Socioeconomic characteristics of Hepatitis B and TT vaccination coverage among some students of Chittagong Medical College of Bangladesh

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Abstract

The aim of the study was to assess some characteristics of the students of the Chittagong Medical College about their coverage of Hepatitis B and TT vaccination. The study is based on primary data. The sample respondents were the 2nd year to 5th year students of Chittagong medical College, Chittagong, Bangladesh. Total number of sample respondents was 454. A pre-structured questionnaire was prepared for the survey. Investigation was done by the students of the department of community medicine for the purpose of the RFST program. Duration of the investigation was November-December, 2012. The selection of respondents and survey venue were done purposively. Analysis was done through frequency and percentages. Among many outcomes of the study, it is revealed that vaccination coverage of Hepatitis B is 73.1% and TT is 44.7% of total students. In case of total 268 female students, 75.7% were vaccinated with TT while 11.5% male students were provided TIG as post exposure prophylaxis. It imagines that a portion of medical students were not fully aware of vaccination. It is suggested that it needs to launch more awareness campaign for vaccination among the mass people besides the students.

Keywords: Medical students, Socioeconomic characteristics, Hepatitis B, Tetanus Toxoid, Vaccination.

1. Introduction

A good health becomes bad when it is affected by a disease. A disease is an abnormal condition that affects the body of organism. It is often construed as a not only physically but also emotionally, as contracting and living with many disease can alter one’s perspective on life and their personality our health is exposed to various organism which can cause disease whether they reside in environment but peoples are not being affected everyday due to our own
community. Immunity is the ability of the body to restrict a particular toxin by the action of specific antibodies. Immunity may be inherited, acquired or induced. Acquired, induced immunity is gained by vaccine. In Bangladesh, vaccines are available for most of the communicable disease. Among them Hepatitis B and Tetanus are common. Hepatitis B is an infectious disease caused by Hepatitis B virus. It spread by contact with an infected person’s blood, semen or other body fluid. If a person is infected by Hepatitis B virus, it may feel flu like symptoms. Only a blood test can confirm the disease. It usually gets better on its own after a few months. If it does not get better it is called chronic Hepatitis B virus which can lead to the scarring of the liver or liver cancer. Tetanus is acquired when the spore of the bacteria “Clostridium tetanus” infected a wound. The bacteria can live in many different substances including soil, house dust, animal or human wastes. Once inside, they multiply and release a powerful type of poison known as a neurotoxin. The neurotoxin disrupts the normal working of the nerves, causing symptoms such as stiffness and muscle spasm [9]. Only vaccine can prevent them from these health hazards. Complete protection against Hepatitis B includes three doses of vaccine schedule whereas tetanus includes five doses. Now a day both vaccines are given as part of EPI schedule. EPI is the most successful public health intervention in Bangladesh and has contributed significantly to reducing mortality and morbidity from vaccine preventable disease since 1979. Reviewing different literature published by WHO, UNICEF and so on, it presents here the global, South-Asia regional and Bangladesh situation relating awareness about vaccine against Hepatitis B and tetanus.

1.1 Global and South East Asia (SEAR) situation

It is now more than 30 years since leaders of Bangladesh adopted the EPI programs and their associated targets. In time, substantial progress has been made reducing tetanus. These current trends provide a firm basis for the intensified collective actions and expansion of successful approaches now needed to overcome the challenges posed by multiple crisis and large inequalities. According to world health statistics 2012 from an estimated data 1.2 billion death have been prevented which is not significant enough [3]. In a study on “Coverage of TT vaccine among teenagers” conducted by department of community health service, Hamdard College of Medicine and Dentistry, Karachi in the year 2007 presents a brief description about the coverage. This paper reveals that among 1407 female students who were not aware about tetanus immunization. Only 39.80% received at least one of the four recommended doses. Only 2.97% received complete course of doses [5]. Another study conducted on “Coverage of Hepatitis B among the Medical students” by Kerman University of Medical Science, Kemran, Iran, in the year
2005 reveals that only 86.8% had been vaccinated by complete vaccination which had been performed in only 71.7% of the subjects [7]. Study conducted on “Awareness about the vaccination on Tetanus” by A K M Ali, reveals that only 68% of the students of public university were aware about the vaccine and acquainted with the complete doses of TT [1]. Regarding vaccination another important research work was held in Mirpurkha, India by department of Community Medicine and presented in the international conference on health personnel. In this study, percentages of vaccinated person were 57%. Among them 87.8% had completed their vaccination schedule of 4 doses and 13% were partially vaccinated [2].

