AWARENESS AND SOCIAL STIGMA ASSOCIATED WITH HIV/AIDS AND TUBERCULOSIS AMONG STUDENTS: A COMPARATIVE STUDY

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ABSTRACT

INTRODUCTION
Human immunodeficiency virus (HIV) and Tuberculosis (TB) are two major public health problems that are often seen as co-infections, but are spread via different routes having different treatment strategies and outcomes with one being curable and the other not. However, both these diseases have stigma in common.

OBJECTIVES
(i) To assess the knowledge and social stigma regarding HIV/AIDS.
(ii) To assess the knowledge and social stigma regarding TB.
(iii) To study the association between knowledge & social stigma in HIV/AIDS and TB.
(iv)To compare the social stigma associated with HIV/AIDS and TB.

METHODOLOGY
A cross-sectional study was carried out in an urban Arts & Science college situated in Kochi among students aged between 17-24 years. Those students who were not willing to participate and who have/had TB or HIV/AIDS were excluded from the study. A total of 171 students were included in the study by random sampling and a pretested self-administered questionnaire was used.

RESULTS
Majority of the respondents were females (94.7%) in the age group of 17-19 years (52.6%) belonging to APL category (98.8%) and were Hindus (89.5%). All students (100%) had heard about HIV, however only 99.4% had heard about AIDS. Majority knew that HIV/AIDS can be transmitted via blood & blood products (91.9%), sharing of needles (87.1%) and from an infected mother to her baby during pregnancy (69%). However, the respondents had many misconceptions such as mosquito bites (64.9%) and sharing food with an infected person (83%) can spread HIV.
Even though, all had heard about TB, only 39.8% knew that TB is caused by bacteria, while 6% felt that smoking was the cause of TB. 63.7% of them knew that TB spreads from an infected to an uninfected person by cough/sneeze, only 43.9% knew about the symptoms of TB and a mere 28.7% knew that sputum microscopy was the best available diagnostic tool. Less than half the respondents knew that TB can be prevented by vaccination (47.4%) and were aware of the free treatment provided by the government (45%).
It was found that 42.7% and 69% of the respondents had adequate knowledge regarding HIV/AIDS and TB respectively. However, there were no statistically significant association existing between any of the socio-demographic variables and knowledge regarding HIV/AIDS or TB. Stigma associated with these diseases differed in most aspects and stigma against HIV infected was found to be lesser when compared to a TB infected person. The only socio-demographic variable that showed a statistically significant association with stigma regarding HIV/AIDS was sex (p value=0.019). It was found that females had a higher level of stigma regarding HIV/AIDS when compared to males.

CONCLUSION
Our study concluded that, even though the youth are aware about these infectious diseases they still have a lot of misconceptions about the different modes of transmissions, preventive measures and treatment strategies that are available for both HIV/AIDS and TB. Therefore, there is a need to create holistic awareness about these diseases among the youth.

KEYWORDS
HIV/AIDS, Tuberculosis, Awareness, Social Stigma, Students.

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INTRODUCTION: Human Immunodeficiency Virus (HIV) and Tuberculosis (TB) are two diseases that have become major public health challenges of our time. They are often seen as co-infections and the impacts of this converging dual epidemic is being felt globally. India too is affected by the impact of this double burden of infectious diseases.[1] India has the highest number of people living with HIV/AIDS, therefore it is considered to be the third largest HIV epidemic in the world. As per NACO 2013 data, the prevalence of HIV in India is 0.3%, with an estimated number of 2.1 million people living with HIV/AIDS. 7% of the HIV infected is children, while 86% are in the most productive age group of 15-49 years. Of all the HIV infected, 39% of them happen to be women. Moreover, India ranks first globally in terms of the TB burden according to 2013 WHO statistics with an estimated prevalence of 2.6 million. It is considered that 40% of the Indian population is infected with Mycobacterium Tuberculosis with the majority of them harboring latent infection.[2] The rising number of multi, extensive and total drug resistant Tuberculosis (MDR, XDR & TDR) further adds to the toxic brew. Therefore, it can be rightly stated that India is at the epicenter of this converging dual epidemic.

