Gender and occupation wise knowledge, Awareness and prevention of tuberculosis among people of district Muzaffarabad AJ & K

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Abstract: To assess the awareness about the spread and control of tuberculosis as well as to investigate the gender and occupation wise differences among people regarding knowledge and attitude towards tuberculosis in the State of AJ & K. A cross-sectional descriptive study was conducted in district Muzaffarabad and a sample of 4000 respondents was selected by using stratified random sampling technique. The stratification was done with respect to gender and occupation. The occupation wise classification includes households, labors, and shop keepers, government employers, under graduate students of social and natural sciences, medical students and doctors. A close ended structured questionnaire was developed to collect the data and data were analyzed by using SPSS (Statistical Package for Social Sciences). Chi-Square test was used for association and Logistic Regression model was used to find out the most significant risk factors with gender. Majority of the males were more aware of tuberculosis than females regarding different aspects related to tuberculosis. The respondents from household, labors and shopkeepers have less awareness and knowledge than those who belong to other professions. The doctors and medical students have almost 100% awareness and knowledge of tuberculosis. It was examined that all the variables were associated with gender except threat, curable and transmissible. Only three variables mentioned above showed non- significant result, while all other variables were strongly associated with gender. Males were found more aware about TB than females. Moreover, the literate people were more conscious concerning the prevalence and threats of the disease.

Keywords: Tuberculosis, Muzaffarabad, Chi-Square, Logistic Regression, Odds Ratio, Azad Jammu and Kashmir (AJ&K). DOTs (Direct Observed Short Treatment Method)

INTRODUCTION

Tuberculosis (abbreviated as TB) is a chronic infection caused by the bacteria called Mycobacterium tuberculosis. Tuberculosis disease has been identified as one of the six infectious diseases that are considered to be a serious threat to the world's population (WHO, 2012).The disease can easily spread through coughing, spitting, speaking or sneezing (White, 2007). TB is becoming a serious infectious curable disease leading to death mortality and morbidity, weekly report (MMWR) (CDC, 2011). Although the effective therapy and methods of control and Prevention of tuberculosis have been developed, the disease remains a major cause of mortality and morbidity throughout the world. The treatment of tuberculosis has been complicated by the emergence of drug-resistant organisms, including multiple-drug-resistant tuberculosis, especially in those with HIV infection (American Heritage Dictionary, 2012). The statistical report provided by the World Health Organization (WHO) showed alarming results for the mankind. The report shows that in the year 2010, an estimated number of 8.8 million people worldwide were infected with TB, while an estimated 1.4 million of the infected patients died of it (WHO, 2002).

World trends

Tuberculosis has become an epidemic in many developing countries, especially people in third world countries are infected by it. We have to confront 8 million new TB cases and as a result, 2-3million deaths occur worldwide. So, TB is a main cause of morbidity and mortality worldwide among other infectious diseases. Pakistan is having high TB prevalence rate which ranks 6th in the world (Leiner and Butz,1996). Decades after its decline in the United States, tuberculosis (TB) has again become a pressing public health concern (Leiner and Butz, 1996); Lu *et al.* 2009). Between 1985 and 1992, the annual number of TB cases nationwide increased or failed to decline, producing an estimated 54,000 more cases than would have been expected (Pakistan Today, 2012). Zhang conducted a study in China to explore the awareness level of tuberculosis in China and concluded that there was the highest level of TB awareness ever in the world, i.e., 89.0% (95%CI 88.8-89.3). He emphasized to create awareness regarding TB symptom, its free detection and TB dispensaries. Furthermore, he explored that the employees of farming industry and those who are having low educational background are vulnerable to the knowledge of TB (Walley, 2000).

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Situation in Pakistan

Like other parts of the world, TB day has been celebrated in Pakistan in order to raise awareness among people regarding tuberculosis since 24th march, 2012, addressing different aspects of tuberculosis like awareness, prevention, mode of transmission, etc. through media and organizing health seminars because TB is the leading cause of mortality in Pakistan (Croft, 1999). World Health Organization, WHO has developed a strategy to stop TB globally with the goal of reducing ratio of TB cases dramatically. In Pakistan, very few studies have been conducted regarding TB awareness despite the fact that it is the most prevalent disease. National TB control programs are having a lot of misconceptions and wrong beliefs among TB patients. These false beliefs turned TB into stigma in the society, which, in turn, leads towards reluctance of seeking treatment among TB patients. No program is effective before addressing myths. Keeping into account the cultural and social values of people while addressing myths and misconceptions, and creating awareness can play an important role (Edginton, 2002). Treatment of TB has always been speculative in the past but since 1992, it has been declared as global emergency and as a remedial measure, a more effective, shorter and affordable treatment method of DOTs was introduced which ultimately lessened the prevalence of TB and made diagnosis easier and free of cost. Now TB can be cured easily and its treatment is accessible to a common man. As a result, it has reduced death ratio to a great extent.