1.2 Bangladesh Situation

According to World Health Survey 2009, it is estimated that 1.2 million deaths have been prevented from 1987-2008 through EPI services. According to Department of Public Health of Bangladesh a cross-sectional study was done on the students of public university of Bangladesh in October 2009. Mean age of the respondents was around 19.7 years. About 90% of respondents knew about tetanus. From about 34.55 of the respondents was completely immunized, 24.8% on schedule, 17.7% incompletely immunized and 23% was not at all immunized [4]. As medical personnel, medical students have high risk for infection particularly by Hepatitis B virus and exotoxin of Clostridium tetani that causes tetanus. Considering this, study of Hepatitis B awareness among medical students was recognized in Ibrahim [6] and Martin [8]. However, such study scant in Bangladesh. So it has been performed a study to assess the Hepatitis B and TT vaccination coverage among the 2nd -5th year students of Chittagong Medical College, Bangladesh.

2. Objectives and Methodology of the study

The aim of the study was to assess some characteristics of the students of the Chittagong Medical College about their coverage of Hepatitis B and TT vaccination. The study is based on primary data. The sample respondents were the 2nd year to 5th year students of MBBS of Chittagong medical College (CMC), Chittagong, Bangladesh. Total number of sample respondents was 454. A pre-structured questionnaire was prepared for the survey. Investigation was done by the students of the department of community medicine for the purpose of the RFST program. Duration of the investigation was November-December, 2012. The selection of respondents and survey venue were done purposively. Analysis was done through frequency and percentages.

3. Discussion

Regarding the age of the students, out of total 454 students, 208(45.8%) were 20-21 years of age and 35(7.7%) were 24-25 years of old (Table 1). Among the responding students, 61% were female and the
remaining 39% were male. Out of total respondents, 81.5% were the followers of Islam and 16.3% were the followers of Hinduism (Table 2). Most of the students belonged to nuclear family consisting of 4 to 6 members while the percentage was 71.8. Regarding the self-income, only 20.3% were involved and the rest 79.7% were not involved in self-earning activities (Table 3).

**Table 1: Distribution of age of the respondents**

<table>
<thead>
<tr>
<th>Age</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-19</td>
<td>67(51.54%)</td>
<td>7(6.67%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>74(16.3%)</td>
</tr>
<tr>
<td>20-21</td>
<td>63(48.46%)</td>
<td>87(82.86%)</td>
<td>58(49.15%)</td>
<td>0(0%)</td>
<td>208(45.81%)</td>
</tr>
<tr>
<td>22-23</td>
<td>0(0%)</td>
<td>10(9.52%)</td>
<td>60(50.85%)</td>
<td>67(66.34%)</td>
<td>137(30.18%)</td>
</tr>
<tr>
<td>24-25</td>
<td>0(0%)</td>
<td>1(0.95%)</td>
<td>0(0%)</td>
<td>34(33.66%)</td>
<td>35(7.71%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

**Table 2: Distribution of religion of the respondents**

<table>
<thead>
<tr>
<th>Religion</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Islam</td>
<td>118(90.77%)</td>
<td>83(79.05%)</td>
<td>93(78.81%)</td>
<td>71(70.30%)</td>
<td>370(81.50%)</td>
</tr>
<tr>
<td>Sanatan</td>
<td>12(9.23%)</td>
<td>16(15.24%)</td>
<td>18(15.25%)</td>
<td>28(27.72%)</td>
<td>74(16.30%)</td>
</tr>
<tr>
<td>Buddhism</td>
<td>0(0%)</td>
<td>4(3.81%)</td>
<td>1(0.85%)</td>
<td>2(1.98%)</td>
<td>7(1.54%)</td>
</tr>
<tr>
<td>Christianity</td>
<td>0(0%)</td>
<td>1(0.95%)</td>
<td>1(0.85%)</td>
<td>0(0%)</td>
<td>2(0.44%)</td>
</tr>
<tr>
<td>Others</td>
<td>0(0%)</td>
<td>1(0.95%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>1(0.22%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