HIV and TB are infectious diseases which are very often seen as co-infections, but are spread via different routes having different treatment strategies and outcomes with one being curable and the other not. However, both these diseases have one thing in common and that is stigma which has diverse social and moral implications. When compared to other infectious diseases, these diseases tend to create a "hidden epidemic" due to stigma which arises from ignorance, fear, misconception etc. Erving Goffman, the seminal author on stigma defined it as "an undesirable or discrediting attribute that an individual possesses, thus reducing that individual's status in the eyes of society".[3] Stigma also results in discrimination which is defined as a form of exclusion, or restriction of expression, marginalization, or prevention from access to something or services.

Globally, stigma and discrimination are considered to be major obstacles for effective prevention and management of HIV/AIDS and TB. WHO cites, fear of stigma and discrimination as the main reason why people are reluctant to get tested, disclose their disease status and take necessary therapy. Research from high-burden areas has shown that HIV and TB patients face various levels of isolation and rejection from families and communities such as forbiddance of sharing food, utensils or sleeping space.[4] It also even results in loss of jobs, divorce or spoils marriage prospects. Studies have also shown that HIV and TB-related stigma is gender based being worse for females than for males. Limited mobility and financial dependency discourages women from seeking health care and thereby worsening the situation even further.[5] However, it is still not very clear how pervasive and powerful such gender-based features of stigma towards these diseases actually are, although the answer to such questions is clearly important for HIV and TB control. This is because stigma blocks access to HIV and TB testing and treatment services favoring further transmission of these diseases.[6,7] Indentifying and removing these barriers especially among the youth who are the promise of tomorrow is the key for ending the global HIV and TB epidemic. Hence, it is very important to understand the level of awareness and stigma associated with both these diseases among the vibrant youth of today, to see whether stigma declines when the right facts about these diseases are known to them.

Therefore, the primary objectives of the study were (i) to assess the knowledge and social stigma regarding HIV/AIDS and also (ii) to assess the knowledge and social stigma regarding TB among college students. The secondary objectives were (iii) to study the association between knowledge & social stigma in HIV/AIDS and TB and also (iv) to compare the social stigma associated with HIV/AIDS and TB.

METHODOLOGY: The cross-sectional study was carried out in an Arts & Science college situated in an urban area of Kochi. After obtaining informed consent students aged between 17-24 years were included in the study. Those students who were not willing to participate and who have/had TB or HIV/AIDS were excluded from the study. The sample size was calculated using the formula $4pq/d^2$, where the prevalence (p) was taken to 45% as per a study done by Dr. Thankappan, et al[8] q=55% (100-p) and the absolute error d= 20%. Even though the minimum sample size calculated was 123, a total of 171 students were included in the study by simple random sampling. The study tool was a pretested self-administered questionnaire which was adapted from NFHS4 and RNTCP indicators. The questionnaire had three parts consisting of questions regarding socio-demographic profile, knowledge regarding HIV/AIDS and TB and also about stigma regarding HIV/AIDS & TB. Socio-demographic details such as age, sex and religion, place of residence, father's & mother's educational status were collected. The 9 point poverty index was used to classify the respondents to those belonging to APL or BPL category. For the questions regarding knowledge on HIV/AIDS and TB options were given such as "yes", "no" and "don't know". In addition to these a "not sure" was also given for questions regarding stigma. The results were tabulated by giving all the correct answers a score of 1 and the incorrect answers a score of 0. 50^{th} percentile was used as the cutoff for classifying knowledge into adequate & inadequate and also for classifying stigma as high & low. High confidentiality was maintained at all stages of the study and the Declaration of Helsinki was followed in this study.

RESULTS:

Socio-Demographic Profile: Majority of the respondents were females (94.7%) in the age group of 17-19 years (52.6%). Most of them were urban residents (70.2%) and were Hindus (89.5%) by religion. 98.8% of them belonged to the APL category and 49% of the students had either parent who was a graduate. The details of the socio-demographic profile is provided in Table 1.