In order to create awareness in the community regarding TB, there is a need to design strategies. Furthermore, education and basic information regarding TB is needed to be spread out. Well organized campaign of health education can enhance the level of knowledge and aids in producing favorable attitude towards tuberculosis (Metcalf, 1990). TB patients are still suffering with the problem of social alienation, stigmatization and many other social problems, even in the era of advancement in technology and medicine. People still consider TB as incurable and even some people think that because of having TB, they can't get married. So, there is a dire need to disseminate awareness regarding TB, its Prevention and treatment (NRM, 2002). Since practitioners are under heavy work load in developing countries like Pakistan, they can't get enough knowledge regarding patients and severity of their disease. So, they can't comply with WHO guidelines, which make the situation worse. Even physicians are having misconception regarding TB (Croft, 1999). A survey regarding knowledge about Tuberculosis was conducted amongst Physicians and it was observed that 21.3% physicians considered tuberculosis not a serious issue, 29% were not in favor of prescribing BCG (Bacillus climetguerine) because of its adverse side effects, 39% were prescribing drugs for TB and finally, it was concluded that there are a number of misunderstandings regarding the transmission of tuberculosis, BCG vaccination and diagnosis method of TB. Moreover, treatment and monitoring of treatment is not as much satisfactory as it should be (Leiner and Butz, 1996).

Studies revealed that 7% patients don't consider TB as communicable disease, 18% believe that TB is not preventable disease, 47.6% people believe that Contamination of food is the major source of infection, 57% believe emotional shock, tension and anxiety to be the causes of TB, 51% of the TB patients claim that they have not received any counseling that TB is a preventable disease and 57% of the TB patients believe that separation of daily pots and cloths will aid in the prevention of TB. In the light of these alarming statistics, public health officials are again looking to raise awareness regarding TB, its treatment and prevention (Javaid *et al*. 2006). Therefore, it is very important to know the level of public awareness of TB disease. The level of awareness may vary according to demographic factors, such as education, gender and occupation. Based on these factors, this study discusses the level of awareness among people belonging to different occupations, such as doctors, government employees, labors, households, shopkeepers, social and medical science students.

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METHODS

Study design and sample

A cross-sectional descriptive study was conducted in district Muzaffarabad, AJ&K. A stratified probability sampling technique was used to collect a sample of 4000 respondents with respect to gender and occupation. The occupation wise classification was: households, labors, shop keepers, government employers, under graduate, social sciences, natural sciences, medical students, and physicians. A structured questionnaire was used to collect data which consisted of 10 questions.7 out of 10 questions were about awareness and knowledge of tuberculosis and 3 were related to prevalence of TB. The design of Questionnaire was simple and questions were framed in English language. Because of concerns about illiteracy, interviews with the respondents from household, labors and shopkeepers were conducted by the authors and questionnaire was filled based upon results of interviews.

The questionnaire was designed to measure the knowledge and awareness level about Tuberculosis. Data were analyzed using SPSS 10 version.

Measures

Respondents of the study were asked to describe their overall current gender status with the following non-comparative question item 'How can people be aware of TB and what kind of information they have? And how do they suggest remedies? Gender & occupation wise', and different category responses were provided like Yes, No and others. Validity and a re-test reliability of the construct in predicting numerous gender and social outcomes were demonstrated. Validity and verifiability were evaluated for the construct.

Exposures

Problem behaviors. The respondents having different occupations were classified gender wise having problem behavior. If the respondents reported that they were mostly aware of TB or not and admitted that it was a threat to human body, they fall in the behavior problem. The symptoms reported (Loss of Weight, Persistent Fever, Continuous Headache, Stomach Pain, Others and all of the above) were also included along with spread of TB, its transmission and effect on human body in problem behavior categories. In addition, the cure of TB, permanent removal of it and how it is transmitted from a patient to others were also treated as problem behaviors during the study.

