

AWARENESS OF TUBERCULOSIS AMONG HIGH SCHOOL STUDENTS OF A TOWN IN COASTAL ANDHRA PRADESH

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ABSTRACT

BACKGROUND

Tuberculosis is an age old disease which has remained as a major global public health problem with socioeconomic implications in developing countries. The interaction with HIV/AIDS and emergence of drug-resistant strains of tuberculosis bacilli has worsened the situation. India has a high burden of tuberculosis in terms of incidence, prevalence and mortality. RNTCP in India follows a passive case detection method for case finding in chest symptomatics. This makes it essential for the community at large and the younger generation in particular to have adequate knowledge and awareness regarding tuberculosis since it is highly infectious. High school children can be effectively sensitised and motivated to be change agents in the community and play a key role in combating tuberculosis.

AIM

To assess the awareness levels of 8th to 10th grade school students in Amalapuram, a town in coastal area of Andhra Pradesh regarding tuberculosis.

MATERIAL AND METHODS

After the study protocol was cleared by the Institutional Ethics Committee of Konaseema Institute of Medical Sciences and Research Foundation, Amalapuram, permission was sought from the authorities of five private schools and one government school in Amalapuram to carry out this study among the 8th to 10th grade students of these schools. A predesigned, pretested semi-structured questionnaire was used to capture information related to basic demographic details of the participants followed by questions related tuberculosis to assess their awareness. A cross-sectional survey was carried out and once the filled-in questionnaires were collected, an interactive session was held where various aspects of tuberculosis were elaborately explained, the answers to the questions were told in detail and doubts of the students were clarified.

STATISTICAL ANALYSIS

The data collected was entered into a template created in computer using Microsoft Excel 2007. EPI INFO 6 software was used for statistical analysis. Chi Square test was done wherever applicable.

RESULTS AND CONCLUSIONS

Total 581 out of 728 students (79.81%) participated consisting of 267 females and 314 males. The awareness levels of the study group are suboptimal for various aspects of tuberculosis such as epidemiology, symptoms, diagnostic tests, treatment as well as vaccine preventable nature of the disease. The knowledge gap has to be bridged through effective health education and communication to the community in general and the high school students in particular who can play a key role in combating tuberculosis.

KEYWORDS

Tuberculosis, Awareness, Knowledge, High school students.

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INTRODUCTION: Tuberculosis is an age old disease which has remained as a major global public health problem with socioeconomic implications in developing countries. The problem has compounded with the advent of HIV/AIDS. The emergence of drug-resistant strains of the tuberculosis

bacillus has worsened the situation. One-fourth of the global incident tuberculosis cases occur in India annually. As per WHO estimates the incidence and prevalence of tuberculosis in India is 171 and 211 per lakh persons respectively and mortality is 19 per lakh persons in 2013.¹ WHO's Stop TB strategy also emphasises on education and empowerment of communities. RNTCP in India follows a passive case detection method for case finding in chest symptomatics. This makes it essential for the community at large and the younger generation in particular to have adequate knowledge and awareness regarding tuberculosis since it is highly infectious.

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High school children are in an impressionable age group and they can be effectively sensitised and motivated to be flag bearers in the fight against tuberculosis which is essentially a social disease and needs effective community participation in tackling it. In one controlled study done in Western India, it was seen that education of school children is a significant method of disseminating health information to parents who are illiterate and not reached by conventional methods of health education.² Hence a study was planned to assess the awareness levels of 8th to 10th grade school students in Amalapuram, a town in coastal area of Andhra Pradesh regarding tuberculosis.

MATERIAL AND METHODS: The protocol for carrying out the study was designed and submitted for clearance of the Institutional Ethics Committee of Konaseema Institute of Medical Sciences and Research Foundation, Amalapuram. Once the clearance was given and protocol was approved, the authorities of five private schools and one government school in Amalapuram were contacted and their permission was sought in carrying out this study among the 8th to 10th grade students in those schools.

