RESEARCH ARTICLE

AWARENESS REGARDING TUBERCULOSIS AMONG ADOLESCENTS OF URBAN SLUMS

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ABSTRACT
Background: Tuberculosis (TB) has become a major public health problem affecting young adults leading to morbidity and mortality, despite TB control program being there for more than 30 years.
Aims & Objectives: To assess the level of awareness among adolescents of urban slum population towards TB.
Materials and Methods: This was a community based cross sectional study, conducted in the urban slums attached to a tertiary care hospital. The study was conducted among adolescents in age group of 13-19 years for three months in the urban slums using pre-designed and pre-tested format.
Results: Knowledge regarding TB among 325 adolescents was assessed. Out of which 89.53% were aware that TB is transmitted by coughing. 86.77% of them opined that smokers are at maximum risk of developing the disease and 69.85% told that cough will be the commonest symptom. 77.46% opined that TB can be prevented by following coughing etiquettes. 89.23% of them opined that they will take the patient to allopathic doctor and will receive treatment from government hospitals. However, majority of them also told that TB patient should be isolated, which is not recommended now-a-days.
Conclusion: Knowledge about acquiring and transmitting TB was found to be adequate but it was accompanied with some misconceptions. It was thus found imperative to dispel the myths and wrong notions about TB from minds and replace it with correct knowledge. To achieve this, there is a need to educate the adolescents, family members and community as a whole.
Key Words: Adolescent; Awareness; Healthcare; Slums; Tuberculosis

Introduction

Tuberculosis (TB) remains a major global public health problem and is second to human immunodeficiency virus (HIV) as the leading cause of death due to a single infectious agent in the world[1] and loss of healthy life years in the productive age group.[2,3] In low and middle-income countries (LMICs), TB stands third among the leading cause of adult mortality after HIV and ischaemic heart disease.[4]

According to global TB report 2013, there were 8.6 million new TB cases in 2012 and 1.3 million TB deaths (1.0 million among HIV-negative people and 0.3 million HIV-associated TB deaths). Most of these TB cases and deaths occur among men, but the burden of disease among women is also high. In 2012, there were estimated 2.9 million cases and 410, 000 TB deaths among women, as well as estimated 530,000 cases and 74,000 deaths among children. The number of TB deaths is unacceptably large and most of them are preventable, if people can get access to health care at the right time for diagnosis and treatment, as short-course regimens of first-line drugs that can cure around 90% of cases have been available for decades.[5,6]

India is the highest TB burden country in the world and accounts for nearly one fifth (20%) of global burden of tuberculosis. Every year, approximately 1.8 million persons develop TB, of which, about 800,000 are infectious and around 370,000 cases die of TB annually - 1000 every day. Today, two deaths occur every three minutes from tuberculosis[7] and nearly 3 lakh school children give up study because of TB per year. The greatest burden of tuberculosis incidence and mortality in India is in adults aged 15-16 years and higher prevalence seen in persons aged 60 years and above, while lowest in childhood. Thus TB stands as a barrier to socioeconomic development.[8]

Despite the discovery of the causative organism more than 100 years ago and availability of highly effective drugs and vaccines to prevent and cure the disease being present, tuberculosis is a widespread public health problem.[9] Tuberculosis control program has been in vogue for more than 30 years but, it has not made a measurable impact on the disease situation. It has been reported that a majority of chest symptomatic in cities, first approach the private sector for relief and even in rural areas 1/3rd of the diagnosed cases have approached the private treating agencies. Patient's adherence to the treatment depends on many psychological and sociological factors including age, education level and

patient's own idea about the disease.[2]

In India, a passive case detection method is followed under the Revised National Tuberculosis Control Program (RNTCP) for TB case-finding. This may be the reason for the delayed presentation of TB patients at healthcare facilities, where diagnostic facilities for TB are available. Therefore, TB control programs have recognized the importance of providing information, education and communication (IEC) to improve the knowledge about TB and to influence change in healthcare seeking behavior among both TB patients and the general public. A sound understanding about symptoms and misconceptions about TB transmission in the general population is important to formulate messages for health education. In India, though an integral component of RNTCP, IEC activities were minimal and sporadic until 2001. Since 2001, a sustained intensified IEC campaign is being done and a STOP-TB initiative has adopted the strategy of advocacy, communication, social mobilization to support country TB control programs[4] and to create awareness. World Tuberculosis Day is observed on 24 march of every year, and is designed to build the public awareness about TB as an epidemic.[8]

Community awareness in general and young generation in particular is of vital importance in combating tuberculosis [10] and awareness about the disease, its diagnosis and treatment among public will help in controlling the killer disease.[11] Therefore, to have clear understanding of factors contributing to the development of tuberculosis is necessary. Thus, the present study was undertaken to evaluate the extent of awareness among adolescents living in urban slums towards tuberculosis.