Other exposure variables. Gender and occupation wise information was sought regarding the awareness and prevention of TB. Ten questions were devised to measure the prevalence of TB categorically from respondents. The first question was: are you aware of TB? And second question was: is TB a threat to human body? Both were categorized as (yes) and (no). The questions on symptoms of disease contained 'Loss of Weight, Persistent Fever, Continuous Headache, Stomach Pain, Others and all of the above', while question on prevalence of TB had options, such as coughing or sneezing, overcrowding and flue). The questions on transmission, impacts on lungs, treatment, government measures and a patient having effective treatment causing TB, were categorized as (yes) and (no). The question about complete removal of disease contained options, such as Don't know, Antibiotic Treatment, Vaccination, Surgery of lungs, Prayers & Blood).

Analytical strategy

Chi-Square test was used to check the association between gender and different risk factors. Logistic Regression model was used to check the most significant risk factors.

RESULTS

As mentioned earlier, a sample size of 4000 respondents was taken by using stratified random sampling technique. These respondents were classified on the basis of their gender and occupation.

Table 1 shows that the majority of the males (97.4%) were aware of TB and 2.6% were not a ware, while 96.1% females were aware and 3.9% had no awareness about TB. So, overall 96.9% respondents were aware of TB and 3.2% were ignorant of it. The total percentage of replies (Yes/No) regarding the question: Is TB threat to the human body? was 93.4% and 6.6%, respectively. Among those, 93.5% of the males responded that TB is a threat to human body and 6.5% responded that TB is not a threat to human body. Similarly, 93.3% females said that TB is a threat to human body and 6.6% said that Tb is not a threat. This shows that males are more aware than females regarding TB being a threat to human life.

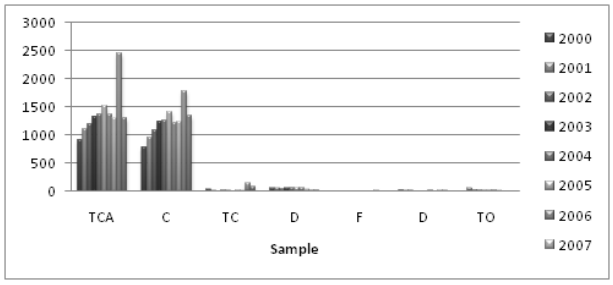

Fig. 1: Result of Treatment after 12 to 15 Months new Sputum Positive / Re treatment Cases.

TCA = Total TB cases to be evaluated, C = Cured, TC = Treatment Completed, D = Died, F = Failure, D = Defaulted, TO = Transferred out

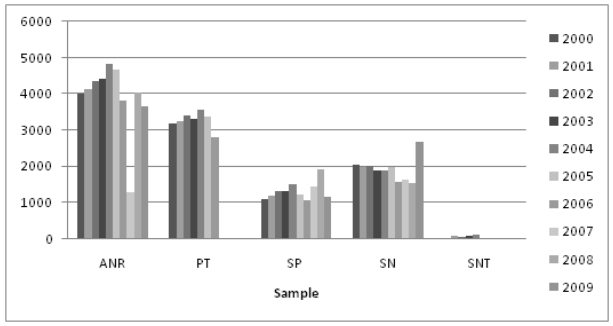

Fig. 2: Of Registration and Incidence of Tuberculosis in MZD in the Reporting Period of 2000-2009

ANR =Annual New registration, PT =Pulmonary Tuberculosis, SP =Sputum Positive (New +Re-treatment), SN =Sputum Negative, SNT =Sputum Not Taken

The 3rd question was about the symptoms of TB which had six options.32.5% of the respondents were of the opinion that loss of weight was the actual symptom of TB and 25.5% opted for persistent fever. The response percentage for continuous headache and stomach pain was 3.9% and 1.2%, respectively. 3.2% of the respondents said that symptoms of TB were other than the above options and 33.7% opted for all of the above option. Proportion of males was 32.6% and 29.9% for loss of weight and persistent fever, respectively.3.7% males opted for continuous headache and 1.4% for stomach pain. The male response for options others and all of the above was 3.6% and 28.8%, respectively. On the other hand, the female response for this question (i.e., loss of weight, persistent fever, continuous headache, stomach

