Science Arena Publications
Specialty Journal of Biological Sciences
ISSN: 2412-7396
Available online at www.sciarena.com
2018, Vol, 4 (4): 1-8

Exploration of Knowledge of TB Patients Regarding Their Disease in Quetta

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Abstract : *Objective: This study aimed to assess and explore the knowledge of TB patients regarding TB in Quetta. Method: A questionnaire based, cross sectional analysis was conducted in Fatima Jinnah chest hospital with 280 TB patients. Knowledge was assessed by using a pre-validated self-administered questionnaire containing 22 disease related questions. Convenience sampling technique was used for data collection. Descriptive analysis was used to demonstrate the characteristics of the study population. Inferential statistics (Mann-Whitney U test and Kruskal Wallis tests, p< 0.05) were used to assess the significance among study variables. Results: Mean age of respondents was 40.99 ± 18.10. Study was dominated by 168 (60.00%) of females. Two hundred (71.40%) were married. One hundred sixteen (41.40%) had no any education. One hundred sixty-eight (60.00%) were Pashtun. One hundred thirty-two (47.10%) having income less than 10000 PKR and ranges between 10000 to 18000 PKR respectively. One hundred fifty-six (55.70%) were having rural residency. One hundred fifty-six (58.10%) having no any co-morbidity. Mean score of knowledge was 11.23 ± 3.616. Conclusion: Study concluded that as knowledge is a key factor for the prevention and control of TB, it is obvious to plan and apply appropriate health education programs, seminars and interventions regardless to the level of education of population to propagate the knowledge and information about causes, transmission and duration of treatment of tuberculosis in the general population and TB patients to coup with further disease progression in Pakistan.*

Keywords: *Tuberculosis, Knowledge, Disease State Knowledge, Patients.*

INTRODUCTION

Tuberculosis is the leading infectious diseases worldwide and is responsible for the largest number of deaths in the world (Emili, Norman et al. 2001; Ailinger, Lasus et al. 2003; Jurcev Savicevic, Popovic-Grle et al. 2008). Tuberculosis remains main public health concern among developed and developing countries even though drugs for prevention of TB have been available for past 6 decades (Obuku, Meynell et al., 2012).

Tuberculosis (TB) is a fatal infectious disease caused by several species of Mycobacteria, primarily Mycobacterium tuberculosis (Seyoum and Legesse, 2013). In 2014 statistics shown that, about 9.6 million people diagnosed with TB and 1.5 million expired from TB. Over 95% of TB deaths happen in low- and

middle-income countries, and it is among the top 5 causes of death for women aged 15 to 44 (2015). According to World Health Organization Global tuberculosis report 2015 out of 185 million population of Pakistan, the mortality rate is estimated forty eight thousand having TB, however prevalence of TB + HIV found six hundred and thirty thousand (Organization, 2015).

Tuberculosis (TB), one of the oldest noted human disease, is still one of the major cause of deaths among the infectious diseases, regardless of the worldwide use of vaccines and several antibiotics. Since two million people die each year from this disease. TB has many indexes, affecting bone, the central nervous system, and many other organ systems (Smith, 2003). TB is contagious disease triggered by the tubercle bacillus, Mycobacterium tuberculosis, and characterized pathologically by inflammatory infiltration, formation of tubercles, caseation, necrosis, abscesses, fibrosis, and calcification. It commonly disturbs the respiratory system, but other parts of the body such as the gastrointestinal and genitourinary tracts, bones, joints, nervous system, lymph nodes, and skin may also become infected (n.d 2015).

Studies have been conducted on assessment of knowledge regarding TB (DeRiemer, Daley et al. 1999; Emili, Norman et al. 2001; Ailinger, Lasus et al. 2003; Jurcev Savicevic, Popovic-Grle et al. 2008; Obuku, Meynell et al., 2012). Several studies have reported the lack of knowledge worldwide (Liam, Lim et al., 1999; Kanjee, Catterick et al., 2011; Esmael, Ali et al., 2013). While some studies have reported the lack of knowledge of TB in Pakistan (Agboatwalla, Kazi et al., 2003; Mushtaq, Shahid et al., 2011).

