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Role of mass media on knowledge generation and countering misconceptions about tuberculosis transmission in Nepal

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ABSTRACT

Objective: To explore the role of mass media on knowledge generation and counter the misconceptions about tuberculosis (TB) transmission in Nepal.

Methods: A cross-sectional study was performed in the largest referral hospital in Nepal. The quota sampling technique was used to recruit 283 subjects into the sample.

Results: A total of 235 (83.0%) respondents correctly replied that TB transmits through air by coughing or sneezing. A total of 29 (10.2%) respondents had correct knowledge about TB transmission without having misconceptions. Similarly, regarding the misconceptions about TB transmission, 157 (55.5%) replied that TB transmits through utensils, 163 (57.6%) respondents replied that TB transmits through sharing clothes/bed sheets/towel, 62 (21.9%) respondents replied that TB transmits through touching a person with TB, 142 (50.2%) respondents replied that TB transmits through food, 88 (31.1%) respondents replied that TB transmits through sexual contact. Respondents who read newspaper (adjusted odd ratio=3.004, confidence interval=1.208–7.471) and listen to the radio daily (adjusted odd ratio=4.610, confidence interval=1.738–12.234) were more likely to have correct knowledge on transmission of TB.

Conclusions: National TB Control Program in Nepal should give priority in disseminating TB related message through newspapers, magazines and radio programs.

1. Introduction

Affecting nearly one third of world population, tuberculosis (TB) is one of the major public health problems in developing countries[1]. Asia accounts for 80% of total cases of TB worldwide[2]. In low and middle income based countries, one in every three adults die from TB whose death rate is after HIV and ischemic heart disease and it is the most common cause of death from a single infection among the adults[3,4]. TB is the first infectious disease declared by the World Health Organization as a global health emergency[5]. Despite the availability of effective health care services targeted for TB, a number of countries still have high burden of this disease. In 2009, there was an estimated 9.4 million incident cases of TB globally (equivalent to 137

cases per 100 000 population). There occurs 20 deaths per 100 000 population due to TB. Total TB control cost alone in 2011 is nearly 3 billion dollar in high burden countries[6].

TB still remains as one of the major public health problems in Nepal[7]. About 45% population is infected with TB bacilli, among whom 60% are adults. Every year, 40 000 people develop active TB, among whom 20 000 have infectious type of pulmonary TB. Although the introduction of directly observed treatment short course has significantly reduced the numbers of deaths, 5 000 to 7 000 people still continue to die every year[7]. Department of Health Services of Nepal has reported a decreasing prevalence of TB[7,8], however, there are still a number of challenges in TB Control Program in Nepal such as high prevalence of HIV infection in TB patients, multi-drug resistant TB and inaccessibility of TB care services in urban slums[9]. A previous study from Nepal showed that people have poor knowledge about causative agent of TB and its preventive measures. This situation in general public is fostering

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the TB transmission, increasing the drug resistant cases and hindering the effectiveness of the directly observed treatment short course programme^[10].

Little knowledge about the causes, modes of transmission, symptoms and treatment measures of TB directly affect personal hygiene behavior, thus the strategies have little effect and the burden of the diseases continues to enlarge^[11]. In Nepal, most of the health related messages are commonly disseminated through radios. On an average, more than three quarters of households have at least one radio set, whereas only 35.1% listen frequently^[12]. For the dissemination of correct TB related message among the people, the use of mass media preferably newspaper, radio and television can have the significant impact^[13]. There are limited available scientific reports about information on the knowledge of TB and its determinants are among the male adults in Nepal. The objective of this study is to explore the role of mass media on knowledge generation and counter misconception about TB transmission in Nepal.

2. Methods

2.1. Study setting

A cross-sectional study was performed among service users of Tribhuvan University Teaching Hospital (TUTH—one of the largest tertiary hospitals in Nepal). TUTH was established in 1983^[14]. It has a total of 444-bed capacity and offers emergency, outpatients and indoor services^[15]. TUTH was selected as the study site as it would allow researchers to recruit diverse population by age, ethnicity and residence and seek the specialty care in the hospital. An unpublished data from annual report of this hospital reported that TUTH has provided service to over one million patients from all around the country.