pain, others, all of the above) was 32.1%, 18.8%, 4.2%, 1.0%, 2.5% and 41.3%, respectively. The awareness of males about the spread of tuberculosis was 84.0%, 12.6% and 3.4% for the options coughing or sneezing, overcrowding and flue, respectively, whereas female response was 87.2%, 9.2% and 3.6%, respectively. The overall percentage of 85.3% indicated that tuberculosis spreads due to coughing or sneezing, 11.3% said that it spreads due to overcrowding and 3.5% opted for flue. In response to our fifth question, which was about TB transmissible, 74.0% males agreed and only 26.0% disagreed; while 73.1% females approved and 26.9% did not. The overall percentage was 73.6% and 26.4%, respectively. Sixth question was also related to the knowledge of TB.47.1% males agreed that TB can only affect lungs and 43.3% males refuted the idea, while 9.6% had no idea about it. Similarly, female response was 42.4%, 46.2% and 11.4%, respectively. The overall response percentage was 45.3%, 44.4% and 10.3%, respectively. For the seventh question, 88.5% male respondents reckoned TB a curable disease and 11.5% said it was incurable. Female response for this question was 89.8% and 10.2%, respectively. Overall 89% of the respondents said that TB was curable and 11% believed it was incurable. In response to the question whether a TB patient under effective treatment still has a chance to spread TB, 72.9% of the males endorsed it and 27.1% did not, while 85.1%females agreed to it and 41.9% did not. The overall response percentage for this question was 72.1% and 27.9%, respectively. The next question was about their satisfaction concerning the treatment provided by Government. 52.8% of the males responded positively, while 47.2% were not satisfied with the treatment; similarly, 44.9% females reported satisfaction with the treatment and 55.1% reported dissatisfaction. 49.7% and 50.3% was over all response percentage for this question. The next question was about the complete removal of TB from the body which contained 6 option like don't know, antibiotic treatment, vaccination, surgery of lungs, prayers and blood transfusion. The male response for this question was 21.7%, 64.5%, 8.2%, 2.3%, 3.1% and 2%, respectively. On the other hand, 55.3% females responded in favor of antibiotic treatment, while 25.3% female were absolutely unaware of this. Interestingly, 12.2% of the females were of the view that TB can be removed by surgery of lungs, while 4.2% females thought that TB can only be cured through prayers and 3% females replied that it can be removed through blood transfusion. The overall response percentage for this question was 23.2%, 60.9%, 9.8%, 2.4%, 3.6% and 2% respectively.

Feedback of the respondents with respect to their Occupation regarding knowledge, Awareness and prevalence of tuberculosis

Table 2.1 signifies that 91.3% with household as occupation were found conscious, while 8.7% were not familiar. Similarly, 94.8% of labors were familiar and 5.2% had no awareness about TB. The percentage of awareness among shopkeepers, government employees and undergraduates was 97.8%, 99%, 96.2%, respectively. People from social sciences exhibit 95% ratio, while those who are from natural sciences have 98.7% awareness ratio. However, Doctors and medical students had 100% awareness about TB. So, the classification table shows that overall 96.9% of the respondents were aware of TB and 3.2% had no awareness about this fatal disease.

Table 2.2 shows that 88.6% of the respondents whose occupation was household thought that TB is threat to human body and 11.4% did not consider it a threat. Similarly 85.4% labors reported that Tb is threat to the human body and 14.6% said that it is not a threat. 90.7%, 95.8% and 94.3% of the shopkeepers, government employees and under graduate students, respectively considered that TB is a threat for human body. Similarly, 93.7% of the social science students and 93.8% of the natural science students thought that TB is a threat for human body. However 100% doctors and 99% medical students were well aware that TB is a serious threat for human beings. So, overall 93.4% respondents were aware that TB is a threat to human body and 6.6% did not consider it a threat to humans.

From table 2.3, it can be perceived that majority of the respondents vis-à-vis different occupation as well as doctors and medical students believed that loss of weight and persistent fever are two main symptoms of TB and majority of them perceived that all of the above are the symptoms of TB.

From table 2.4, it is clear that majority of the respondents agreed that the main reason of blowout of tuberculosis is coughing or sneezing. Overall 85.3% opted for coughing, 11.3% for overcrowding and 3.5% forflue.

Table 2.5 denotes that maximum number of respondents with different occupations said that tuberculosis is transmissible. The overall percentage for communicable and non-communicable was 73.6% and 26.4%, respectively.

Table 2.6 depicts that attitude of the respondents regarding "does tuberculosis affects lungs only?" is almost 50% who endorsed it and who did not and there is a very low percentage of the respondents, which showed no concern.

From table 2.7, it can be detected that maximum number of respondents (89%) agreed that TB is curable and11% said that it is incurable.

From table 2.8, it is clear that a high percentage of respondents said that TB patients under effective treatment were still prone to spreading TB and a very low percentage of the respondents disagreed with this proposition.