**Table 3: Distribution of self-earning activities of respondents**

<table>
<thead>
<tr>
<th>Types of self-incomes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>91(98.9%)</td>
</tr>
<tr>
<td>Family business</td>
<td>1(1.1%)</td>
</tr>
<tr>
<td>Others</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Total</td>
<td>92(100%)</td>
</tr>
</tbody>
</table>
Table 4-1: Source of knowledge about vaccination of Hepatitis B

<table>
<thead>
<tr>
<th>Source</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media</td>
<td>71(54.62%)</td>
<td>77(73.33%)</td>
<td>51(43.22%)</td>
<td>28(27.72%)</td>
<td>227(50%)</td>
</tr>
<tr>
<td>Health worker</td>
<td>3(2.31%)</td>
<td>2(1.90%)</td>
<td>13(11.02%)</td>
<td>0(0%)</td>
<td>18(4%)</td>
</tr>
<tr>
<td>Friends</td>
<td>2(1.54%)</td>
<td>7(6.67%)</td>
<td>1(0.84%)</td>
<td>11(10.89%)</td>
<td>21(4.6%)</td>
</tr>
<tr>
<td>NGO</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4(36.36%)</td>
<td>0(0%)</td>
<td>4(0.9%)</td>
</tr>
<tr>
<td>Relatives</td>
<td>7(5.38%)</td>
<td>6(5.71%)</td>
<td>5(4.24%)</td>
<td>4(3.96%)</td>
<td>22(4.8%)</td>
</tr>
<tr>
<td>Neighbours</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(1.69%)</td>
<td>4(3.96%)</td>
<td>6(1.3%)</td>
</tr>
<tr>
<td>Colleagues</td>
<td>3(2.31%)</td>
<td>2(1.90%)</td>
<td>5(4.24%)</td>
<td>0(0%)</td>
<td>10(2.2%)</td>
</tr>
<tr>
<td>Others</td>
<td>7(5.38%)</td>
<td>11(10.48%)</td>
<td>29(24.58%)</td>
<td>0(0%)</td>
<td>47(10.3%)</td>
</tr>
<tr>
<td>Multiple</td>
<td>37(28.46%)</td>
<td>0(0%)</td>
<td>8(72.72%)</td>
<td>54(53.47%)</td>
<td>99(21.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

Table 4-2: Source of knowledge about vaccination of Tetanus Toxoid

<table>
<thead>
<tr>
<th>Source</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media</td>
<td>67(51.54%)</td>
<td>78(74.29%)</td>
<td>47(39.83%)</td>
<td>18(17.82%)</td>
<td>210(46.3%)</td>
</tr>
<tr>
<td>Health worker</td>
<td>2(1.54%)</td>
<td>2(1.90%)</td>
<td>12(10.17%)</td>
<td>0(0%)</td>
<td>16(3.5%)</td>
</tr>
<tr>
<td>Friends</td>
<td>2(1.54%)</td>
<td>4(3.81%)</td>
<td>2(1.69%)</td>
<td>10(9.90%)</td>
<td>18(4%)</td>
</tr>
<tr>
<td>NGO</td>
<td>0(0%)</td>
<td>1(0.95%)</td>
<td>2(1.69%)</td>
<td>0(0%)</td>
<td>3(0.7%)</td>
</tr>
<tr>
<td>Relatives</td>
<td>5(3.85%)</td>
<td>5(4.76%)</td>
<td>7(5.93%)</td>
<td>11(10.89%)</td>
<td>28(6%)</td>
</tr>
<tr>
<td>Neighbours</td>
<td>2(1.54%)</td>
<td>0(0%)</td>
<td>1(9.09%)</td>
<td>10(9.90%)</td>
<td>13(2.9%)</td>
</tr>
<tr>
<td>Colleagues</td>
<td>1(0.77%)</td>
<td>0(0%)</td>
<td>3(2.54%)</td>
<td>0(0%)</td>
<td>4(0.9%)</td>
</tr>
<tr>
<td>Others</td>
<td>20(15.38%)</td>
<td>13(12.38%)</td>
<td>22(18.64%)</td>
<td>0(0%)</td>
<td>55(12.1%)</td>
</tr>
<tr>
<td>Multiple</td>
<td>30(23.08%)</td>
<td>3(2.86%)</td>
<td>22(18.64%)</td>
<td>52(51.49%)</td>
<td>107(23.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>
Table 5-1: Vaccination coverage among the respondents of Hepatitis B