2.2. Sampling and data collection

The quota sampling was used for the data collection. Quota sampling has been used to recruit subjects in earlier studies^[16,17]. Quota sampling was chosen as the most cost effective means of obtaining a representative sample of male adults^[18]. Earlier studies have reported that quota sample surveys might be an acceptable alternative to probability sample surveys^[19]. So quota sampling was used to ensure the inclusion of people of different age groups and ethnicities who may be underrepresented by probability or purposeful sampling techniques^[20]. The total outpatient visits in ten of

twenty-five departments of TUTH were estimated. General Medicine Department had the highest estimated Out-Patient Department visits, an average of 200 patients in a day, while Department of Psychiatry had the lowest visits with an average of 50 in a day. In each department every 25th sample was systematically chosen from outpatient register. Samples were collected in a month, from September to December 2013. The enumerators recruited for data collection were of proficiency certificate level in general medicine; the enumerators received orientation before data collection. People who were severely ill and aged <15 years were not selected for the interview.

2.3. Defining variables

2.3.1. Outcome variable

The knowledge about TB transmission was categorized as correct knowledge if the respondent replied “Yes” to “TB transmits through the air by coughing or sneezing” and vice versa. The entire variables were entered into the logistic model and the backward elimination process was used to obtain the final model. If the respondents reported of not using any of the media (listening to the radio, watching television and reading newspapers or magazines) on daily basis then all the responses were defined “weekly to none”.

Some of the questions used in the study were derived from the earlier studies in India^[21]. The respondents recorded have misconception about TB transmission if responses were marked “Yes” to the following questions: 1) through sharing utensils (Yes); 2) through sharing clothes/bed sheets/towel (Yes); 3) through touching a person with TB (Yes); 4) through food (Yes) and 5) through sexual contact (Yes).

2.4. Independent variables

Independent variables were selected based on literature^[21]. Age, sex, education, occupation, ethnicity, religion, family type, place of residence, frequency of listening to the radio, frequency of watching television, frequency of reading newspapers or magazines and the received TB related information from health care providers were recorded. The ethnicity was categorized as advantaged and disadvantaged according to the Health Management Information System classification of ethnic groups in Nepal and as it has been used in an earlier study^[22]. Place of residence was defined “urban” if respondents reported living in municipality and “rural” if respondents reported living in village development committee.

2.5. Statistical analysis

The knowledge and misconceptions about TB were presented as descriptive statistics. The composite outcome variable “correct knowledge” was presented as descriptive statistics. Association of exposure to mass media and other independent variables with the outcome variable was investigated using *Chi*-square test followed by regression analyses. Stepwise backward elimination process was used in multiple logistic regressions. Statistical package for social sciences was used for data analyses.

2.6. Research ethics

The research proposal and tools were approved by the Ethics Review Committee of Manmohan Memorial Institute of Health Sciences, Nepal. The research objectives were clearly explained to all the respondents before starting the interview. Informed consent was taken from each respondent. No personal identifiers were recorded.

3. Results

3.1. Characteristics of participants

Two hundred and eighty three persons participated in the study. Socio-demographic characteristics are shown in Table 1. The mean age of respondents was (33.67±14.21) years old. The average ages of respondents who had the “Incorrect” and “correct” knowledge about TB transmission are 33.66 and 33.79 respectively. Majority of the respondents 154 (54.4%) had higher secondary or above level of education (Table 1).

3.2. Knowledge and misconception about TB

A total of 235 (83.0%) respondents correctly replied TB transmits through the air when coughing or sneezing. A total of 29 (10.2%) respondents had correct knowledge about TB transmission without any misconceptions. Similarly, regarding the misconceptions on modes of TB transmission, 157 (55.5%) replied that TB transmits through utensils, 163 (57.6%) respondents replied that TB transmits through sharing

Table 1

Characteristics of respondents, and correct knowledge on TB among Nepalese Men, 2013 (n=283).