Table 1: Gender wise Feedback of the Respondents regarding Knowledge, Awareness and Prevention of TB

No	Statement	Options	Total	Male	Female
1	Are you aware of tuberculosis?	Yes	3874(96.9%)	2359(97.4%)	1515(96.1%)
		No	126(3.2%)	64(2.6%)	62(3.9%)
2	Is TB threat to the human body?	Yes	3736(93.4%)	2265(93.5%)	1471(93.3%)
		No	264(6.6%)	158(6.5%)	106(6.7%)
3	What are the symptoms of TB?	Loss of Weight	1298(32.5%)	791(32.6%)	507(32.1%)
		Persistent Fever	1021(25.5%)	724(29.97)	297(18.8%)
		Continuous Headache	156(3.9%)	89(3.7%)	67(4.2%)
		Stomach Pain	49(1.2%)	34(1.4%)	15(1.0%)
		Others	127(3.2%)	87(3.6%)	40(2.5%)
		All of above	1349(33.7%)	698(28.8%)	651(41.3%)
4	How tuberculosis spreads?	Coughing or Sneezing	3410(85.3%)	2035(84.0%)	1375(87.2%)
		Over crowding	451(11.3%)	306(12.6%)	145(9.2%)
		Flue	139(3.5%)	82(3.4%)s	57(3.6%)
5	Is TB transmissible?	Yes	2945(73.6%)	1792(74.0%)	1153(73.1%)
		No	1055(26.4%)	631(26.0%)	424(26.9%)
6	Can TB only affect lungs?	Yes	1811(45.3%)	1142(47.1%)	669(42.4%)
		No	1777(44.4%)	1048(43.3%)	729(46.2%)
		Don't know	412(10.3%)	233(9.6%)	179(11.4%)
		Transfusion	(2%)	(2%)	(3%)
7	Do you believe TB is curable disease?	Yes	3561(89.0%)	2145(88.5%)	1416(89.8%)
		No	439(11.0%)	278(11.5%)	161(10.2%)
8	Can a patient under effective treatment still because TB to spread?	Yes	2883(72.1%)	1767(72.9%)	1116(70.8%)
		No	117(27.9%)	656(27.1%)	461(29.2%)
9	Are you satisfied with treatment provided by the government to combat TB problem?	Yes	1988(49.7%)	1280(52.8%)	708(44.9%)
		No	2012(50.3%)	1143(47.2%)	869(55.1%)
10	If TB is cured how can the disease are completely removed from the body?	Don't know	926(23.2%)	527(21.7%)	399(25.3%)
		Antibiotic Treatment	2436(60.9%)	1564(64.5%)	872(55.3%)
		Vaccination	391(9.8%)	198(8.2%)	193(12.2%)
		Surgery of lungs to remove	97(2.4%)	55(2.3%)	42 (2.7%)
		Prayers	142(3.6%)	75(3.1%)	67(4.2%)
		Blood	8	4	4

Table 2.1: Cross Tabulation between Awareness and Occupation

Occupation	Awareness		Total
	Yes	No	
House Hold	481(91.3%)	46(8.7%)	527
Labor	254(94.8%)	14(5.2%	268
Shop Keeper	443(97.8%)	10(2.2%)	453
Government Employer	780(99.0%)	8(1.0%)	788
Under Graduate	552(96.2%)	22(3.8%)	574
Social Science	379(95.0%)	20(5.0%)	399
Natural Science	442(98.7%)	6(1.3%)	448
Medical Students	412(100%)	--	412
Doctors	131(100%)	--	131
Totals	3874(96.9%)	126(3.2%)	4000

DISCUSSIONS

Table 2.9 highlights that majority of the respondents belonging to occupations, such as Household, Labor, Shopkeeper, Government Employee and Doctors were satisfied that government is providing a satisfactory treatment to combat TB, while those belonging to the rest of the occupations were not satisfied. Overall 49.7% were satisfied and 50.3% were not satisfied.

Table 2.2: (Cross Tabulation between Threat and Occupation)

Occupation	Threat		
	Yes	No	Total
House Hold	467(88.6%)	60(11.4%)	527
Labor	229(85.4%)	39(14.6%)	268
Shop Keeper	411(90.7%)	42(9.3%)	453
Government Employer	755(95.8%)	33(4.2%)	788
Under Graduate	541(94.3%)	33(5.7%)	574
Social Science	374(93.7%)	25(6.3%)	399
Natural Science	420(93.8%)	28(6.3%)	448
Medical Students	408(99.0%)	4(1.0%)	412
Doctors	131(100%)		131
Totals	3736(93.4%)	264(6.6%)	4000

Table 2.3: (Cross Tabulation between Knowledge about Symptoms of TB and Occupation)