<table>
<thead>
<tr>
<th>Coverage</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccinated</td>
<td>71(54.62%)</td>
<td>67(63.81%)</td>
<td>103(0.87%)</td>
<td>91(90.10%)</td>
<td>332(73.1%)</td>
</tr>
<tr>
<td>Non vaccinated</td>
<td>59(45.38%)</td>
<td>38(36.19%)</td>
<td>15(12.71%)</td>
<td>10(9.90%)</td>
<td>122(26.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

Table 5-2: Vaccination coverage among the respondents of Tetanus

<table>
<thead>
<tr>
<th>Coverage</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male vaccinated</td>
<td>17(13.08%)</td>
<td>22(20.95%)</td>
<td>13(11.02%)</td>
<td>0(0%)</td>
<td>52(11.5%)</td>
</tr>
<tr>
<td>Non vaccinated male</td>
<td>45(34.62%)</td>
<td>25(23.81%)</td>
<td>25(21.19%)</td>
<td>39(38.61%)</td>
<td>134(29.5%)</td>
</tr>
<tr>
<td>Female vaccinated</td>
<td>47(36.15%)</td>
<td>30(28.57%)</td>
<td>67(56.78%)</td>
<td>59(58.42%)</td>
<td>203(44.7%)</td>
</tr>
<tr>
<td>Non vaccinated female</td>
<td>21(16.15%)</td>
<td>28(26.67%)</td>
<td>13(11.02%)</td>
<td>3(2.97%)</td>
<td>65(14.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

Table 6-1: Number of doses by the vaccinated doses (Hepatitis B)

<table>
<thead>
<tr>
<th>Doses</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>1(1.49%)</td>
<td>2(2.82%)</td>
<td>4(3.88%)</td>
<td>13(14.29%)</td>
<td>20(6%)</td>
</tr>
<tr>
<td>2nd</td>
<td>5(7.46%)</td>
<td>8(11.27%)</td>
<td>5(4.85%)</td>
<td>0(0%)</td>
<td>18(5.4%)</td>
</tr>
<tr>
<td>3rd</td>
<td>10(14.93%)</td>
<td>5(7.04%)</td>
<td>10(9.71%)</td>
<td>7(7.69%)</td>
<td>32(9.6%)</td>
</tr>
<tr>
<td>Booster</td>
<td>51(76.12%)</td>
<td>41(57.75%)</td>
<td>84(81.55%)</td>
<td>71(78.02%)</td>
<td>247(74.4%)</td>
</tr>
<tr>
<td>No response</td>
<td>0(0%)</td>
<td>15(21.13%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>15(4.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>67(100%)</td>
<td>71(100%)</td>
<td>103(100%)</td>
<td>91(100%)</td>
<td>332(100%)</td>
</tr>
</tbody>
</table>

Table 6-2: Number of doses by the vaccinated respondents of Tetanus Toxoid
<table>
<thead>
<tr>
<th>Doses</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; year</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; year</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; year</th>
<th>5&lt;sup&gt;th&lt;/sup&gt; year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>2(3.12%)</td>
<td>4(7.69%)</td>
<td>8(10%)</td>
<td>0(0%)</td>
<td>14(5.5%)</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>1(1.56%)</td>
<td>6(11.54%)</td>
<td>18(22.5%)</td>
<td>9(15.25%)</td>
<td>34(13.3%)</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>1(1.56%)</td>
<td>3(5.77%)</td>
<td>8(10%)</td>
<td>12(20.34%)</td>
<td>24(9.4%)</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>35(54.69%)</td>
<td>3(5.77%)</td>
<td>14(17.5%)</td>
<td>17(28.81%)</td>
<td>69(27.1%)</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>20(31.25%)</td>
<td>36(69.23%)</td>
<td>20(25%)</td>
<td>21(1.69%)</td>
<td>97(38%)</td>
</tr>
<tr>
<td>No response</td>
<td>5(7.81%)</td>
<td>0(0%)</td>
<td>12(15%)</td>
<td>0(0%)</td>
<td>17(6.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>64(100%)</td>
<td>52(100%)</td>
<td>80(100%)</td>
<td>59(100%)</td>
<td>255(100%)</td>
</tr>
</tbody>
</table>