Despite TB being an issue of global concern, no studies on knowledge of TB patients regarding their disease have been reported in Quetta, Pakistan. Therefore, this study aimed to explore the knowledge of TB patients regarding their disease in Quetta.

Methodology

Study design, settings and sampling

A questionnaire based, cross sectional analysis was conducted. Registered patients from Fatima Jinnah chest hospital (also called TB Sanatorium) Quetta were included for this study. Fatima Jinnah chest hospital is major hospital for the treatment of TB all over Balochistan and patients from every district of Baluchistan came here for treatment of TB. According to registered patient data 352 questionnaires were distributed among patients of whom 280 returned the questionnaire.

Ethical consideration

This study was performed according to National Bioethics Committee Pakistan's guidelines (Jafarey, Iqbal et al., 2012). Written consent was taken from patients prior to data collection. Patients were ensured about the confidentiality of their answers and their right to leave the survey at any time.

Study Tool

The study tool was designed by experts of Department of Pharmacy Practice, Faculty of Pharmacy, University of Balochistan, Quetta, with help previous articles and WHO (World Health Organization) guideline for KAP studies for TB (Hoa, Diwan et al., 2004). The final questionnaire comprised of four main sections, the first section is Demographics, second section comprised of Twenty-Two (22) questions specifically to assess the knowledge regarding the disease TB, third section is Co-morbidities and fourth is Source of information. The knowledge question consists of domains i.e. General description, Etiology, Sign and Symptoms, Risk factors, Diagnosis and Prevention of TB. The dichotomous type of questionnaire was made with 'Yes' 'No' and 'Don't know' options.

Scoring method

The response was recorded as 'Yes' 'No' and 'Don't know'. Each correct answer carried 1 mark whereas wrong or 'don't know' carried 0 mark. This gave a total score range of 0-22. A cut-off level of $\leq$ 11 was considered as poor knowledge while >11 was regarded as good knowledge.

Statistical Analysis

Descriptive analysis of patient's demographic information was performed. Categorical variables were measured as frequency and percentages while continuous variables were expressed as mean ± standard deviation. Inferential statistics (Mann–Whitney U test and Kruskal Wallis tests, $p < 0.05$) were used to assess the significance among study variables.

Results

Demographic characteristics

The demographic characteristics of respondents are displayed in Table 1. It describes the demographic information of the study participants. Mean age of respondents was 40.99 ± 18.10. Study was dominated by 168 (60.00%) of females. Two hundred (71.40%) were married. One hundred sixteen (41.40%) had no any education. One hundred sixty-eight (60.00%) were Pashtun. One hundred thirty-two (47.10%) having income less than 10000 PKR and ranges between 10000 to 18000 PKR respectively. One hundred fifty-six (55.70%) were having rural residency. One hundred fifty-six (58.10%) having no any co-morbidity.

Table 1: Demographic Characteristic of the Respondents

Category	Frequency (n= 280)	Percentage
Age		
12-21	40	14.28
22-31	68	24.28
32-41	40	14.28
42-51	60	21.42
52-61	28	10.00
62 years and above	44	15.74
Gender		
Male	112	40.00
Female	168	60.00
Marital status		
Married	200	71.40
unmarried	80	28.60
Education level		
Matric	44	15.70
Intermediate	28	10.00
Masters	4	1.400
Religious education only	88	31.40
None	116	41.40
Ethnicity		
Pashtun	168	60.00
Baloch	80	28.60
Persian	12	4.300
Punjabi	4	1.400
Others	16	5.700
Income		
Less than 10,000	132	47.10
10,000 to 18,000	132	47.10
18,001 to 25,000	8	2.900
More than 25,000	4	1.400
No income	4	1.400
Locality		
Urban	124	44.30
Rural	156	55.70
Presence of other diseases		
Asthma	48	16.20
Diabetes	28	9.500

Hypertension	48	16.20
Heart disease	0	-----
No disease	156	58.10

Assessment of knowledge of Tuberculosis

Table 2 describes the present level of knowledge about Tuberculosis. Each response was recorded as 'Yes' 'No' and 'Don't know'. Each correct answer carried 1 mark whereas 'No' or 'don't know' carried 0 mark. This gave a total score range of 0-22. A cut-off level of $\leq$11 was considered as poor knowledge while >11 was regarded as good knowledge. Mean of total score of knowledge was 11.09 $\pm$ 3.49. Out of 280 respondents, 144 (51.4%) had poor knowledge and 136(48.6%) had good knowledge about Tuberculosis.