Occupation	Symptoms					
	Loss of Weight	Persistent Fever	Continuous Headache	Stomach Pain	Others	All of the above
House hold	177(33.6%)	150(28.5%)	36(6.8%)	6(1.1%)	3(.6%)	155(29.4%)
Labor	64(23.9%)	90(33.6%)	17(6.3%)	4(1.5%)	5(1.9%)	88(32.8%)
Shop Keeper	198(43.7%)	155(34.2%)	8(2%)	4(.9%)	15(3.3%)	72(15.9%)
Government Employer	295(37.4%)	227(28.8%)	32(1.4%)	13(1.6)	18(2.3%)	203(25.8%)
Under Graduate	162(28.2%)	126(22%)	19(3.3%)	6(1%)	18(3.1%)	243(42.3%)
Social Science	100(25.4%)	91(22.8%)	10(2.5%)	3(.8%)	15(3.8%)	180(45.1%)
Natural Science	142(31.7%)	93(20.8%)	25(5.6%)	9(2%)	15(3.3%)	164(36.6%)
Medical Students	93(22.6%)	68(16.5%)	4(1%)	3(.7%)	37(19%)	207(50.2%)
Doctors	67(51.1%)	21(16%)	4(3.1%)	1(.8%)	1(.8%)	37(28.2%)

Table 2.4: (Cross Tabulation between Knowledge about Spread of TB and Occupation)

Occupation	Spread			Total
	Coughing or Sneezing	Over crowing	Flue	
House Hold	447(84.8%)	42(8.0%)	38(7.2%)	527
Labor	183(68.3%)	75(28.0%)	10(3.7%)	268
Shop Keeper	374(82.6%)	60(13.2%)	19(4.2%)	453
Government Employer	683(86. &%)	74(9.4%)	31(3.9%)	788
Under Graduate	524(91.3%)	33(5.7%)	17(3.0%)	574
Social Science	371(93.0%)	22(5.5%)	6(1.5%)	399
Natural Science	398(88.8%)	38(8.5%)	12(2.7%)	448
Medical Students	316(76.7%)	93(22.6%)	3(.7%)	412
Doctor	114(87.0%)	14(10.7%)	3(2.3%)	131
Total	3410(85.3%)	451(11.3%)	139(3.5%)	4000

Table 2.10 shows that majority of the respondents concerning different occupations reported that TB can be removed by antibiotic treatment.

Table 3 illustrates the results of Pearson Chi-Square and Multivariate Logistic Regression Model with Odds Ratios. The results exhibit that all variables are associated with gender and occupation except that the variables 'Threat',' TB is Transferable' and 'TB is Curable' because the p value of these three variables is greater than level of significance (0.05), while each of the remaining variables has a p value less than level of significance (0.05) which shows significant results. Multivariate logistic regression model was also applied to assess the most significant risk factors by taking gender as a binary response variable and all other variables shown in above table were considered as independent variables. From table 3, the values of odds ratios indicate that again only three variables mentioned above showed no significant association because each of the three variables has a value of odds ratios less than 1 and all the other variables have value of odds ratios more than 1, which indicates that they are strongly associated with gender.

Table 2.5: (Cross Tabulation between People's Knowledge about Transfer of TB and Occupation)

Occupation	Transfer		Total
	Yes	No	
House Hold	334(63.4%)	193(36.6%)	527
Labor	178(66.4%)	90(33.6%)	268
Shop Keeper	303(66.9%)	150(33.1%)	453
Government Employer	589(74.4%)	199(25.3%)	788
Under Graduate	424(73.9%)	150(26.1%)	574
Social Science	277(69.4%)	122(30.6%)	399
Natural Science	324(73.0%)	121(27.0%)	448
Medical Students	396(96.1%)	16(3.9%)	412
Doctors	117(89.3%)	14(10.7%)	131
Totals	2945(73.6%)	1055(26.4%)	4000

Table 2.6: (Cross Tabulation between Awareness about Effect of TB and Occupation)

Occupation	Affect			Total
	Yes	No	Don't know	
House Hold	230(43.6%)	234(44.4%)	63(11.95%)	527
Labor	139(51.9%)	99(36.9%)	30(11.2%)	268
Shop Keeper	240(53.0%)	162(35.8%)	51(11.3%)	453
Government Employer	424(53.8%)	290(36.8%)	74(9.4%)	788
Under Graduate	25(44.4%)	257(44.8%)	62(10.8%)	574
Social Science	193(48.4%)	143(35.8%)	63(15.8%)	399
Natural Science	225(50.2%)	166(37.1%)	57(12.7%)	448
Medical Students	62(15.0%)	341(82.2%)	9(2.2%)	412
Doctors	43(32.0%)	85(64.9%)	3(2.3%)	131
Totals	1811(45.3%)	1777(44.4%)	412(10.3%)	4000