Socio demographic Profile	(%)
Age	
17-19	52.6
20-24	47.4
Sex	
Male	5.3
Female	94.7
Education	
Graduates	126
Postgraduates	45
Religion	
Hindu	89.5
Christian	9.9
Muslim	0.6
Place of residence	
Urban	70.2
Rural	29.8
Socio-economic status	
APL	98.8
BPL	1.2
Father's educational status	
Professionals & postgraduates	27.5
Graduates	49.7
High school & below	22.8
Mother's Educational Status	
Professionals & postgraduates	21.6
Graduates	49.8
High school & below	28.6

Table 1: Distribution of students according to their Socio-demographic profile

Knowledge Regarding HIV/AIDS:

It was observed that all students (100%) had heard about HIV, however only 99.4% had heard about AIDS. Majority (79.5%) of them had received information regarding HIV/AIDS from multiple sources and the most common sources were radio, TV and magazines. Even though majority of them were aware that HIV/AIDS can be transmitted via blood & blood products (91.9%), sharing of needles (87.1%) and from an infected mother to her baby at the time pregnancy (69%), there still remains a section of the youth who remain unaware or have a lot of misconceptions regarding the modes of transmission, prevention and treatment measures available for HIV/AIDS. This was made evident in this study because 64.9% of the respondents incorrectly stated that mosquito bites can transmit HIV and 83% had a misconception that HIV can spread by sharing food with an infected person. Moreover, only a minority knew that HIV/AIDS could be transmitted from infected mother to her baby at the time of delivery (29.2%) and breastfeeding (35.1%). Only 45.6% knew that there were special medications to reduce vertical transmission of HIV/AIDS and a mere 26.9% of the respondents were aware that antiretroviral drugs were available to prolong the life of an infected person. Therefore, out of 171 students 57.3% had inadequate knowledge regarding HIV/AIDS while the rest (42.7%) had adequate knowledge. (Table 2)There were no statistically significant association existing between any of the above mentioned socio-demographic variables and knowledge regarding HIV/AIDS.

Sl No.	Percentage of students who:	Yes (%)	No (%)	Don't Know (%)
1.	Have heard about HIV	100	0	NA
2.	Have heard about AIDS	99.4	0.6	NA
3.	Knew that chances of getting HIV/AIDS can be reduced by remaining faithful to a single uninfected partner	69	15.2	15.8
4.	Knew that HIV/AIDS is not transmitted via mosquito bite	12.3	64.9	22.8
5.	Knew that chances of getting HIV/AIDS can be reduced by using a condom during each sexual intercourse	56.7	15.2	28.1
6.	Knew that HIV/AIDS can be transmitted via blood and blood products	91.9	2.3	5.8
7.	Knew that HIV/AIDS can be transmitted by sharing needles	87.1	4.7	8.2
8.	Knew that HIV/AIDS is not transmitted by sharing food with an infected person	6.4	83	10.5
9.	Knew that it is possible for a health looking person to have AIDS	67.8	14	18.1
10.	Knew that HIV/AIDS can be transmitted from mother to baby during pregnancy	69	7	24

11.	Knew that HIV/AIDS can be transmitted from mother to baby during delivery	29.2	26.3	44.4
12.	Knew that HIV/AIDS can be transmitted from mother to baby during breastfeeding	35.1	21.6	43.3
13.	Knew that there are special medications to reduce vertical transmissions of HIV/AIDS	45.6	6.4	48
14.	Knew that antiretroviral drugs are available to prolong the life of an infected person	26.9	36.8	36.3

Table 2: Distribution of students according to their knowledge regarding HIV/AIDS

Knowledge Regarding TB: All 171 respondents had heard about TB. 76% of them got their information from multiple sources and the most common sources were TV, radio and teachers. However, only 39.8% knew that TB is a disease that was caused by bacteria, while 6% answered that smoking was the cause of TB. Even though 63.7% of them knew that TB spreads from an infected to an uninfected person by cough/sneeze, only 43.9% knew about the symptoms of TB and a mere 28.7% knew that sputum microscopy was the best available diagnostic tool. Although 47.4% of the respondents rightly answered that TB can be prevented by vaccination, only 1.2% knew the name of the vaccine as BCG. 71.3% of the respondents had never heard about DOTS and only 45% were aware of free treatment provided by the government. Therefore out of 171, 69% had adequate knowledge regarding TB while 31% had inadequate knowledge. (Table 3) There were no statistically significant association existing between any of the socio-demographic variables and knowledge regarding TB.