The study was planned to be carried out on all the students of 8th grade to 10th grade enrolled in these schools. A cross-sectional opportunity-type survey was carried out on all the students who attended the school on the day of survey. The students were told about the importance of the study, purpose of our visit, our proposed activity and asked to participate. No attempt was made to contact the students who were absent on the day of the survey. A predesigned, pretested semi-structured questionnaire was used to collect the information from the students. The questionnaires were distributed to the students and each item in the questionnaire was explained both in Telugu and English. The students were asked to answer in the appropriate space provided in the questionnaire. Sufficient time was given to answer the questions and the filled-in questionnaires were collected.

This was followed by an interactive session where important aspects of tuberculosis were discussed in detail, doubts of the students related to tuberculosis were clarified and answers to each of the questions were explained elaborately. Further, towards the end of the session, some questions related to tuberculosis were asked orally to ensure that the students have understood whatever has been explained to them.

The information provided by the students in the questionnaires was entered in template created in a computer using Microsoft Excel 2007 and rechecked twice by independent persons for any errors. EPI INFO 6 software was used for data analysis and appropriate statistical tests were done. Chi Square test was done to look for any statistical difference between the sub groups. A p-value of less than 0.05 was considered statistically significant.

RESULTS: There were a total of 728 students studying in 8th to 10th grade in the schools where the study was planned to be carried out. Out of these, 581 participated in the study.

Thus, the participation rate was 79.81 percent. Out of these 581 participants, 267 (45.9%) were females and 314 (54.1%) were males. The mean age of the females was 14.92 years and that of males was 14.98 years.

ITEM	Number of study subjects who gave correct answer (N=581)	Percentage
Is tuberculosis a communicable disease	391	67.3%
What is the commonest part of body involved in tuberculosis	450	77.45%
What is the causative organism for tuberculosis	223	38.38%
What is the mode of transmission of tuberculosis	457	78.66%
Sputum test is the diagnostic test of choice for tuberculosis	148	25.47%
Is there any treatment for tuberculosis	449	77.28%
Mention symptoms of tuberculosis	327	56.28%
Any friend/relative/acquaintance had/has tuberculosis	121	20.83%
Is tuberculosis a major public health problem	374	64.37%
What is DOTS	21	3.62%
Is tuberculosis a vaccine preventable disease	201	34.6%
Table 1: Awareness of tuberculosis in the study group		

Awareness regarding various aspects of tuberculosis was suboptimal in the study group. Most worrisome is the finding that only 56 percent were aware that cough is the symptom of tuberculosis. About 65 percent believed tuberculosis to be a major public health problem and only 67 percent knew that tuberculosis is a communicable disease. Only 38 percent knew that tuberculosis is caused by bacteria, 78 percent knew that lung was the commonest part of the body and 79 percent mentioned correctly about mode of transmission. Only 26 percent of subjects knew that sputum test is the diagnostic test of choice and 77 percent of the study subjects knew that tuberculosis is treatable. About 21 percent reported that their friend/relative/acquaintance had/has tuberculosis. Less than 4 percent of the study group had idea about DOTS. Only 34.6 percent of subjects knew that tuberculosis is a vaccine preventable disease.

Item	Males (n=314) who gave correct answer	Females (n=267) who gave correct answer	P- value
Is tuberculosis a communicable disease	202 (64.33%)	189 (70.79%)	0.98
What is the commonest part of body involved in tuberculosis	250 (79.62%)	200 (74.91%)	0.18
What is the causative organism for tuberculosis	117 (37.26%)	106 (39.7%)	0.55
What is the mode of transmission of tuberculosis	251 (79.94%)	206 (77.15%)	0.42
Sputum test is the diagnostic test of choice for tuberculosis	86 (58.1%)	62 (23.22%)	0.25
Is there any treatment for tuberculosis	258 (82.17%)	191 (71.54%)	0.002
Mention symptoms of tuberculosis	158 (50.32%)	169 (63.3%)	0.002
Is tuberculosis a major public health problem	194 (61.78%)	180 (67.42%)	0.16
What is DOTS	18 (5.73%)	3 (1.12%)	0.006
Is tuberculosis a vaccine preventable disease	118 (37.58%)	83 (31.09%)	0.10
Table 2: Awareness of tuberculosis in the study group stratified by gender			