Materials and Methods

A community based cross-sectional study was conducted among adolescents in the age group of 13-19 years living in urban slums, as they are most exposed group of population, present in overcrowded places, and have more chances of getting exposed to such infectious diseases.

Pre-Study Survey

Prior to the study, a pilot study was conducted involving 30 adolescents in 13-19 years age group over a period of one month (June 2013) to assess the feasibility of pre designed format. The tested format was then utilized in the present study after satisfactory reformations were made in it.

Present Study

After the pre-study survey, present study was conducted for a period of three months – from July 2013 to September 2013. House-to-house survey was done by using convenient and systematic random sampling (every 5th house considered). Data was collected by interviewing adolescents in the age group of 13-19 years (only one adolescent was selected from each house - considered to be as representative of the family), by using the tested format, after signing a written consent form on voluntary basis, along with the consent of the parents, and confidentiality was assured before the data collection was initiated.

Relevant information was recorded in the pre-designed and pre-tested format, covering knowledge regarding modes of transmission, environmental factors, and availability of health care facilities was noted. At the end of the interview, health education was delivered by providing important information related to tuberculosis. Descriptive statistics was applied and data was analyzed by using simple proportions and percentages.

Results

A total of 325 adolescents (13-19 years) in the study area were interviewed. In this study group, most of the adolescents (157, 48.31%) acquired knowledge about TB through television programs and 32 (9.85%) from daily newspaper articles. It was also observed that 119 (36.62%) adolescents obtained information about TB during their school and college hours – may be because of awareness and health education programs imparted in the school by their teachers and health care providers. Regarding modes of transmission, 291 (89.53%) adolescents opined that it is transmitted by coughing/ sneezing, followed by 51 (15.69%) opining that it spreads by talking and sharing clothes, and 21 (6.46%) telling that sharing of utensils will also spread the disease. Overall adolescents had heard more about the disease but lacked the knowledge regarding the modes of transmission with some misconceptions regarding the disease. The details regarding various information concerning TB, have been highlighted in table 1.

When enquired about the people who are at risk, 282 (86.77%) adolescents told that smokers are at the maximum risk of getting the disease, while 42 (12.92%) told that people suffering with respiratory illness are

Table-1: Knowledge regarding information on tuberculosis*

Characteristics (n=325)		N (%)
Sources of Information	TV/radio	157 (48.31)
	Newspaper	32 (9.85)
	Academic	119 (36.62)
	Pamphlets	45 (13.85)
	Family/friends	92 (28.31)
Affected Age-Group (Years)	0-5	83 (25.54)
	5-15	47 (14.46)
	15-45	191 (58.77)
	45-60	79(24.31)
	>60	114(35.08)
Information Regarding Modes of Transmission	Coughing/Sneezing	291 (89.53)
	Sharing of utensils	21 (6.46)
	Eating together	12 (3.69)
	Others (talking, sharing of clothes)	51 (15.69)

** Multiple answers*

Table-2: Knowledge regarding information on tuberculosis*

Information (n=325)		N (%)
Risk Group	Healthy people	48 (14.77)
	Smokers	282 (86.77)
	Pregnant women	2 (0.62)
	Respiratory illness	42 (12.92)
	Others (alcoholics, drug addicts)	6 (1.85)
	Don't know	37 (11.38)
Symptoms	Cough	227 (69.85)
	Fever	32 (9.85)
	Chest pain	38 (11.69)
	Hemoptysis	133 (40.92)
	Loss of weight	43 (13.23)
	Others (loss of appetite, body ache)	22 (6.77)
Lab Diagnosis	Blood examination	217 (66.77)
	Sputum examination	110 (33.85)
	Stool examination	8 (2.46)
	Urine examination	19 (5.85)
	Radiological examination	16 (4.92)

** Multiple answers*

Table-3: Knowledge of environmental factors & tuberculosis

Knowledge (n=325)		N (%)
Yes*	Overcrowding	118 (70.66)
	Poor sanitation	56 (33.53)
	Improper disposal of wastes	23 (13.77)
	Others (breeding of mosquitoes, pollution)	21 (12.57)
	Total	167 (51.38)
No		67 (20.62)
Don't know		91 (28.00)