Sl. No.	Percentage of students who:	Yes (%)	No (%)	Don't Know (%)
1.	Have heard of an illness called Tuberculosis	100	0	NA
2.	Answered correctly that Tuberculosis is caused by bacteria	39.8	43.2	17
3.	Answered correctly that TB spreads from an infected to an uninfected person by cough/sneeze	63.7	12.3	24
4.	Answered correctly about the symptoms of TB	43.9	43.7	12.4
5.	Knew the best method for diagnosis of TB as sputum microscopy	28.7	30.9	40.4
6.	Knew that TB can be prevented by Vaccination	47.4	7.6	45
7.	Knew that TB is curable	76.6	4.1	19.3
8.	Have heard about DOTS	28.1	71.3	0.6
9.	Knew that government provides free treatment for TB	45	39.1	15.9

Table 3: Distribution of students according to their knowledge regarding TB

Stigma Regarding HIV/AIDS and TB: Stigma associated with HIV/AIDS and TB differed in most aspects and stigma against HIV infected was found to be lesser when compared to a TB infected person. Majority of the students (57.3%) were willing to buy things from a known HIV infected shopkeeper, while only 32.7% were willing to buy from a known TB infected shopkeeper. It was observed that 75.4% of the respondents were willing to allow a HIV infected child to attend school while only a mere 27.5% of them were willing to allow a TB infected child. Similarly, 76% of the respondents were willing to have a HIV infected teacher to continue teaching while only 38% consented to have a teacher who was infected by TB. In general, 75.4% of the respondents were willing to have a HIV infected person working along with others while only 29.8% were willing to share the same workplace with a TB infected. Therefore, the study revealed that the youth were more supportive towards a patient infected with HIV rather than with TB. The details of which are provided in Table 4.

The only socio-demographic variable that showed a statistically significant association with stigma regarding HIV/AIDS was sex (p value=0.019). It was found that females had a higher level of stigma regarding HIV/AIDS when compared to males. This could probably be due to the fact that majority of the study population were females (94.7%) than males (5.3%). However, there was no statistically significant association existing between any of the socio-demographic variables and stigma regarding TB.

Sl No.	Percentage of students	HIV/AIDS	TB	HIV/AIDS	TB	HIV/AIDS	TB	HIV/AIDS	TB
		Yes (%)		No (%)		Don't KNOW (%)		Not Sure (%)	
1.	Willing to buy something from a shopkeeper who is infected with	57.3	32.7	12.3	21.7	4.1	17.5	26.3	28.1

2.	An infected child allowed to attend school with other uninfected children	75.4	27.5	5.3	35.7	6.4	17.5	12.9	19.3
3.	If a family member gets infected they would want it to remain a secret	18.7	12.9	46.2	62.6	8.2	8.2	26.9	16.4
4.	If a family member gets sick with the disease they would care for him/her	88.9	79.5	1.2	8.2	2.3	4.1	7.6	8.2
5.	An infected female teacher who is not sick should be allowed to continue teaching	76.6	38.6	5.8	28.1	7	14.6	10.5	18.7
6.	An infected female teacher who is not sick should be allowed to continue teaching	76	38	6.4	26.3	7.6	17	9.9	18.7
7.	An infected person should be treated in the same hospital with uninfected people	45	44.4	19.9	24	21.1	18.1	14	13.5
8.	An infected person should be allowed to work in the same workplace along with uninfected people	75.4	29.8	7.6	26.9	12.9	22.2	4.1	21.1

Table 4: Distribution of students according to stigma regarding HIV/AIDS and TB

ASSOCIATIONS: This study revealed that a highly significant association existed between knowledge and stigma regarding HIV/AIDS (p value=<0.001). It was observed that as knowledge increased, the stigma regarding HIV/AIDS decreased. Whereas, no significant association exist with regard to knowledge and stigma regarding TB. Our study also revealed that there exist a significant association between stigma regarding TB and HIV/AIDS. It was observed that those who had stigma towards HIV/AIDS also had stigma towards TB. (Table No.5, 6 & 7).

Knowledge regarding HIV/AIDS	Stigma regarding HIV/AIDS		P value
	High Stigma	Low Stigma	
Adequate	15 (20.5%)	58 (79.5%)	**<0.001**
Inadequate	54 (55.1%)	44 (44.9%)	
Low stigma	52 (51%)	50 (49%)	

Table 5: Association between knowledge and stigma regarding HIV/AIDS

Knowledge regarding TB	Stigma regarding TB		P value
	High Stigma	Low Stigma	
Adequate	70 (59.3%)	48 (40.7%)	0.716
Inadequate	33 (62.3%)	20 (37.7%)	