Table 2: Responses related to knowledge of Tuberculosis

Questions	Yes (%)	No (%)
Have you heard about disease name TB?	92.1	2.90
Tb primarily affects lungs?	68.6	31.4
Tb is an infectious disease	32.9	67.1
Is TB caused by bacteria?	7.10	92.9
Can TB cause lungs cancer?	11.4	88.6
Can TB cause death?	92.9	7.10
Is excessive cough that lasts longer than three weeks a symptom of TB?	84.3	15.7
Is excessive cough with presence of sputum symptom of TB?	94.3	5.70
Is cough with blood a symptom of TB?	57.1	42.9
Is there excessive weight loss without any apparent reason in TB?	82.9	17.1
Is fever that lost more than seven days without any clear cause or disease symptom of TB?	55.7	44.3
Is TB spread through the air when people with TB cough or sneeze?	32.9	67.1
Is TB spread through handshakes/sharing dishes?	12.9	87.1
Is TB spread through touching items in public place?	20.0	80.0
Is TB spread through blood transfusion?	12.9	87.1
Is TB spread through sexual contact?	28.6	71.4
Is TB diagnosed by blood test?	30.0	70.0
Is TB diagnosed by sputum test?	94.3	5.70
Is TB curable?	92.9	7.10
Is there any vaccine available for TB?	17.1	82.9
Is treatment of TB is six months?	42.9	57.1
Can TB affect other parts of body apart from lungs?	40.0	60.0

Source of information

The source of information regarding TB knowledge is presented in table 3, it showed that dominant source of information (n=220, 78.5%) was health workers through which patients seek information. Followed by radio as source of TB information among patients is (n=124, 44.2%).

Table 3: Source of Information*

Source of information	Frequency	Percentage
Newspaper	28	10.0
Radio	124	44.2
T.V	24	8.60
Health workers	220	78.5
Family & neighbors	24	8.60
Brochures pictures & printed material	52	18.6
Religious leaders	12	4.30

*More than one response is allowed to select

Association of demographics and knowledge score

Inferential statistics, i.e. Mann-Whitney test and Kruskal Wallis test were applied to compare scores of knowledge with various demographic variables. Association of demographic characteristics and mean knowledge score is presented in Table 4. Mann-Whitney test ($p < 0.05$) and Kruskal Wallis test ($p < 0.05$). By taking $p < 0.05$ as statistically significant value. No statistically significant difference in scores was observed among demographic variables.

Table 4: Association of demographics and knowledge score

Description	N (70)	Knowledge score (Mean ± SD)	P-value
Age group*			
12-21	40	10.20(2.898)	0.154
22-31	68	12.35(4.429)	
32-41	40	9.20(3.676)	
42-51	60	10.67(3.132)	
52-61	28	11.43(3.409)	
62-above	44	12.91(2.737)	
Gender**			
Male	112	11.36(3.773)	0.729
Female	168	11.14(3.552)	
Education*			
Metric	44	11.18(1.888)	0.334
Intermediate	28	12.00(6.298)	
Masters	4	20.00(0000)	
Religious only	88	11.41(2.789)	
None	116	10.62(3.649)	
Ethnicity*			
Pashtu	168	11.57(3.749)	0.668
Baloch	80	10.55(3.203)	
Persian	12	11.00(3.464)	
Panjabi	4	14.00(0000)	
Other	16	10.50(5.260)	
Marital status**			
Married	200	11.34(3.414)	0.422
Unmarried	80	10.95(4.161)	
Income*			
Less than 10,000	132	4.55(3.001)	0.130
10,000-18,0000	132	11.12(3.830)	
18,000-25,0000	8	13.50(2.121)	
More than 25,000	4	20.00(0000)	
None	4	4.00(00000)	
Locality**			
Urban	124	11.68(3.637)	0.243
Rural	156	10.87(3.607)	
Total	280	11.23(3.616)	----

**Mann Whitney Test
* Kruskal Wallis Test

Discussion

The present study revealed that the TB patients have poor knowledge regarding their disease. The lack of knowledge was analyzed after determining various components for assessing the knowledge; this is supported by the study which also states the same situation conducted in Malaysia (Liam, Lim et al., 1999). Contrary to the findings of other study, which showed that the knowledge about tuberculosis among TB patients was quite high (Hoa, Diwan et al., 2004).