** Multiple answers*

Table-4: Knowledge regarding prevention on tuberculosis

Knowledge (n=325)		N (%)
Yes*	Coughing etiquettes	134 (77.46)
	Vaccines	116 (67.05)
	Prophylactic drugs	26 (15.03)
	Personal hygiene	143 (82.65)
	Avoid overcrowding	109 (63.01)
	Total*	173 (53.23)
No		23 (7.08)
Don't know		129 (39.69)

** Multiple answers*

also at risk. When asked about the symptoms, 227 (69.85%) were aware of cough as major symptom, followed by 133 (40.92%) mentioning hemoptysis, while only 32 (9.85%) adolescents told that patient will develop fever during the infection. When enquired about the diagnosis, only 110 (33.85%) adolescents knew that the disease can be diagnosed by sputum examination, and 16 (4.92%) mentioned radiological examination, which was followed by some misconceptions that it can be also diagnosed by urine and stool examination. Knowledge regarding people at risk, symptoms and diagnosis regarding TB has been discussed in table 2.

Table-5: Knowledge regarding health care aspects on tuberculosis

Knowledge regarding health care (n=325)		N (%)
Curability	Yes	201 (61.85)
	No	45 (13.84)
	Don't know	79 (24.31)
Health care providers	Allopathic	290 (89.23)
	Homeopathic	9 (2.77)
	Ayurvedic	12 (3.69)
	Stay at home	14 (4.31)
Treatment availability centres	Medical colleges	6 (1.84)
	District/Govt/PHC hospitals	301 (92.62)
	Private hospitals	3 (0.92)
	Don't know	15 (4.62)
Opinion towards TB patients*	Should stay at indoors	178 (54.77)
	Should be allowed to go out	141 (43.38)
	Dietary restrictions	32 (9.85)
	Others (should not marry and even breastfeed)	35 (10.77)

** Multiple answers*

Among 325 adolescents, 167 (51.38%) told that environmental factors also play a major role in spreading the disease. Of which, 118 (70.66%) opined that overcrowding is the major cause of spread of disease, 56 (33.53%) mentioned poor sanitation, and 23 (13.77%) told that improper disposal of wastes also favors the spread of disease. Knowledge regarding environmental factors are explained in table 3.

Among 325 adolescents, 173 (53.23%) opined that TB can be prevented, of which maximum adolescents (143, 82.65%) opined that it can be prevented by maintaining personal hygiene, 134 (77.46%) mentioned coughing etiquettes, and 116 (67.05%) told that it can prevented by taking vaccine. Knowledge regarding prevention towards TB has been discussed in table 4.

When questioned about their knowledge regarding curability, 201 (61.85%) adolescents told that it can be cured. If any of his family members acquires the disease, 290 (89.23%) adolescents told they will consult allopathic doctor, and 301 (92.62%) told that they would prefer going to government hospitals.

When questioned about opinion towards TB patients, 178 (54.77%) of the adolescents were of the opinion that a person infected with TB should stay indoors and 32 (9.85%) opined that they should be put on with dietary restrictions, while 141 (43.38%) of the adolescents told that they should be allowed to go out. Knowledge

regarding health care aspects on TB has discussed in table 5.

Discussion

The tuberculosis transmission in India still remains widespread and possesses the potential of leading to a major public health problem. The present study was to increase the basic knowledge about the spread of disease, symptoms, modes of prevention, diagnosis and availability of healthcare facilities at various hospitals.

In our study, 48.31% adolescents told that television was the most common source of information in creating awareness towards tuberculosis, which is more compared to study done in South Chennai by Parameaswari PJ[12], where only 29.5% of study participants were aware of TB through mass media, which may be due to presence of TV in every house of our study group, which has become basic necessity of daily life. When modes of transmission were assessed, we noted that 89.53% of the participants thought that TB is transmitted during coughing/sneezing, which is similar to the study done in Mysore city by Renuka M.[10]

When knowledge about people who are at risk was enquired, most of them (86.77%) told that smokers are more prone for infection, which is similar to a study done by Parameaswari PJ[12], where the awareness level about people at risk by smoking was found to be 87.2% and more compared to a study done in Vellore by Gopichandran V[13], where only 39.1% were aware that smokers are more prone to TB. When symptoms were assessed, 69.85% gave priority to cough as major symptom, which is less compared to 78.3% and 80.4% in a study done by Renuka M[10] and Gopichandran V.[13]

Awareness of sputum examination as diagnostic test was among only 33.35% of adolescents, which was less in comparison to studies done by Renuka M[10]and Gopichandran V[13], where 72.1% and 52.1% of study participants were aware of sputum examination as diagnostic test.

