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Original Article

A study on knowledge, beliefs and attitude towards leprosy in students of Jaipur, Rajasthan

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The objective of this study was to determine the knowledge, beliefs and attitudes regarding leprosy in school students of Jaipur district. A cross-sectional study was conducted from August 2010 to February 2011 on 1199 students (rural and urban) studying in class 10th and above. The findings of this study showed fair knowledge in students about cause, signs and symptoms of leprosy but less knowledge about prevention and treatment of the disease. Myths and beliefs were more prevalent in rural students as compared to urban ones. Both the groups showed positive attitude toward leprosy with 30-50% students showing neutral approach but negative reaction was more in rural students. In conclusion the study highlights to emphasize on health education in students and improving knowledge to develop positive attitude towards leprosy.

Key words : Leprosy, Knowledge, Attitude, Beliefs, School Students

Introduction

Leprosy is a disease, which affects the psychological, social and spiritual well being of the patients, their family, friends and the community (Fao 1998). Right from biblical times, leprosy has always been portrayed as a highly contagious disease, inflicted as a result of sin. Due to this perception leprosy patients have been stigmatized and isolated from community. The laws of ancient times prohibited contact with those affected by leprosy, punished those who married into their families and evicted those with the disease for their past sins (Buhler 1886). From antiquity to modernity, Indian society treated leprosy with respect to customs, laws and cultural attitudes prevalent at that time.

A number of cross-sectional studies were conducted before the year 2000 to find out general attitudes towards leprosy in the communities, patients, families of patients and rehabilitation homes in various parts of the world showing negative attitude towards leprosy (Croft

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and Croft 1999, Tekle-Haimanot et al 1992). The results of these studies emphasized that there is a need to educate people and impress upon the population that leprosy is a treatable infectious disease, not congenitally acquired and is curable if detected early. Although extensive research has been conducted on the medical aspect of leprosy, comparatively little research has been done on psychosocial aspect of this disease. India's future challenges in leprosy control include multiple systems of medicine, stigma, and educational knowledge gaps.

School going students form an important link between the past, present and future of our society. The purpose of this study was to identify the gaps in knowledge of students in post millennium era living in Jaipur district. To the best of our knowledge, there is no previous study reported from the community settings of India dealing with the knowledge, beliefs and stigma in rural and urban school students.

Material and Methods

A cross-sectional study was conducted at schools of Jaipur district during August 2010 to February 2011. Before undertaking the main study, a pilot study was done enrolling 20 school students for determining the validity of the questionnaire which revealed that there were differences in knowledge and beliefs in the urban and rural students. The school students in the age group of 15 to 18 years of age and studying in class 10 or higher in Jaipur district were interviewed. The study population comprised of total 1199 students, of which 602 students belonged to urban and remaining 597 to rural schools. Using simple random sampling technique the sample size was achieved. Information was obtained by using a structured questionnaire, designed in English, containing both open and close ended questions. The questionnaire was translated into Hindi and then re-translated into English to remove the ambiguities of the language. The translation–retranslation validity was performed. The questionnaire was divided into four parts. Part I included questions related to knowledge about disease aspect of leprosy. Part II included prevention and treatment aspect of leprosy. Part III included questions for myths regarding leprosy and part IV, questions for psychological aspect regarding leprosy. For the open ended questions content analysis was done. After obtaining the response from the students they were taught about disease, treatment, prevention and psychological aspect of leprosy through lectures, handbills, charts and posters. This exercise was undertaken merely to fill up the gaps in knowledge and was not a part of the study. The study was approved by the ethical review committee of the institution.

Results

Leprosy awareness was noticed in significant number of urban and rural students (76.07% and 72.69% respectively). In both rural and urban groups almost 70% of students answered germs as most common cause of leprosy but around 30-50% students also answered other modes of spread like sharing personal items and food, skin contact, shaking hands and sitting side by side with the patients. Disfigurement/deformity was the major symptom reported by 72% urban and 58% rural students followed by poor/dirty look. Almost 40-45% students responded loss of sensation and skin patch as sign of leprosy. Both in urban and rural groups (35.21% and 37.18% respectively), leprosy was considered as a highly contagious disease (Table 1).

