Original Article

TB KNOWLEDGE AND PERCEPTION IN PAKISTAN

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ABSTRACT

BACKGROUND: The main idea of the study to explore the socio demographic factors that have association with TB knowledge, perception and its cure.

METHODS: Bivariate and binary logistic regression analysis have been carried out by using the Pakistan demographic and health survey 2012-13 of ever married men age 15-49.

RESULTS: Higher proportion of the respondents heard about TB and believed that TB is a curable infectious disease. More than half (57%) of the respondents pronounced that Tuberculosis spread by air through coughing or sneezing. Binary logistic analysis revealed that respondents with no education has sufficient lack of knowledge about TB [OR=0.191]as compared to their counterpart having higher educational degree. Respondents watching TV have more prone to know about TB [OR=2.942] compared to those have no access to TV. Respondents belong to Sindh, Punjab and KPK 4.75, 3.89 and 3.62 times more knowledge about TB respectively as compared to those lived in GB.

CONCLUSION: Age, education place of residence, media access particularly TV and wealth index are found to be significant regarding TB knowledge and its cure. These statistical outcomes can be emerging in TB management and control.

KEYWORDS: binary logistic regression; Pakistan; socio demographic factors; TB

INTRODUCTION:

Tuberculosis is an infectious disease and a major public health anxiety particularly in developing countries. 98% of TB deaths and 95% of TB cases take place in low and middle income families.[1] In 2012 globally the numbers of TB new cases were 8.6 million and 1.3 million people died.[2] Although there are an effective drugs and treatment are available since 1940, but still TB ranked as a second most leading cause of morbidity and mortality globally after the AIDS. Several studies have been designed regarding TB treatment, care and management globally and also many researchers have shed light to socio economic determinants of TB and explore the significant factors and discuss the policies to tackle the TB3-15. Sufficient knowledge and perception regarding infectious disease is a significance concern in overcome to diseases. The positive perception and accurate knowledge of community towards TB and its management is an essential to early treatment seeking.[15] Poor knowledge and misconception about TB are common in Pakistani community and major obstacle in its effective cure, prevention and control 4-6.Pakistan is a developing and ranked as a 6th most populous country in the globe and placed 2nd in Islamic countries after Indonesia. Pakistan is 6th top TB burden country in the globe. The estimated incidence of TB in Pakistan was 231/100,0002. The prevalence and

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mortality were 310/100,000 and 39/100,000 respectively.[16] The case finding rate in 2002 for all cases according to previous estimates was only nineteen percent, way below the target of seventy percent.[17] Government of Pakistan allowed DOTS (directly observed treatment, short-course strategy), following the World health organization declaration of TB as a global emergency in 1993, The National TB Control Programme (NTP) Pakistan implemented DOTS policy in 1995. With the spreading out of DOTS policy at national level, rate has improved to 84% in 2008.[17] Likewise the detection rate of smear positive cases improved from 13% to 74%.

From Pakistan prospective numerous studied conducted to pinpoint the significant associated factors regarding TB knowledge control and management 4-7. This study designed to highlight the factors associated with the knowledge and perception towards TB cure in Pakistan that might be helpful in anti TB seeking measures and mechanism.

METHODS AND MATERIAL:

Data source: So far three demographic health surveys have been conducted as part of the MEASURE DHS international series. The national institute of population studies done these survey with the technical support from ICF International and Pakistan bureau of statistics and the USAID supported the financially. The most recent data sets PDHS 202-13 for ever married men with sample size 3134 used for present study. Bivariate and binary logistic regression analyses 18; 19 were performed with the object to determine the socioeconomic characteristics that have potentialinfluence in TB knowledge of ever married men. Pearson's chi- square test of independence was performed to evaluate the association between dependent and independent variable. To understand the functional relationship of variables binary logistic regression analysis was carried out. The dependent variable in our study was heard about TB had two categories (0=no and 1=yes). The explanatory variables were age (15-49), place of residence (urban rural), place of residence by province (Punjab, Sindh, KPK, Baluchistan, GilgitBaltistan and Islamabad), educational level (Illiterate, primary, secondary and higher), media exposure (read newspaper, listen radio and watch TV), wealth index (poor, middle and rich) and respondents occupation (working and not working).