70.66 % of adolescents were aware that overcrowding plays an important role as environmental factor in spreading the disease in the community, which is more compared to 61.66% a study done in Punjab by Singh UP [14], the reason may be because they were aware that they are most exposed group at different places, where people don't follow coughing etiquettes and smoking is a common scene in overcrowded places, despite strict rules and regulations.

Only 53.23% opined that the disease can be prevented, of which vaccine plays a major role, which is less compared to studies done by Parameaswari PJ[12] and Gopichandran V[13], where it was found to be 80.8% and 75.2% respectively. 61.85% of the adolescents told that TB is curable, which is less compared to 86% in a study done by Renuka M[10]and almost 92.62% in our study group told that they would receive treatment from government hospitals, may be because they were aware that treatment for TB is available free of cost. 54.77% adolescents in our study group had misconception that patients taking treatment should be confined to stay indoors is more compared to 36.4% in a study done by Renuka M.[10] This could be attributed to the fact that some of them had opinion that TB is not curable and patient may spread the disease, if not isolated.

Conclusion

Even though majority of the participants had good knowledge about acquisition and transmission of TB, it was accompanied with some misconceptions like isolation and dietary restrictions. It is thus imperative to dispel the myths and wrong notions about TB from their minds and replace it with correct knowledge. To achieve this, continuous health education should be given to the adolescents, family members and community, so as to develop positive attitude and healthy practices. There is a further need for improvement in understanding of epidemiology, transmission and methods of prevention by strengthening all channels of communication. There is also a need to improve the utilization of free diagnostic and treatment services available at various government hospitals for the betterment of the community.

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References

1. Sagonda T, Mupfumi L, Manzou R, Makamure B, Tshabalala M, Gwanzura L, et al. Prevalence of extensively drug resistant tuberculosis among archived multidrug resistant tuberculosis isolates in Zimbabwe. Tuberculosis Research and Treatment 2014:349141.
2. Vidhani M, Vadgama P. Awareness regarding pulmonary tuberculosis - a study among patient taking treatment of tuberculosis in rural Surat, Gujarat. Natl J Med Res 2012;2:452-5.
3. Baveja SM, Dalal PJ. Awareness of the revised national tuberculosis

control programme and attitude to tuberculosis patients amongst medical undergraduates. J Acad Med Sci 2012;2:68-72.
4. Sreeramareddy CT, Harshakumar HN, Arokiasamy JT. Prevalence of self-reported tuberculosis, knowledge about tuberculosis transmission and its determinants among adults in India: results from a nation-wide crosssectional household survey. BMC InfectDis2013;13:16.
5. World Health Organization. Global tuberculosis report 2013. Geneva: WHO; 2013[cited 2014 July 2]. Available from: URL: http://www.who.int/tb/publications/global_report/en/.
6. Zumla A, George A, Sharma V, Herbet N; Baroness Masham of Ilton. WHO's 2013 global report on tuberculosis: successes, threats, and opportunities. Lancet 2013;382:1765-7.
7. Bogam RR, Sagare SM. Knowledge of tuberculosis and its management practices amongst postgraduate medical students in pune city. National Journal of Community Medicine 2011;2:52-9.
8. Khan NA, Abid M, Singh VK, Vaishali, Chattapadhyay P, Ghosh AK, et al. Assessment of college students awareness about tuberculosis in Moradabad. Indian Journal of Pharmacy Practice 2011;4:47-50.
9. Balamurugan SS, Swaminathan, Rao S. The awareness about tuberculosis and DOTS among the aspiring doctors in a tertiary medical college hospital, Salem, Tamil Nadu. National Journal of Research in Community Medicine 2013;2:133-9.
10. Renuka M, Dhar M. Knowledge and awareness of tuberculosis among highschool students of Mysore City. Al Ameen J Med Sci 2012;5:333-6.
11. Chinnakali P, Ramakrishnan J, Vasudevan K, Gurumurthy J, Upadhyay RP, Panigrahi KC. Level of awareness about tuberculosis in urban slums: Implications for advocacy and communication strategy planning in the National program. Lung India 2013;30:139-42.
12. Parameaswari PJ,UdayshankarPM, Saikumar C,Bindu D, Abiselvi A, Pandurangan M, et al. Cognitive function assessment on tuberculosis among senior school students in South Chennai, India. European Journal of Preventive Medicine 2013;1:46-9.
13. Gopichandran V, Roy P, Sitaram A, Karthick, John KR. Impact of a simple educational intervention on the knowledge and awareness of tuberculosis among high school children in vellore, India. Indian J Community Med 2010;35:174-5.
14. Singh UP, Bala A, Goel RKD. Knowledge about tuberculosis in senior school students of Punjab. Indian J Community Med 2006;31:93-5.

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