Only 25-35% of rural and urban students were aware that leprosy is preventable or curable disease. More than 75% urban and rural students did not know about the various aspect of treatment regarding leprosy and 75% of urban and 85% rural students were not aware of

Table 1 : Questionnaire for Distribution of variables regarding knowledge about disease aspect of leprosy among respondents

Variables	Urban students (n=602)	Rural students (n=597)	^{2} and p value**
Do you know about leprosy/ heard of leprosy (kushtha rog)	Yes =458(76.07%) No=144(23.92%)	Yes=434(72.69%) No=163(27.30%)	^{2}=1.801 P<0.05
Do you know the Cause of leprosy*	Germs =434(72.09%) Sharing personal items=322(53.48%) From mother to child=24(3.98%) Skin contact=224(37.20%) Sex with patients=95(15.78%) Sex with prostitutes=67(11.12%) Sharing food=307(50.99%) Through air=234(38.87%) Shaking hands=197(32.72%) Sitting close=186(30.89%) Insects/mosquitoes=45(7.4%) Bathing in a river=23(3.82%) Contaminated soil=34(5.64%) No response=35(5.81%)	Germs =415(69.51%) Sharing personal items=257(42.69%) From mother to child=12(2.01%) Skin contact=237(39.69%) Sex with patients=11(1.84%) Sex with prostitutes=24(4.02%) Sharing food=356(59.63%) Through air =176(29.48%) Shaking hands=213(35.67%) Sitting close=247(41.37%) Insects/mosquitoes=78(13.06%) Bathing in a river=67(11.22%) Contaminated soil=78 (13.06%) No response=51(8.54%)	
Is leprosy highly Contagious?	Yes =212(35.21%) No=45(7.47%) Not known=345(57.30%)	Yes =222(37.18%) No=87(14.57%) Not known=288(48.24%)	^{2}=18.71 P<0.05
Is leprosy highly Contagious?	Skin patch=282(46.84%) Loss of sensation=246(40.86%) Nodules=87(14.42%) Disfigurement/ deformities=432(71.76%) Poor/dirty look=335(55.64%) No response=117(19.43%)	Skin patch=254(42.54%) Loss of sensation=257(43.04%) Nodules=34(5.69%) Disfigurement/ deformities=347(58.12%) Poor/ dirty look=247(41.37%) No response=134(22.44%)	

* Open ended questions with multiple answers
**Chi square and probability values

Table 2 : Prevention and Treatment aspect of leprosy

Variables	Urban students (n=602)	Rural students (n=597)	^{2} and p value**
Is Leprosy preventable	Yes =214(35.54%) No=159(26.41%) Not known=229(38.03%)	Yes =168(28.14%) No=108(18.09%) Not known=321(53.76%)	^{2}=30.65 p < 0.05
Is Leprosy curable	Yes =207(34.38%) No=185(30.37%) Not known=210(34.88%)	Yes =147(24.62%) No=134(22.44%) Not known=316(52.93%)	^{2}=39.66 p<0.05
What type of treatment you would prefer/ suggest for leprosy*	Allopathic=358(59.46%) Ayurvedic=84(13.95%) Homeopathic=23(3.82%) Yunani=15(2.49%) Religious rituals=35(5.81%) Not known=87(14.15%)	Allopathic=122(20.43%) Ayurvedic=167(27.97%) Homeopathic=46(7.70%) Yunani=25(4.18%) Religious rituals=78(13.06%) Not known=159(26.63%)	
Are the antileprosy drugs distributed by the Govern-ment	Yes =80(13.28%) No=65(10.79%) Not known=457(75.91%)	Yes =29(4.85%) No=57(9.54%) Not known=511(85.59%)	^{2}=27.38 p <0.05
Is treatment available free of cost?	Yes =90(14.95%) No=63(10.46%) Not known=449(74.58%)	Yes =25(4.18%) No=55(9.21%) Not known=517(86.59%)	^{2}=42.03 p <0.05
Do you know the duration of treatment	Yes =68(11.29%) No=534(88.70%)	Yes =71(11.89%) No=526(88.10%)	^{2}=0.143 p <0.05
Do you know any leprosy treatment center in your area	Yes =35(5.81%) No=567(94.18%)	Yes =19(3.18%) No=578(96.81%)	^{2}=4.826 p <0.05
What is your source of knowledge about leprosy*	School teaching/Books/ News paper=123(20.36%) Radio/Television=147(24.41%) Talks/Seminars=12(1.99%) Films=43(7.14%) Family members/neighbours /friends=189(31.39%) Pamphlets/posters/ Hoardings =179(29.73%)	School teaching/Books/ News paper =83(13.90%) Radio/Television=132(22.11%) Talks/Seminars=6(1.00%) Films=17(2.84%) Family members/neighbours /friends=241(40.36%) Pamphlets/posters/ Hoardings =127 (21.27%)	

