Students may be able to spread knowledge of adult vaccination to their own family members also. The public and private organizations should work together to spread the knowledge of vaccination. Seminar, symposium, campaign of vaccination also recommend to transmission of knowledge of vaccination in university students and other as well.

Limitations of this study: First of all, only male samples were taken in this study. Secondly, it was a convenient sample which is inferior to probability sampling in its representativeness. Thirdly, always respondents didn't feel encouraged provided accurate, honest answers. Finally, sometimes the respondents didn't feel comfortable in providing an answer and didn't be fully aware of giving an answer because of lack of memory on this subject matter.

## CONCLUSION

In conclusion, it's concluded that the level of knowledge of vaccination, among respondents from this university was high. A good number student had positive attitude towards vaccination but only a few had already been vaccinated. The practices of vaccination should be increased throughout the students. More awareness programs and education on infectious diseases as well as effective methods of vaccination should be ensured at university campuses. This will helps to reduce the rate of death from infectious diseases.

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