Factor		n (%)	Incorrect knowledge (%)	Correct knowledge (%)	P
Sociocultural factors					
Education	No education	13 (4.6)	11 (84.6)	2 (15.4)	0.830
	Primary	63 (22.3)	58 (92.1)	5 (7.9)	
	Secondary	53 (18.7)	48 (90.6)	5 (9.4)	
	Higher secondary and above	154 (54.4)	137 (89.0)	17 (11.0)	
Occupation	Professional/Technical managerial/ Clerical/Office work/Sales/ Services	80 (28.3)	71 (88.8)	9 (11.2)	0.855
	Manual (skilled/unskilled)	60 (21.2)	53 (88.3)	7 (11.7)	
	Not working/not specified	87 (30.7)	78 (89.7)	9 (10.3)	
Caste	Agriculture	56 (19.8)	52 (92.6)	4 (7.1)	0.879
	Advantaged	189 (66.8)	170 (89.9)	19 (10.1)	
Religion	Disadvantaged	94 (33.2)	84 (89.4)	10 (10.6)	0.250
	Hindu	236 (83.4)	214 (90.7)	22 (9.3)	
Type of family	Others (Buddhist, Muslim, and Christian)	47 (16.6)	40 (85.1)	7 (14.9)	0.033
	Nuclear	142 (50.2)	122 (85.9)	20 (14.1)	
	Joint/Extended	141 (49.8)	132 (93.6)	9 (6.4)	
Spatial factors					
Place of residence	Urban (Municipality)	82 (29.0)	68 (82.9)	14 (17.1)	0.016
	Rural (VDC)	201 (71.0)	186 (92.5)	15 (7.5)	
Source of TB related information					
Reading newspaper or magazine	Weekly to none	203 (71.7)	193 (95.1)	10 (4.9)	0.001
	Daily	80 (28.3)	61 (76.2)	19 (23.8)	
Frequency of watching television	Weekly to none	190 (67.1)	177 (93.2)	13 (6.8)	0.007
	Daily	93 (32.9)	77 (82.8)	16 (17.2)	
Frequency of listening radio	Weekly to none	184 (65.0)	177 (96.2)	7 (3.8)	<0.001
	Daily	99 (35.0)	77 (77.8)	22 (22.2)	
Health care providers, Female community health volunteers	Not at all	84 (29.7)	78 (92.9)	6 (7.1)	0.263
	Sometimes	199 (70.3)	176 (88.4)	23 (11.6)	

clothes/bed sheets/towel, 62 (21.9%) respondents replied that TB transmits through touching a person with TB, 142 (50.2%) respondents replied that TB transmits through food and 88 (31.1%) respondents replied that TB transmits through sexual contact. A total of 80 (28.3%) respondents had the perception that the cost of TB treatment is high. A slightly less than one third [88 (31.3%)] of respondents had the false perception that it was necessary to go to big hospitals for TB treatment (Table 2).

Table 2

Knowledge on TB among Nepalese males aged 15–49 years ($n=283$).

Outcomes	Response Percentage	
Knowledge on TB transmission		
TB transmits through the air by coughing or sneezing (Yes)	235	83.0
Misconceptions		
Through sharing utensils (Yes)	157	55.5
Through sharing clothes/bed sheets/towel (Yes)	163	57.6
Through touching a person with TB (Yes)	62	21.9
Through food (Yes)	142	50.2
Through sexual contact (Yes)	88	31.1
Correct knowledge about TB transmission (Correct knowledge and no misconceptions)	29	10.2
Cost of TB treatment is high (Yes)	80	28.3
Is it necessary to big hospitals for TB treatment (Yes)	88	31.3

3.3. Factors associated with correct knowledge on TB

The variables which were significant in univariate level were analyzed in multivariate logistic regression model. Respondents who resided on urban (municipality) [adjusted odd ratio (aOR)=2.194, confidence interval (CI)=0.944–5.101] were more likely to have correct knowledge on TB transmission than those who resided on rural. This was significantly associated with having correct knowledge of TB transmission at 90 % confidence interval. Respondents read newspapers or magazines on daily basis (aOR=3.004, CI=1.208–7.471) were more likely to have correct knowledge on transmission of TB than the respondents who read newspapers or magazines on weekly basis. Respondents who listened to the radio on daily basis (aOR=4.610 CI=1.738–12.234) were more likely to have correct knowledge on transmission of TB than the respondents who listened to the radio on weekly basis (Table 3).

Table 3

Factors associated with TB knowledge.

Factors	Adjusted odd ratio (CI)	P value
Reading newspaper or magazine		
Weekly to none	1.00	0.018
Daily	3.004 (1.208–7.471)	
Frequency of listening to the radio		
Weekly to none	1.00	0.002
Daily	4.610 (1.738–12.234)	
Place of residence		
Rural	1.00	0.068
Urban (Municipality)	2.194 (0.944–5.101)	

Hosmer Lemeshow Goodness of Fit Test: 0.837; –2 likelihood ratio: 153.645. All the variables under study were entered in the initial model.