Table 6:Association between knowledge and stigma regarding TB

Stigma regarding HIV/AIDS	Stigma regarding TB		P value
High stigma	51 (73.9%)	18 (26.1%)	**0.003**
Low stigma	52 (51%)	50 (49%)	

Table 7: Association between stigma regarding TB and HIV/AIDS

DISCUSSION: Our study aimed at assessing the level of awareness and stigma that existed among the youth regarding HIV/AIDS and TB. The participants were purposively selected to be in the age group of 17 to 24 in order to understand the perspectives of the youth. The study had its limitations since it was conducted only in one of the most prominent Arts & Science College situated in an urban area and most of the participants were female who belonged to the higher socio-economic class. The findings of this study may not be applicable to the general population. However, irrespective of these limitations, the study was able to bring forth important insights into the level of awareness and stigma among the youth of today towards HIV/AIDS and TB.

It was observed that even though all students have heard about HIV and 99.4% have heard about AIDS, the percentage of students who had adequate knowledge regarding the different modes of transmission of HIV and its preventive measures was found to be very negligible. It was

shocking to observe that 12.3% of our study population had a misconceived notion that HIV spreads through mosquito bites, while in Andra Pradesh K Maleshappa, et al[9] reported that it was only 17%. Moreover, 83% of our population also believed that sharing of food can result in HIV transmission. However, majority of the students in our study knew that HIV/AIDS can be transmitted via blood & blood products (91.8%) and by sharing needles (87.1%). While it was only 53% and 51% respectively in the study done in Andra Pradesh.[9] The chances of getting HIV/AIDS can be reduced by remaining faithful to a single uninfected partner was known to 69% our population, while only 56.7% of them knew that regularly using condoms can also help to reduce its transmission. This finding was found to be lower than the results of the study conducted by Thankappan K R, et al.[8] in Trivandrum and K Malleshappa, et al[9] in Andra Pradesh where 78.1% and 69 % of the participants knew that using condoms regularly can prevent sexual transmission of HIV/AIDS respectively.

Even though 69% of our study population knew that HIV/AIDS can be transmitted from mother to baby during pregnancy, only a mere 29.2% knew that it can be transmitted during pregnancy and 35.1% knew that it can also be transmitted during breastfeeding. These findings were found to be similar to studies done in Delhi by P Lal, et al[10] and Lahore by R Farid, et al.[10] where 23.4% of the students knew that HIV can be transmitted from mother to baby and 46.8% knew that HIV can also be transmitted through breastfeeding respectively. It was also a relief to see that at least 67.8% of the students knew that a healthy looking person can have AIDS and at the same time it was very disappointing to observe that only 26.9% knew that antiretroviral drugs were available to prolong the life of an infected person. Study by P Lal, et al.[11] also showed that only 28.6% knew about antiretroviral therapy.

With regard to knowledge regarding TB, 100% of our study population had heard about TB. However, less than half the population was aware about the causative agent (39.8%), symptomatology (43.9%), best method of diagnosis (28.7%) and prevention by vaccination (47.4). While, in the study done by G Vijayaprasad, et al.[12] in Vellore revealed a much better picture with 77% of them being aware that TB is caused by bacteria, 80% being aware of its symptomatology and 52% reporting that the best diagnostic method available is sputum microscopy. Even though 76.6% of our study population knew that TB is completely curable, only 45% knew that government provided free treatment for TB and a even fewer knew about the DOTS strategy (28.1%).

Our study was able to throw light upon the stigma that the youth felt towards patients infected with HIV/AIDS and TB. It was observed that the students felt more stigma towards a tuberculosis patient rather than a person infected with HIV. This was made evident in our study with approximately 75 to 76% of the participants having a favorable attitude towards children and teachers infected with HIV/AIDS being allowed to attend school or an HIV/AIDS infected person sharing the same workplace with HIV negative persons. Similar attitude (77.8%) was reported in a study conducted by P Lal, et al[11] stating that such patients should be allowed to pursue/continue studies or allowed to work in common workplaces. While, K Malleshappa, et al[9] reported that 93% were of the opinion that AIDS patients should not be isolated from the society. Another study conducted by B Unnikrishnan, et al[13] in coastal Karnataka showed that the respondents with less than secondary school education had a discriminatory attitude towards people affected with HIV. While in our study no socio-demographic factors had any significant association with stigma except for sex. It was observed that women had a higher level of stigma regarding HIV/AIDS when compared to males.

