A comparative study on awareness about non-communicable diseases and their risk factors among government and private high school students of Davangere city

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Received February 19, 2016. Accepted March 10, 2016

Background: The burden of non-communicable diseases (NCDs) is emerging as a major public health challenge for developing countries. According to WHO report, NCDs, especially cardiovascular diseases (CVDs), cancer (Ca), and diabetes mellitus (DM) account for 53% of all deaths in India. As highlighted in the WHO report 2002, just a few NCD risk factors account for the majority of NCD burden.

Objectives: (1) To assess the awareness regarding the NCDs and their risk factors among high school students. (2) To compare the awareness about NCDs and their risk factors among students of government and private high school.

Materials and Methods: Cross-sectional study from July 1 to August 31, 2010 (2 months). Total 524 students of 8th, 9th, and 10th standard (226 students from government high school and 298 students from private high school) were included in the study. Pre-structured and pre-tested Questionnaire was used to collect data regarding awareness about common NCDs (DM, CVD, and Ca) and their risk factors among high school students.

Results: Total students interviewed were 524. From government school there were 226 (43.1%) students and from private school 298 (56.9%) students. Out of 406 school children who were aware about DM, 290 were from private school and 116 were from government school. Out of 478 school children who were aware about CVD, 294 were from private school and 184 from government school. Out of 438 school children who were aware about Ca, 282 were from private school and 156 were from government school. Awareness about DM, CVD, and Ca was low among government school children than private school children, which was statistically significant. Awareness about risk factors of NCDs was poor in government school children than private school children.

Conclusion: Awareness about NCDs and their risk factors was very low in high school students. As compared to private high school students, government students were having poor knowledge about NCDs and their risk factors.

KEY WORDS: Non-communicable diseases, diabetes mellitus, cardiovascular diseases, high school children

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Introduction

Worldwide current health scenario is facing the major public health challenges of non-communicable diseases (NCDs). The burden of NCDs is emerging as a major public health challenge for developing countries.[1] India stands in the midst of transition from the burden of communicable diseases to the burden of NCDs. According to WHO report, NCDs, specially cardiovascular diseases (CVD), cancer (Ca), and diabetes mellitus (DM) account for 53% of all deaths in India.[2] As highlighted in the WHO report 2002, just a few NCD risk factors account for the majority of NCD burden.[3,4] DM has now become a major health problem in India with an estimated 40 million people having diabetes in 2007.[5] An estimated 9.2 million reproductive years of life were lost in India due to CVD in 2000 with an expected increase of 17.9 million years in 2030.[6] According to WHO Report 2002, CVD will be the largest...
cause of death and disability in India by 2020.\(^7\) The number of Ca patients are also increasing in India.\(^8\) Awareness about NCDs and their risk factors among the general public is low.\(^9\) To reduce the burden of NCDs among general population, we need to prevent all these risk factor by providing knowledge regarding risk factors. Awareness about NCDs and their risk factors among high school students will help to prevent NCDs at primordial level only. High school children are selected because they are at receptive age and are influential in determining the health of next generation. By keeping this in mind, this study was conducted to know the awareness about NCDs and their risk factors among high school students.

**Objectives**
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2. To compare the awareness about NCDs and their risk factors among students of government and private high school.

**Materials and Methods**

**Methodology**

This cross-sectional study was conducted in private and government High schools of Davangere city. The study was conducted for 2 months in 2010 (July 1 to August 31) Total 524 students of 8th, 9th, and 10th standard were included for the study. Of the 524 students, 226 students were from govs and 298 students from private high school.

**Sampling Procedure**

High schools of Davangere city were divided into government and private group. Ten percent of the sample was randomly selected from each group of high schools and 10% students were selected from 8th, 9th, and 10th standards. According to the size of the population, students were selected proportionately by systematic sampling. After obtaining the permission from the school authorities, purpose of the study was explained to the students. Pre-structured and pre-tested questionnaire was used to collect data regarding awareness about common NCDs (DM, CVD, and Ca) and their risk factors among high school students.

**Inclusion Criteria**
1. Those students who were present on the study day.
2. Those who were willing to participate in the study.

**Exclusion Criteria**
1. Those students who were absent on the study day.
2. Those who were not willing to participate in the study.

**Statistical Tests**

Proportion, Chi-square test.