**Table 7: Response of incomplete dose**

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost card</td>
<td>84(43.5%)</td>
</tr>
<tr>
<td>Missed schedule</td>
<td>56(29%)</td>
</tr>
<tr>
<td>Negligence</td>
<td>23(11.9%)</td>
</tr>
<tr>
<td>Ignorance</td>
<td>25(13%)</td>
</tr>
<tr>
<td>Others</td>
<td>5(2.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>193(100%)</td>
</tr>
</tbody>
</table>

**Table 8: Idea about vaccination programs at Chittagong Medical College Hospital**

<table>
<thead>
<tr>
<th>Year</th>
<th>Aware students</th>
<th>Ignorant students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>59(19.22%)</td>
<td>71(48.30%)</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>52(16.94%)</td>
<td>33(22.45%)</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>106(34.53%)</td>
<td>12(8.16%)</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>90(29.32%)</td>
<td>11(7.48%)</td>
</tr>
<tr>
<td>Total</td>
<td>307(100%)</td>
<td>147(100%)</td>
</tr>
</tbody>
</table>
Regarding the self-earning activities (Table 3), 91 out of 92 students said that they were involved in providing private tuition to support their expenses. It is found that most of the students were belonged to upper class families (58.4%). Only 2% of the students belonged to lower class families. Hepatitis B vaccine coverage among the responding students was 73.1% (Table 4-1&2) and in case of TT only 28% of the boys and about 76% of the girls vaccinated. Regarding the completion of dose of Hepatitis B (Table 5-1&2), among the 332 students under the Hepatitis B vaccination coverage 247(74.4%) had completed their dosage. Regarding the completion of dose of TT vaccine, among the 255 responding students under the tetanus toxoid vaccination coverage only 38% had completed the dosage. In case of the missed schedule (Table 7&8), 16.6% students could not complete the doses because of losing the vaccine-administration card and 29% students said that they missed the schedule and did not continue with the vaccination. Regarding the learning source, large number of students (153) learned about the vaccines from mass media and only a small portion got to know about them from NGO workers(Table 6-1&2). Evidences show that the knowledge about the dose schedule, 70-80% knew about the complete dose schedules. Regarding the vaccination site, out of 454 students, 43(14%) mentioned that Sandhani (Voluntary organization) was the only vaccination site in CMCH where as 37% mentioned about EPI center while 163(53.1%) students mentioned about both of the sites.

4. Conclusion

Hepatitis B vaccine coverage among the students of CMC was 73.1% which is not a true reflection of the countrywide coverage. As Hepatitis B vaccine was added to EPI in 1992-93 in Bangladesh so the whole of the generation of the study population was not vaccinated under the program. According to WHO, the protection at birth (PAB) against tetanus in Bangladesh is 94% and in the current study TT vaccination coverage among the female students was 75.7 %. Though it was revealed from the study that a good and satisfactory proportion of students were vaccinated but it hopes to see that 100% of the students come under the coverage of vaccination and exclude the risks of Hepatitis and Tetanus. It should like to bring forward the idea of introducing a student friendly vaccination program in medical colleges from the very first year in the near future. This program will exclude the chances of getting Hepatitis B and Tetanus infection in medical personnel. Most of the students of Chittagong Medical College interested to implement the coverage of Hepatitis B and Tetanus Toxoid vaccination among their family members as it is assumed from the study. There is a great need for a correspondent of public health consciousness to improve the health of the people about vaccination by Hepatitis B
vaccine and Tetanus Toxoid either in Bangladesh or elsewhere. Policymakers should take note of this.