Table 2.7: (Cross Tabulation between Curable Disease and Occupation)

Occupation	Curable		Total
	Yes	No	
House Hold	428(81.2%)	99(18.8%)	527
Labor	199(74.3%)	69(25.7%)	268
Shop Keeper	386(85.2%)	67(14.8%)	453
Government Employer	716(90.9%)	72(9.1%)	788
Under Graduate	536(93.4%)	38(6.6%)	574
Social Science	365(91.5%)	34(8.5%)	399
Natural Science	405(90.4%)	43(9.6%)	448
Medical Students	405(98.3%)	7(17%)	412
Doctors	121(92.4%)	10(7.6%)	131
Totals	3561(89.0%)	439(11.0%)	4000

Table 2.8: (Cross Tabulation between Knowledge of TB and Occupation)

Occupation	Still because TB Spread		Total
	Yes	No	
House Hold	363(68.9%)	164(31.1%)	527
Labor	169(63.1%)	99(36.9%)	268
Shop Keeper	301(66.4%)	152(33.6%)	453
Government Employer	610(77.4%)	178(22.6%)	788
Under Graduate	427(74.4%)	147(25.6%)	574
Social Science	278(69.7%)	121(30.3%)	399
Natural Science	316(70.5%)	132(29.5%)	448
Medical Students	312(75.7%)	100(24.3%)	412
Doctors	107(81.7%)	24(18.3%)	131

Table 2.9: (Cross Tabulation between People's Satisfaction toward Government and Occupation)

Occupation	Satisfaction		Total
	Yes	No	
House Hold	276(52.4%)	251(47.6%)	527
Labor	139(51.9%)	129(48.1%)	268
Shop Keeper	252(55.6%)	201(44.4%)	453
Government Employer	452(57.4%)	336(42.6%)	788
Under Graduate	241(42.0%)	333(58.0%)	574
Social Science	173(43.4%)	226(56.6%)	399
Natural Science	180(40.2%)	268(59.8%)	448
Medical Students	174(42.2%)	238(57.8%)	412
Doctors	101(77.1%)	30(22.9%)	131
Totals	1988(49.7%)	2012(50.3%)	4000

Table 2.10: (Cross Tabulation between Knowledge about Cure of TB and Occupation wise Information)

Occupation	Removed					
	Don't know	Antibiotic Treatment	Vaccination	Surgery of Lungs to remove	Prayers	Blood Transfusion
House Hold	113(21.4%)	346(65.7%)	56(10.0%)	6(1.1%)	6(1.1%)	
Labor	57(21.3%)	153(57.1%)	40(14.9)	11(4.1%)	7(2.6%)	
Shop Keeper	98(21.6%)	305(67.3%)	25(5.5%)	15(3.3%)	9(2%)	1(0.2%)
Government Employer	179(22.7%)	509(64.6%)	49(6.2%)	26(3.3%)	24(3%)	1(0.2%)
Under Graduate	160(27.9%)	330(57.5%)	47(8.2%)	14(2.4%)	21(3.7%)	2(0.3%)
Social Science	117(29.3%)	184(46.1%)	55(13.8%)	12(3%)	27(6.8%)	4(1%)
Natural Science	152(33.9%)	235(52.5%)	42(9.4%)	7(1.6%)	12(2.7%)	
Medical Students	39(9.5%)	284(68.9%)	53(12.9%)	3(0.7%)	33(8%)	
Doctors	11(8.4%)	90(68.7%)	24(18.3%)	3(2.3%)	3(2.3%)	
Totals	926(23.2%)	2436(23.2%)	391(9.8%)	97(2.4%)	142(3.6%)	8(0.2%)

Table 3: Association of Gender and Different Risk Factors with possible inception of Tuberculosis

	Chi-Square	P-value	d.f	Odds ratio
Awareness	5.212	.022	1	1.665
Threat	.062	.803	1	.887
Symptoms	95.564	.000	5	1.092
Spread	11.289	.004	2	.801
Transfer	.351	.554	1	.974
Affect	9.372	.009	2	1.073
Cure	1.562	.211	1	.799
Satisfaction	24.040	.000	1	1.571
Removal	39.360	.000	5	1.250
Type	25.826	.000	2	1.200
Course Complete	26.230	.000	2	1.331

The exceeding graphical presentation displays calendar and comparative analysis of 10 years TB prevalence and control through which TB control mechanism was revealed and the data can be illustrated as follows:

TB cases evaluated in 2000 were more than 500. In the year 2001, further cases were evaluated and the fig. rose again in 2002. In 2003, it grew more and cases were more evaluated; whereas in 2004, the evaluation of cases remained same as in the previous year. In 2005, the number raised and reached to 1500.It then started its course downward and the cases lessened in 2006 and 2007; while in 2008, it bred highest among the years and the next year, it came down again as in 2006. The evaluated cases for the cure of TB were taken to cure and gradually the ratio grew and people were treated well and cured from the disease since 2000,while a higher number of patients were cured in 2005 and 2008. As depicted in the graph, the patients who completed their treatment were not in a great condition. Similarly, the death cases were also in low number where failure was not seen. The

defaulted cases were also very low as well as transferred out cases.