A significantly higher proportion of male subjects were aware that tuberculosis is treatable ($p < 0.05$) and knew about DOTS ($p < 0.05$). A significantly higher proportion of female subjects were aware of symptoms of tuberculosis ($p < 0.05$). A higher proportion of males were aware that lungs were the commonest part of the body involved in tuberculosis, had correct knowledge on mode of transmission of tuberculosis, were aware that sputum test is the diagnostic test of choice and knew that tuberculosis is a vaccine preventable disease though the difference was not statistically significant for these parameters. A higher proportion of female subjects were aware that tuberculosis is a communicable disease, knew that tuberculosis is caused by bacteria and believed that tuberculosis is a major public health problem though the difference is not statistically significant for these parameters.

ITEM	Subjects from Government schools (n = 120) who gave correct answer	Subjects from private schools (n = 461) who gave correct answer	P-value
Is tuberculosis a communicable disease	105(87.5%)	286(62.04%)	0.00
What is the commonest part of body involved in tuberculosis	55(45.83%)	395(85.68%)	0.00
What is the causative organism for tuberculosis	55(45.83%)	168(36.44%)	0.06
What is the mode of transmission of tuberculosis	78(65%)	379(82.21%)	0.00
Sputum test is the diagnostic test of choice for tuberculosis	32(26.67%)	116(25.16%)	0.74
Is there any treatment for tuberculosis	100(83.33%)	349(75.71%)	0.08
Mention symptoms of tuberculosis	53(44.17%)	274(59.44%)	0.00
Is tuberculosis a major public health problem	79(65.83%)	295(63.99%)	0.71
What is DOTS	2(1.67%)	19(4.12%)	0.31
Is tuberculosis a vaccine preventable disease	79(65.83%)	122(26.46%)	0.00
Table 3: Awareness of tuberculosis according to the type of school			

A significantly higher proportion of study subjects from government school were aware that tuberculosis is a communicable disease ($p < 0.05$) and that tuberculosis is a vaccine preventable disease ($p < 0.05$). However, a significantly higher proportion of study subjects from private

schools knew that lungs are the commonest part of the body involved in tuberculosis ($p<0.05$), knew about the mode of transmission of tuberculosis ($p<0.05$) and were aware of symptoms of tuberculosis ($p<0.05$). A higher proportion of students from government school were aware that tuberculosis is caused by bacteria, knew that sputum test is the diagnostic test of choice, knew that tuberculosis is treatable and also believed that tuberculosis is a major public health problem though the difference was not statistically significant for these parameters. A higher proportion of students from private schools were aware of DOTS, though this difference was not statistically significant.

Item	Subjects who believed that tuberculosis is a major public health problem (n=374) and gave correct answer	Subjects who believed that tuberculosis is not a major public health problem or had no idea about this (n=207) but gave correct answer	P-value
Is tuberculosis a communicable disease	261(69.78%)	130(62.8%)	0.09
What is the commonest part of body involved in tuberculosis	288(77.01%)	162(78.26%)	0.1
What is the causative organism for tuberculosis	153(40.91%)	70(33.82%)	0.73
What is the mode of transmission of tuberculosis	290(77.54%)	167(80.68%)	0.38
Sputum test is the diagnostic test of choice for tuberculosis	99(26.47%)	49(23.67%)	0.46
Is there any treatment for tuberculosis	288(77.01%)	161(77.78%)	0.83
Mention symptoms of tuberculosis	225(60.16%)	102(49.28%)	0.01
What is DOTS	16(4.28%)	5(2.42%)	0.25
Is tuberculosis a vaccine preventable disease	132(35.29%)	69(33.33%)	0.63
Table 4: Awareness of tuberculosis according to belief of tuberculosis as public health problem			