References


Appendix II

Table 1: Distribution of occupation of fathers of the respondents

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>57(43.85%)</td>
<td>39(37.14%)</td>
<td>65(55.08%)</td>
<td>35(34.65%)</td>
<td>196(43.17%)</td>
</tr>
<tr>
<td>Business</td>
<td>40(30.77%)</td>
<td>22(20.95%)</td>
<td>20(16.95%)</td>
<td>22(21.78%)</td>
<td>104(22.91%)</td>
</tr>
<tr>
<td>Physician</td>
<td>6(4.62%)</td>
<td>4(3.81%)</td>
<td>6(5.08%)</td>
<td>11(10.89%)</td>
<td>27(5.95%)</td>
</tr>
<tr>
<td>Engineer</td>
<td>3(2.31%)</td>
<td>5(4.76%)</td>
<td>4(3.39%)</td>
<td>3(2.97%)</td>
<td>15(3.30%)</td>
</tr>
<tr>
<td>Teacher</td>
<td>13(10%)</td>
<td>7(6.67%)</td>
<td>2(1.69%)</td>
<td>30(29.70%)</td>
<td>52(11.45%)</td>
</tr>
<tr>
<td>Lawyer</td>
<td>4(3.08%)</td>
<td>3(2.86%)</td>
<td>1(0.85%)</td>
<td>0(0%)</td>
<td>8(1.76%)</td>
</tr>
</tbody>
</table>
Table 2: Distribution of occupation of mothers of the respondents

<table>
<thead>
<tr>
<th>Occupation</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housewife</td>
<td>88(67.69%)</td>
<td>84(60%)</td>
<td>96(81.36%)</td>
<td>61(60.40%)</td>
<td>329(72.5%)</td>
</tr>
<tr>
<td>Service</td>
<td>7(5.38%)</td>
<td>18(17.14%)</td>
<td>6(5.08%)</td>
<td>11(10.90%)</td>
<td>42(9.3%)</td>
</tr>
<tr>
<td>Physician</td>
<td>3(2.31%)</td>
<td>2(1.90%)</td>
<td>0(0%)</td>
<td>5(4.95%)</td>
<td>10(2.2%)</td>
</tr>
<tr>
<td>Musician</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(1.69%)</td>
<td>0(0%)</td>
<td>2(0.4%)</td>
</tr>
<tr>
<td>Teacher</td>
<td>19(14.62%)</td>
<td>10(9.52%)</td>
<td>11(9.32%)</td>
<td>24(23.76%)</td>
<td>64(14.1%)</td>
</tr>
<tr>
<td>Lawyer</td>
<td>0(0%)</td>
<td>1(0.95%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>1(0.2%)</td>
</tr>
<tr>
<td>Other</td>
<td>2(1.54%)</td>
<td>1(0.95%)</td>
<td>2(1.69%)</td>
<td>1(0.99%)</td>
<td>5(1.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

Table 3: Distribution of family members of the respondents

<table>
<thead>
<tr>
<th>Family Size</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>38(29.23%)</td>
<td>9(8.57%)</td>
<td>17(14.41%)</td>
<td>4(3.96%)</td>
<td>68(15%)</td>
</tr>
<tr>
<td>4-6</td>
<td>75(57.69%)</td>
<td>89(84.76%)</td>
<td>83(70.34%)</td>
<td>79(78.22%)</td>
<td>326(71.8%)</td>
</tr>
<tr>
<td>&gt;6</td>
<td>17(13.08%)</td>
<td>7(6.67%)</td>
<td>18(15.25%)</td>
<td>18(17.82%)</td>
<td>60(13.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>
Table 4-1: Awareness of vaccination of respondents of Hepatitis B

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware</td>
<td>125(96.15%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(101%)</td>
<td>449(98.9%)</td>
</tr>
<tr>
<td>Unaware</td>
<td>5(3.85%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>5(1.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

Table 4-2: Awareness of vaccination of respondents of TT

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware</td>
<td>118(90.77%)</td>
<td>105(100%)</td>
<td>116(98.31%)</td>
<td>101(100%)</td>
<td>440(96.9%)</td>
</tr>
<tr>
<td>Unaware</td>
<td>12(9.23%)</td>
<td>0(0%)</td>
<td>2(1.69%)</td>
<td>0(0%)</td>
<td>14(3.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