* Open ended questions with multiple answers

**Chi square and probability values

Table 3 : Questionnaire for myths/beliefs regarding leprosy

Variables	Urban students (n=602)	Rural students (n=597)	^{2} and p value**
Is leprosy a result of "Poorva janma deeds" (sins of Previous birth)	Yes =85(14.11%) No=355(58.97%) Not known=162(26.91%)	Yes =274(45.89%) No=122(20.43%) Not known=201(33.66%)	^{2}=217.5 p <0.05
CURSE from a known person of "Kodh"	Yes =89(14.78%) No=375(62.29%) Not known=138(22.92%)	Yes =249(41.70%) No=119(19.93%) Not known=229(38.35%)	^{2}=231 p <0.05
Curse by god for sinful activity caused by "Immoral conduct"	Yes =82(13.62%) No=361(59.96%) Not known=159(26.41%)	Yes =262(43.88%) No=113(18.92%) Not known=222(37.18%)	^{2}=234.3 p <0.05
Leprosy is caused by "Witchcraft"	Yes =69(11.46%) No=397(65.94%) Not known=136(22.59%)	Yes =91(15.24%) No=241(40.36%) Not known=265(44.38%)	^{2}=82.65 p <0.05
Leprosy is due to "Evil spirits"	Yes =67(11.12%) No=402(66.77%) Not known=133(22.09%)	Yes =102(17.08%) No=237(39.69%) Not known=258(43.21%)	^{2}=89.8 p <0.05
Leprosy is due to "Vitamin deficiency"	Yes =233(38.70%) No=184(30.56%) Not known=185(30.73%)	Yes =217(36.34%) No=182(30.48%) Not known=198(33.16%)	^{2}=1 p >0.05
Leprosy occurs due to "Impure blood"	Yes =346(57.47%) No=97(16.11%) Not known=159(26.41%)	Yes =377(63.14%) No=47(7.87%) Not known=173(28.97%)	^{2}=19.26 p <<0.05
Leprosy is hereditary	Yes =236(39.20%) No=212(35.21%) Not known=154(25.58%)	Yes =209(35.00%) No=187(31.32%) Not known=201(33.66%)	^{2}=9.406 p <0.05
Leprosy and Vitiligo are same diseases (Confusion of vitiligo as leprosy)	Yes =204(33.88%) No=109(18.10%) Not known=289(48.00%)	Yes =297(49.74%) No=81(13.56%) Not known=219(36.68%)	^{2}=31.09 p <0.05

** Chi square and probability values

availability of free leprosy treatment at government hospitals. Only 5.8% urban & 3.2% rural student were aware of leprosy treatment centre in their area. The results show that 59.46% of urban students preferred/suggested allopathic treatment as compared to 20.43% of rural students. The alternative treatments, including *ayurvedic*, *homeopathic*, *yunani* and *religious*