A significantly higher proportion of subjects who believed that tuberculosis is a major public health problem were aware of the symptoms of tuberculosis ($p<0.05$). A higher proportion of subjects who believed tuberculosis to be a major public health problem knew that tuberculosis is a communicable disease, were aware of bacteria as a causative organism for tuberculosis, knew that sputum test is the diagnostic test of choice, were aware of DOTS and also knew that tuberculosis is a vaccine preventable disease though this difference was not statistically significant. A higher proportion of subjects who believed tuberculosis was not a major public health problem were aware that lungs are the commonest part of the body involved in tuberculosis, knew about the mode of transmission of tuberculosis and also knew that tuberculosis is treatable, though the difference was not statistically significant for these parameters.

DISCUSSION: In the present study, 67.3 percent of study subjects knew that tuberculosis is a communicable disease and spreads from person to person. This is lower than the observations of the studies carried out among high school students of Mysore³ and Vellore⁴ where 85.3 percent and 85.2 percent of subjects respectively knew that tuberculosis spreads from person to person. In the present study, only 38.38 percent of study subjects were aware that tuberculosis is caused by bacteria which is less than what is reported in the studies from Mysore,³ Vellore⁴ and Pune City⁵ (80.6 percent, 77.1 percent and 48.88 percent of subjects respectively). In the present study 77.45 percent of the study subjects knew that the commonest part of the body involved in tuberculosis is lung. This is similar to the observation reported in the study from Vellore⁴ though study from Mysore³ reported better results. In the present study, 78.66 percent of the study subjects had correct knowledge regarding the mode of transmission of tuberculosis. This is higher than the observation reported in the study from Pune⁵ (57.77 percent) but less than what has been reported in the study conducted at Dharwad⁶ (89.5 percent). In the present study only 56.28 percent of study subjects mentioned symptoms (at least chronic cough) of tuberculosis correctly. Studies from Mysore,³ Vellore,⁴ Pune,⁵ Dharwad,⁶ Haryana⁷ reported much better results. Study from Zambia also reported better results.⁸ In the present study, only 25.47 percent of study subjects knew that sputum test is the diagnostic test of choice for tuberculosis. This is similar to the findings of the study conducted at Pune.⁵ However, studies from Mysore,³ Vellore⁴ and Dharwad⁶ have reported better results (72.1 percent, 52.1 percent and 33.85 percent respectively). In the present study, 77.28 percent of subjects knew that tuberculosis can be treated. The findings are better than those reported at Vellore⁴ and Dharwad,⁶ but less than that reported at Pune⁵ and Mysore.³ In the present study, only 3.62 percent of subjects knew the meaning of DOTS. The studies at Mysore,³ Vellore⁴ and Pune⁵ have reported much better results (33.3 percent, 27.3 percent and 20 percent respectively). In the present study, only 34.6 percent of subjects knew that tuberculosis is a vaccine

preventable disease. The studies at Mysore,³ Vellore,⁴ Pune⁵ and Dharwad⁶ have reported better results.

The results suggest that awareness of the study subjects in the present study is less than that of high school students at Mysore, Vellore, Pune, Dharwad and Haryana for most of the parameters.

CONCLUSIONS: The present study reveals that students of 8th to 10th grade from this part of Andhra Pradesh have suboptimal knowledge regarding symptoms and other fundamental aspects of tuberculosis. This should trigger the health authorities, particularly those involved in health education, to address this as a priority issue. The low levels of knowledge is seen for various aspects such as epidemiology, symptoms, diagnostic tests, treatment as well as availability of vaccine for prevention of tuberculosis. In the absence of active surveillance for case detection in the community under the current programme to combat tuberculosis in India – the RNTCP – it is important for the communities to have optimal awareness regarding the disease. Effective health education and communication at community level would empower the communities to prevent tuberculosis, get diagnosed and treated at the earliest (if required) and prevent spreading the disease to others. High school children can act as change agents if they are effectively educated about tuberculosis and can be the flag bearers in the fight against tuberculosis.

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