As in the case of stigma regarding TB, only 27% to 29% our study population was willing to allow a TB infected child to school or share a common workplace. While, only 38% students consented to have a teacher infected with TB attend school and this stigma was found to be comparatively higher for females rather than male teachers. Another study conducted by SP Yadav, et al[14] in Rajasthan showed 26% favoring towards TB patients quitting their jobs and 22.5% was of the opinion of not allowing TB patients to take part in social gatherings.

CONCLUSION: Our study came to the conclusion, that even though the youth are aware about these giant infectious diseases they still have a lot of misconceptions about the different modes of transmissions, preventive measures and treatment strategies that are made freely available by the government for both HIV/AIDS and TB. It was also disheartening to observe that stigma regarding HIV/AIDS and TB existed among the present day youth and it was found to be more for TB than HIV/AIDS. Moreover, those who had stigma against HIV/AIDS also had stigma against TB and no particular difference in stigma existed between these two diseases. Hence, it is important to note that lack of awareness results in creating stigma which in turn would lead to dangerous consequences such as easy spread of these diseases, delay in seeking health care services, utilization of screening and treatment facilities provided freely by the government.

Therefore, we recommend that the need of the hour is to create holistic awareness among the youth through different approaches like mass media and behavioral change communication activities both at the college and community levels. We hope that by creating awareness we would be able to mitigate the stigma associated with these diseases and thereby contribute to the formation of a healthier generation.

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REFERENCES:

1. Swaminathan S, Narendran G. HIV and tuberculosis in India. J Biosci. 2008; 33(4):527-537.
2. India M. TB India 2015::Ministry of Health and Family Welfare [Internet]. Tbcindia.gov.in. 2015 [cited 29 October 2015]. Available from: http://tbcindia.gov.in/showfile.php? lid=3166.
3. Erving G. Stigma: Notes on the Management of Spoiled Identity. Postgraduate Medical Journal. 1969; 45(527):642-642.
4. Pungrasssami P, Kipp A, Stewart P. Tuberculosis and AIDS stigma among patients who delay seeking care for TB symptoms. The International Journal of Tuberculosis and Lung Diseases. 2010;14(2):181-187.
5. D S, B E T, F K. Gender and socio-cultural determinants of TB-related stigma in Bangladesh, India, Malawi and Colombia. The International Journal of Tuberculosis and Lung disease [Internet]. 2008; 12(7):856-866. Available from: http://www.who.int/tdr/publications/documents/tb-related-stigma.pdf.
6. Bharat S. A systematic review of HIV/AIDS-related stigma and discrimination in India: Current understanding and future needs. SAHARA-J: Journal of Social Aspects of HIV/AIDS. 2011; 8(3): 138-149.
7. Kipp A, Pungrassami P, Stewart P, Chongsuvivatwong V, Strauss R, Van Rie A. Study of Tuberculosis and AIDS stigma as barriers to tuberculosis treatment adherence using validated stigma scales. Int J Tuberc Lung Dis. 2011; 15(11): 1540-1546.
8. Lal S, Vasan R, Sankarasarma P, Thankappan K. Knowledge and attitude of college students in Kerala towards HIV/AIDS, sexually transmitted infections. The National Medical Journal of India. 2000; 13(5): 231-236.
9. K. Malleshappa, Krishna S. Awareness and attitude of youth toward HIV/AIDS in rural Southern India. Biomedical Research. 2012; 23(2): 241-246.
10. R F, A J C. Knowledge about AIDS/HIV infection among female college students. Journal of the college of Physicians and Surgeons. 2003; 13 (3): 135-137.
11. Nath A, Badhan S, Ingle G, Lal P. A study of awareness about HIV/AIDS among senior secondary school children of Delhi. Indian J Community Med. 2008; 33(3): 190.
12. Gopichandran V, Roy P, Sitaram A, Karthick, John K. 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(1): 174.
13. Unnikrishnan B, Mithra P, Rekha T, Reshmi B. Awareness and attitude of the general public toward HIV/AIDS in coastal Karnataka. Indian J Community Med. 2010; 35 (1): 142.
14. Yadav S, Mathur M, Dixit A. Knowledge and attitude towards tuberculosis among sandstone quarry workers in desert parts of Rajasthan. Indian Journal of Tuberculosis. 2006; 53: 187-195.