Significance of demographics was analyzed to estimate knowledge of TB and result showed that there is no significant effect of demographics on study, these demographics includes various variables like age group, gender, ethnicity, locality, marital status, education and income. Contrary to the findings of the study conducted by Semiha Akin et al in Turkey, which shows significant effect of majority of demographics on their study (Agboatwalla, Kazi et al., 2003).

This study showed that there was very little information present from the TV reason is this majority of patients were from rural area so they are not having a TV this findings are supported by study conducted in Ethiopia (Esmael, Ali et al., 2013). The findings of this study shows that main source of information was brochures, posters and other printed materials and it is supported by the study conducted in Pakistan which have the similar findings (Agboatwalla, Kazi et al., 2003)

The cause of the disease is main concern while assessing the knowledge of the disease among patients and knowing the cause can help in decreasing the occurrence of disease, among these causes the lack of knowledge was seen in TB patients. These findings are consistent with the study conducted to assess the knowledge about tuberculosis among newly diagnosed TB patients in India (Damor, Singh et al., 2012). There is better understanding of symptoms of TB in our study subjects so this can be helpful in controlling TB occurrence and these findings also consistent with study conducted in India, where maximum patients know that cough is the more frequent symptom of TB (Damor, Singh et al., 2012). The findings of this study in terms of locality showed that patients from rural area have good knowledge of TB and this is supported by findings similar to study conducted in Lima Peru (Kiefer, Shao et al., 2009).

In this study, it was found that knowledge about the BCG vaccination as a preventive measure was very limited and few patients know that there is vaccination available for TB as preventive measure and it is supported by the study conducted in Pakistan (Mushtaq, Shahid et al., 2011). So lack of knowledge about prevention can cause effect on prevalence rate of TB.

Disease condition was assessed either it is cure able or not so the majority of respondents defined TB as a curable disease this was in agreement with a study conducted in Pakistan. After that another parameter about knowledge of treatment duration was analyzed as shown in results so it also shows lack of knowledge among patients and standard treatment was limited so there may be the chances of treatment relapse and MDR TB, this is consistent with the previous studies conducted in Pakistan (Mushtaq, Shahid et al., 2011)

Appropriate knowledge is of prime importance for control and prevention of many diseases and tuberculosis. This study concludes that knowledge about tuberculosis among the patients registered in Fatimah Jinnah hospital &who visited hospital is low and highlights the importance for planning designing and applying appropriate programs and interventions to propagate the knowledge and information about tuberculosis in the general population. There is need of more studies and research to assess knowledge and understanding about tuberculosis at higher and community basis. This should only be possible with incorporated efforts by government and non-governmental health organizations, media along with active community participation. In this study, it was found that knowledge about the diagnosis of disease is far better as compared to the knowledge of the cause & mode of transmission of TB. The reason behind this may be that this is the only knowledge which is provided by health care professionals at the time of diagnosis. If some more attention is given to other issues, including the knowledge regarding cause, mode of transmission may increase which might be helpful in the control of tuberculosis among general population. The results of this study should be interpreted with caution as the study was conducted among patient and not ideally representing the general population.

Conclusion

In this study majority of study subjects had poor knowledge about cause of tuberculosis, its mode of transmission & duration of treatment while knowledge regarding the major symptoms of TB was found better

among most of the respondents. It is concluded that as knowledge is a key factor for the prevention and control of TB, it is obvious to plan and apply appropriate health education programs, seminars and interventions regardless to the level of education of population to propagate the knowledge and information about causes, transmission and duration of treatment of tuberculosis in the general population and TB patients to coup with further disease progression in Pakistan.

Recommendations

It is recommended that knowledge is prime factor that affects TB, and proper health education, awareness programs within community should be held to clarify the concepts of patients about cause of disease if they know basic underlying cause there will be more improvement in controlling TB. Another parameter was transmission of disease that also need more efforts to aware patients and population if they know about transmission so there would be less chances of disease propagation and ultimately there would be less chances of disease progression

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