The methods used for the prevention and treatment of TB, so far, have been defective and effective in the time frame when the research was conducted by the scientists or doctors in order to save the lives of people. There have been a number of treatment methods used so far, such as traditional methods, bed rest, heliotherapy, postural, surgeries, phrenicotomy, thoracoplasty, pneumothorax, lobectomy, chemotherapy, antibiotic, resistance and DOTS. The overhead data illustrates that with the passage of time, TB treatment became more effective through new invented methods and medications. In the past, the treatment was lengthy and it was difficult for the patients to pull on the treatment more than a year but with the development of science and research, it became easier, shorter, effective and affordable for a common person for whom it is now a free treatment. The use of most extensive and effective method of DOTs (Recommended by WHO) (Direct Observed Short Treatment Method), has been adopted since 2000. It is an easy and the most effective method of treatment and has reduced the prevalence of TB. For this, the Government is running a National TB Program, which is working effectively and a free treatment is available in TB centers throughout the country. Through this treatment, patients are cured because it is short and has proven effective so far. Treatment is completed by the patients easily and death ratio is reduced to only a few cases of drug resistant patients who lose their lives but it is rare. Most patients who complete medicine course are recovered.

The graphical statistics designate that the annual registration of new TB cases in different categories was almost 4000 and this ratio rose higher in the coming years gradually and finally rose to its climax in 2004. It then started reducing in the following years but in 2007, it had a very low ratio. It then rose again and the fluctuation can be seen overhead. The ratio of pulmonary tuberculosis was seen greater in the year 2000 (as in the graph, it is more than 3000) and the following years up to 2006 and after that, it was not evaluated according to the data gathered. The Sputum Positive was also evaluated and the ratio remained between1000-2000; however, in 2008, it had greater ration. Sputum Negative was evaluated more than in sputum positive and the highest ratio was less than 3000, where as a low ratio was evaluated for whom sputum was not taken for sputum test.

The use of DOTs method is shorter and more effective in the sense that it cures the disease and the diagnosis is also easy and free of cost, available in every division and subdivision. Diagnostic centers are available as mentioned earlier which facilitate the patients. The registration is done properly in the TB centers and visits are made by the National TB Program employees and medicines are given at doorstep. Awareness is given to public through trainings, seminars and workshops by National TB Program and NGOs in order to aware the people about the disease and, to prevent them from it.

CONCLUSION

This study shows that the awareness level of TB is still low despite the claim that people know or are aware of TB, though the medical students and doctors have almost 100% knowledge and awareness regarding TB, its spread and prevention than the other professionals and social science students. Thus, an effective information transfer mechanism is needed to overcome this problem. The suggestion to upgrade the system, to promote awareness and prevention about TB should be given through the most effective medium. This is because the media vary according to different levels of society. Therefore, it is a dire need to analyze the situation before taking any measure. A variety of methods were used for the prevention and treatment of TB in the earlier time but the results were not satisfactory. In 1992, TB was declared global emergency and the lengthy methods of treatment were revised and progressively DOTs method (Chemotherapy) was introduced which made TB curable because it is shorter, effective and inexpensive for the common people. The measures taken by the government and NGOs in preventing TB are noteworthy as diagnostic centers are accessible everywhere in the country with free medicines and this has reduced the ratio of deaths and occurrence of it.

RECOMMENDATIONS

The following measures can be taken in order to maximize the awareness at large scale. (1) The use of electronic media as both television and radio are very interactive. FM channels on the radio are very popular among the general public and can be used for this purpose. (2) Advertising through print media, such as newspapers, can enhance the public awareness regarding the spread and prevention of TB. (3) In the education sector, workshops and seminars can be organized occasionally to raise the awareness about TB. These suggestions might differ for respondents from rural areas. Besides upgrading the information transfer system, other suitable methods include routine checkups. The ministry can also introduce health education at the earliest education level regarding TB. This is to ensure an early prevention by providing a good understanding of the disease.

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