**Results**

Total number of students interviewed were 524. From government school 226 students were selected (43.1%) and from private school 298 (56.9%) (Table 1). Out of the 524 students, 406 (77.5%) knew about DM, 478 (91.2%) knew about CVD, and 438 (83.6%) knew about Ca (Table 2).

Out of the 406 school children who were aware about DM, 290 were from private school and 116 were from government school. Out of the 478 school children who were aware about CVD, 294 were from private school and 184 from government school. Out of the 438 school children who were aware about Ca, 282 were from private school and 156 were from government school. Awareness about DM, CVD, and Ca was low among government school children than private school children, which was statically significant (Table 3).

Awareness about risk factors of DM was low among government school children as compared to private school children, which was statistically significant (Table 4).

Awareness about CVD risk factors such as alcohol consumption, obesity, and high blood pressure was low among government school children as compared to private school children, which was statistically significant (Table 5).

**Table 1:** Number of students in the study

<table>
<thead>
<tr>
<th>Type of school</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Govt. school</td>
<td>226</td>
<td>43.1</td>
</tr>
<tr>
<td>Private school</td>
<td>298</td>
<td>56.9</td>
</tr>
<tr>
<td>Total</td>
<td>524</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table 2:** Awareness about DM, CVDs, and Ca among students

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
<td>406 (77.5%)</td>
<td>118 (22.5%)</td>
</tr>
<tr>
<td>CVD</td>
<td>478 (91.2%)</td>
<td>46 (8.8%)</td>
</tr>
<tr>
<td>CANCER</td>
<td>438 (83.6%)</td>
<td>86 (16.4%)</td>
</tr>
</tbody>
</table>

Chart 1: Awareness about DM, CVD, and Ca among government and private high school students.
Awareness about Ca risk factors such as smoking and alcohol consumption among government school children was low as compared to private school children, which was statistically significant (Table 6).

Majority of private school children knew that NCDs can be prevented and more preference was for DM followed by Ca and CVD (Table 7).

Response from government school children about the prevention of NCDs was low. Only 60% students knew that DM can be prevented.

**Discussion**

This study was conducted among government and private high school students to know the awareness about NCDs and their risk factors. We compared the awareness among high school students of government and private school, which showed that private high school students were having good knowledge about NCDs and their risk factors. Awareness about prevention of NCDs and their risk factors was more among private high school children. In our study, awareness about risk factors for DM, CVDs, and Ca among school-going students was low which was similar to the results of the study conducted in 375 government school children in Kerala in 2010 by Divakaran. Another study conducted in Pune, Maharashtra, among 9th–12th class students showed the awareness about NCD risk factors was very low. Study conducted by Yadav in Kathmandu districts showed that knowledge about CVD risk factors was low (36.8%) among high school–going children. Awareness about diabetes and hypertension was very low in the study conducted by S Shivalli in Varanasi. Study conducted in Delhi showed that the knowledge of the school children regarding cardiovascular risk factors was assessed and it was found that 15.3% of the
school children (3.2% in the government school vs. 27.2% in the private school) these results are similar to our study.[11]

In this study, 70% school children responded that CVD and other NCDs are preventable. Study conducted in Pune showed that only 42.6% students knew that CVD is preventable.[9] study conducted in Michigan High schools, USA, showed that CVDs are the greatest lifetime risk factor for death.[11]

Recommendations
It recommends the need for health education about NCDs and their risk factors among high school students. Health education is needed for children as knowledge regarding risk factors of CVDs, DM, and Ca including other NCDs and their prevention. The parents as well as the school teachers should be involved in these educational activities. High school teachers should be oriented about NCDs and their risk factors so that they can educate to the students.

Limitations
The study was limited to the schools of Davangere. Similar studies should be conducted in different geographical areas with a larger sample size to generalize the findings. Other cardiovascular risk factors, such as stress, waist circumference, and smoking, were not included in the study. The results may be influenced by social desirability.

Conclusions
This study concludes that the level of awareness about NCDs among government high school students was low as compared to private high school students. Awareness about risk factors of NCDs was low in government as compared to private high school students. Awareness about prevention of NCDs was low among both government and private students.

References

How to cite this article: Mane KS, Maganalli A, Nawaz AS. A comparative study on awareness about non-communicable diseases and their risk factors among government and private high school students of Davangere city. Int J Med Sci Public Health 2016;5 : 2026-2029

Source of Support: Nil, Conflict of Interest: None declared.