Table 3 : Questionnaire for myths/beliefs regarding leprosy

Variables	Urban students (n=602)	Rural students (n=597)	^{2} and p value**
What type of feeling you have on seeing a leprosy patient	Normal=187(31.06%) Sympathetic=322(53.48%) Afraid=93(15.44%)	Normal=159(26.63%) Sympathetic=337(56.44%) Afraid=101(16.91%)	^{2}=2.916 p >0.05
What type of feeling you have on seeing family member of leprosy patient	Normal=205(34.05%) Sympathetic=341(56.64%) Afraid=56(9.30%)	Normal=162(27.13%) Sympathetic=341(57.11%) Afraid=94(15.74%)	^{2}=14.64 p <0.05
Feel ashamed to tell others if having any leprosy patient in the family	Agree=421(69.93%) Disagree=102(16.94%) Neutral=79(13.12%)	Agree=449(75.20%) Disagree=67(11.22%) Neutral=81(13.56%)	^{2}=8.514 p <0.05
Would you like to shake hand with leprosy patient	Agree=137(22.75%) Disagree=189(31.39%) Neutral=276(45.84%)	Agree=92(15.41%) Disagree=234(39.19%) Neutral=271(45.39%)	^{2}=13.66 p <0.05
Would you buy food from a leprosy patient	Agree=186(30.89%) Disagree=217(36.04%) Neutral=199(33.05%)	Agree=71(11.89%) Disagree=321(53.76%) Neutral=205(34.33%)	^{2}=71.63 p <0.05
Would you make leprosy patient your friend	Agree=121(20.09%) Disagree=194(32.22%) Neutral=287(47.67%)	Agree=89(14.90%) Disagree=294(49.24%) Neutral=214(35.84%)	^{2}=35.98 p <0.05
Would you share food from the same plate with an ex-leprosy patient	Agree=89(14.78%) Disagree=297(49.33%) Neutral=216(35.88%)	Agree=47(7.87%) Disagree=386(64.65%) Neutral=164(27.47%)	^{2}=31.66 p <0.05
Would you mind sitting side by side with leprosy patient in a public conveyance	Agree=137(22.75%) Disagree=175(29.06%) Neutral=290(48.17%)	Agree=105(17.58%) Disagree=259(43.38%) Neutral=233(39.02%)	^{2}=26.68 p <0.05
Would you work with leprosy patient	Agree=104(17.27%) Disagree=161(26.74%) Neutral=337(55.98%)	Agree=114(19.09%) Disagree=227(38.02%) Neutral=256(42.88%)	^{2}=22.73 p <0.05
Would you like to help a leprosy patient	Agree=238(39.53%) Disagree=82(13.62%) Neutral=282(46.84%)	Agree=189(31.65%) Disagree=67(11.22%) Neutral=341(57.11%)	^{2}=12.7 p <0.05

** Chi square and probability values

rituals, were preferred by more than 50% of rural students. In both the groups the source of knowledge was through family members and friends (31 to 41%) and in 21-29% of students, it was through posters, pamphlets and hoardings (Table 2).

Various myths and beliefs regarding leprosy such as "*sins of previous birth*", "*curse" (kodh)*, "*immoral conduct"* were significantly more prevalent in rural students as compared to urban counterparts ($P<0.05$). The result of the study show that significantly more number of rural students confused vitiligo as leprosy ($P<0.01$) and were unaware of the difference between the two diseases (Table 3).

Almost 50% students in both the groups showed positive attitude towards leprosy patients. Although negative attitude towards patients was present in both the groups, it was significantly higher among rural students ($P<0.05$). Around 30-50 % of students were neutral regarding attitude towards leprosy in both the groups (Table 4).

Discussion

India accounts for the highest number of leprosy cases with 133717 new cases detected in 2009 and registered prevalence of 87190 cases at the end of first quarter of 2010 (WHO 2010). Recently WHO has developed an enhanced strategy (plan period 2011-2015) for better patient care and early detection of leprosy to reduce the disability, stigma and discrimination towards leprosy patient (WHO 2009).