Table 5-1: Knowledge of respondents about prevention of hepatitis B and Tetanus

<table>
<thead>
<tr>
<th>Measures</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccination</td>
<td>84(64.62%)</td>
<td>84(80%)</td>
<td>49(41.53%)</td>
<td>14(13.86%)</td>
<td>231(50.88%)</td>
</tr>
<tr>
<td>Medication</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(1.69%)</td>
<td>0(0%)</td>
<td>2(0.44%)</td>
</tr>
<tr>
<td>Personal hygiene</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Awareness</td>
<td>0(0%)</td>
<td>7(6.67%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>7(1.54%)</td>
</tr>
<tr>
<td>Multiple</td>
<td>46(35.38%)</td>
<td>14(13.33%)</td>
<td>67(56.78%)</td>
<td>87(86.14%)</td>
<td>214(47.14%)</td>
</tr>
<tr>
<td>Total</td>
<td>130(100%)</td>
<td>105(100%)</td>
<td>118(100%)</td>
<td>101(100%)</td>
<td>454(100%)</td>
</tr>
</tbody>
</table>

Table 5-2: Knowledge of respondents about prevention of Tetanus

<table>
<thead>
<tr>
<th>Measure</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccination</td>
<td>92(70.77%)</td>
<td>93(88.57%)</td>
<td>83(70.34%)</td>
<td>20(19.80%)</td>
<td>288(63.4%)</td>
</tr>
<tr>
<td>Medication</td>
<td>0(0%)</td>
<td>1(0.95%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>1(0.2%)</td>
</tr>
</tbody>
</table>
### Table 6-1: Complications or side effect that occurred after vaccination of Hepatitis B

<table>
<thead>
<tr>
<th>Side effects</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>13(18.31%)</td>
<td>19(29.23%)</td>
<td>10(9.71%)</td>
<td>7(7.69%)</td>
<td>49(14.8%)</td>
</tr>
<tr>
<td>Fever</td>
<td>6(8.45%)</td>
<td>6(9.23%)</td>
<td>8(7.77%)</td>
<td>0(0%)</td>
<td>20(6.02%)</td>
</tr>
<tr>
<td>Rash</td>
<td>2(2.82%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(0.6%)</td>
</tr>
<tr>
<td>Others</td>
<td>20(28.17%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>20(6%)</td>
</tr>
<tr>
<td>Multiple</td>
<td>20(28.17%)</td>
<td>37(56.92%)</td>
<td>40(38.83%)</td>
<td>69(75.82%)</td>
<td>166(50%)</td>
</tr>
<tr>
<td>None</td>
<td>10(14.08%)</td>
<td>5(7.69%)</td>
<td>45(43.69%)</td>
<td>15(16.48%)</td>
<td>75(22.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>71(100%)</td>
<td>65(100%)</td>
<td>103(100%)</td>
<td>91(100%)</td>
<td>332(100%)</td>
</tr>
</tbody>
</table>

### Table 6-2: Complications or side effects that occurred after TT vaccination

<table>
<thead>
<tr>
<th>Side effects</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>15(23.44%)</td>
<td>23(44.23%)</td>
<td>27(33.75%)</td>
<td>8(13.56%)</td>
<td>73(28.6%)</td>
</tr>
<tr>
<td>Fever</td>
<td>12(18.75%)</td>
<td>3(5.77%)</td>
<td>8(10%)</td>
<td>0(0%)</td>
<td>23(9.1%)</td>
</tr>
<tr>
<td>Rash</td>
<td>4(6.25%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>4(1.6%)</td>
</tr>
<tr>
<td>Others</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Multiple</td>
<td>27(42.19%)</td>
<td>23(44.23%)</td>
<td>15(18.75%)</td>
<td>18(30.53%)</td>
<td>83(32.5%)</td>
</tr>
<tr>
<td>None</td>
<td>6(9.34%)</td>
<td>3(5.77%)</td>
<td>30(37.5%)</td>
<td>33(55.93%)</td>
<td>72(28.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>64(100%)</td>
<td>52(100%)</td>
<td>80(100%)</td>
<td>59(100%)</td>
<td>255(100%)</td>
</tr>
</tbody>
</table>