4. Discussion

TB is one of the major public health problems globally^[1]. TB accounts for significant burden of morbidity and mortality in Nepal^[9]. The country aims at reducing the prevalence and deaths due to TB by 50% (in comparison to 1990) by the year 2015, and eliminate TB as a public health problem (<1 case per million population) by 2050^[7]. This study aims at exploring the role of mass media on knowledge generation and countering the misconceptions about TB transmission in Nepal.

This study found that a majority (83%) of respondents had correct knowledge on TB transmission. Earlier studies in Nigeria, India and Ghana reported poor knowledge of TB transmission among people^[23–25]. TB Control Program of the Government of Nepal has launched several behavioral change communication activities at the community level. The comprehensive National Strategy Plan for TB (2010–2015) has outlined enhanced and more focused commitments to tackle the TB epidemic, consistent with Millennium Development Goals in the line of Global Stop TB Strategy^[7]. In recent years, the behavioral change and social mobilization have gained momentum including broadcasting TB/HIV messages through national television, radios, newspapers, TB posters, pamphlets and leaflets to increase case detection, treatment adherence and combating stigma and discrimination related to TB^[7].

It was found that respondents had varying degree of misconception about transmission of TB such as transmission via sharing utensils, via sexual contact, via clothes, bed sheets or towel, via food and via touching a person with TB. High prevalence of misconceptions about transmission of TB was seen in earlier studies in Pakistan, Ethiopia and India^[26–29]. A study in Ethiopia reported the misconception of sexual intercourse as a cause of TB^[26]. Higher prevalence of misconception about transmission of TB among the respondents might contribute to the stigmatization among people with TB^[30,31]. Majority of the respondents had the perception of high cost of TB treatment and the necessity to go for big hospitals for the treatment. This needs to be addressed as it might affect the health seeking behavior of TB patients and consequently enlarge the knowledge about the transmission of TB.

This study showed that the frequency of use of media played a significant role in generating correct knowledge on transmission of TB and reading newspapers or magazines and listening to the radio daily enhanced the correct knowledge on transmission of TB. This finding is supported by other studies in Nigeria and India^[13,32] where media

had demonstrated most effective contribution to enhance knowledge on TB. This might be due to higher chance of daily update of health columns published in the daily newspapers by the general public. Higher odds of having correct knowledge on TB transmission disseminated via radio can be attributed to current intense educational activities conducted by national TB programme and radio stations themselves via radios. An earlier study showed that majority of people from Terai (64%) listen to TB radio programme, whose rate is followed by a half (51%) in hill and 23% in mountain region of Nepal^[12]. A study in India showed that health messages placed on newspapers and aired in radios were effective in knowledge generating related to TB transmission^[13]. Differing to this, a study in Pakistan showed media such as radios, televisions and newspapers were not the important sources of information about TB or its transmission^[33]. Respondents from urban municipality areas had higher level of correct knowledge on TB transmission than on those respondents dwelling on rural areas. This is different from the study done in Philippines and Vietnam where the place had no significant association with correct knowledge on TB^[34,35]. The higher level of knowledge on urban respondents might be due to higher facilities of media approaches and concentrations of government awareness programmes in urban areas.

In Nepal, TB related messages are less frequently featured in newspapers and magazines, broadcasted in TV and aired through radio. Majority of the newspapers and magazines publish weekly health column and less specific to TB. The current National TB Control Program needs collaboration with radio stations and TV channels so that TB related messages can be disseminated in variety of forms; TB related television shows, short clips related to TB messages, and airing of TB related radio programs such as dramas, songs, jingles, talk programs and interviews of the health personnel. Similarly, high emphasis should be given in placing TB related messages in newspapers and magazines in addition to current conventional behavioral change communication approaches such as TB posters, pamphlets and leaflets. This study is one of the few studies done to explore the role of mass media in knowledge generation and countering misconception about TB transmission and its associated factors in Nepal. Due to cross-sectional nature of this study it is impossible to draw the causal inference. The non-probability study design and limited sample from only one location further limits the generalizability of study findings to a larger population.

A high proportion of respondents had misconceptions regarding the modes of transmission of TB. The

respondents who read newspapers or magazines and listened to the radio on daily basis were more likely to have correct knowledge on TB transmission. Optimal utilization of mass media can play a significant role in the rigorous dissemination of important information and education related to TB and can change the misconception about TB transmission. National TB Control Program in Nepal should carry out more frequent dissemination of TB related message through newspapers, magazines and airing of radio programs.

Conflict of interest statement

We declare that we have no conflict of interest.

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