A lack of accurate knowledge about leprosy in the community could be an important factor in hindering leprosy control programme. Various studies have assessed the knowledge and attitude towards leprosy among community and have documented the effectiveness of health education given for leprosy (Myint et al 1999).

The current study found that although two thirds of the respondents were aware that leprosy was caused by germs, many also held other (multiple) beliefs regarding the causation of the disease. This pattern has also been reported by other studies in Asia and Africa (Chen 1986, Gerochi 1986, van de Weg et al 1998). In the current study, a significant number (35.21% urban and 37.18% rural students) of the respondents believed that leprosy spreads easily. Similar fears of contagion have been documented in studies from Mangalore, India (Shetty et al 1985) and Ethiopia (Tekle-Haimanot et al 1992) which showed that 53-64% of the population interviewed were of the belief that leprosy was highly infectious.

Although around 35% urban and 25% rural students in the current study reported that the disease is preventable or curable, around 30% of urban and 20% of rural students were also of the view that leprosy was incurable. Similar beliefs were prevalent among the respondents in a study in Bangladesh where 46% stated that leprosy was incurable (Croft and Croft 1999).

Misconceptions regarding the cause of leprosy are one of the most compelling factors that influence a community's health seeking behaviours and determine their attitudes towards those affected by the disease (Kumaresan and Magnu 1994). Similar misconceptions were also found in our study, which were more prevalent in rural students and the same was for the attitude regarding leprosy. Hence, it is important to study the beliefs and misconceptions associated with leprosy before appropriate interventions can be planned.

The perceived modes of spread were significantly higher among the rural students who believed that leprosy spreads easily such as 'sitting side by side' or 'shaking hands' with leprosy patient or 'sharing food' with an ex-leprosy patient. Other studies in many parts of the world (Chen 1986,

Tekle-Haimanot et al 1992, Hilary 2000) have also reported largely negative community attitudes towards leprosy patients. For instance, only 17% of a community in Ethiopia were willing to work together with a leprosy patient (Tekle-Haimanot et al 1992) while as few as 1 to 25% of the respondents in an Indian study were willing to share food with a leprosy patient (Raju and Kopparty 1995). Some other studies have also reported avoidance of a leprosy patient because of the fear of being infected or opposed to even casual contact with leprosy patients (de Stigter et al 2000, Withington et al 2003). Therefore, in the Indian context, leprosy education of the community should focus on the core message that leprosy does not spread easily, a treated patient does not transmit the disease and provide information on how leprosy is not transmitted.

In our study almost 30-50% of all students had a "*neutral attitude"* regarding leprosy. We propose that the existing *"neutral attitude"* of students and the community can be changed to positive attitudes by providing accurate and appropriate information on leprosy. Otherwise "neutral" response may convert into negative attitude.

The aim of our study was to obtain the various aspects of knowledge about leprosy and not to compare the rural and urban students, but it came out in the study that there is a difference in the knowledge, myths, beliefs and attitudes towards leprosy in both the groups.

Students were the target group in this study rather than general population because they represent the whole family's and community's attitude along with general belief regarding a particular problem. We also found that the most common source of knowledge regarding leprosy was family members and surrounding people. Norman et al (2004), as well, emphasized on enhancing awareness among children as it could have a 'ripple effect' among their families and communities they come from and in long run could improve early voluntary reporting.

As students are the future generation of the society, it is important that when they are educated properly and precisely about a particular disease (like leprosy), they can help to spread accurate knowledge and can break the myths, beliefs and negative attitude of community in long term and make early detection possible. This study would be a small step in developing future health education interventions and information obtained from the study can be utilized for implementing the awareness programmes for leprosy.

The shortcoming of this study was the lack of post awareness evaluation about leprosy education in the students who were taught and explained about treatment, prevention and psychological aspect of leprosy. Further studies can take up the pre and post awareness for evaluating the success of leprosy education.

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