RESULTS:

Ever married men: The maximum (20.3%) and the minimum (1%) respondent fall in age group 30-34 and 15-19 respectively, while almost same proportion (18%) of respondent lie in 35-39 and upper age groups. The percentage of rural (51.5) respondents are higher compared to urban (48.5). Punjab has a higher proportion of respondents and about quarter (24.2%) of the respondents is from Sindh. Respondents with secondary level of education are in a greater proportion 32% while about more than a quarter (27.1) of the respondents are illiterate. The percentage of wealthy respondents is about 45.3%. Whereas the greater number of respondents has access to television and radio compared to newspaper. 97 Out of 100 ever married men are working; the detail description is illustrated in Table 1.

Knowledge and Perception about TB

The knowledge of reproductive age respondents regarding TB and its various mode of transmission is illustrated in Table 2. Higher proportion of the respondents heard about TB and believed that TB is a curable infectious disease. More than half (57%) of the respondents pronounced that Tuberculosis spread by air through coughing or sneezing. While on the other hand 53.4% respondents agreed that by sharing utensils are not caused for Tb spared.

Bivariate analysis:

By incorporating the bivariate analysis respondent's age and knowledge about TB and its cure were found to be statistically significant, as age increased the awareness level also increased. Place of residence are associated in our study with TB knowledge .i.e. ($p<0.000$). Urban has more knowledge about TB and its cure. Respondents belong to Islamabad (capital) are more prone to have knowledge

Table1: Demographic characteristics of respondents

Covariate	Response	Frequency	%
Age	15-19	29	0.9
	20-24	223	7.1
	25-29	498	15.9
	30-34	635	20.3
	35-39	589	18.8
	40-44	574	18.3
	45-49	586	18.7
Place of residence	Urban	1521	48.5
	Rural	1613	51.5
Residence by province	Punjab	800	34.5
	Sindh	758	24.2
	KPK	497	15.9
	Baluchistan	551	17.6
	GB	246	7.8
	Islamabad	282	9.0
Education status	No education	849	27.1
	Primary	536	17.1
	Secondary	1000	31.9
	Higher	749	23.9
Wealth index	Poor	1165	37.2
	Middle	548	17.5
	Rich	1421	45.3
Access to media	No Read newspaper	1418	45.2
	Read newspaper	1716	54.8
	No Access to radio	2012	64.2
	Access to radio	1122	35.8
	No access to TV	577	18.4
	Access to television	2557	81.6
Occupation	Not Working	97	3.1
	Working	3037	96.9

Table 2: Respondent's knowledge about Tb and its transmission

Covariate	Response	Frequency	%
Heard of tuberculosis or TB	No	144	4.6
	Yes	2988	95.4
Tuberculosis can be cured	No	32	1.10
	Yes	2841	95.1
	Don't know	115	3.80
Tuberculosis spread by: air through coughing or sneezing	No	1345	43.0
	Yes	1783	57.0
Tuberculosis spread by: sharing utensils	No	1671	53.4
	Yes	1457	46.6
Tuberculosis spread by: touching a person with TB	No	1580	50.5
	Yes	1548	49.5
Tuberculosis spread by: food	No	2909	93.0
	Yes	219	7.00
Tuberculosis spread by: sexual contact	No	2852	91.2
	Yes	276	8.8
Tuberculosis spread by: mosquito bites	No	3105	99.3
	Yes	23	0.70
Tuberculosis spread by: other	No	3039	97.2
	Yes	89	2.80
Don't know how tuberculosis is spread	No	2789	89.2
	Yes	339	10.8

about TB and its cure. Direct association exist between educational attachmentsand TB and its cure in our findings .i.e. ($p<0.000$). Respondents with no education have lack of knowledge as compared to those who with higher educational degree. Media exposure particularly newspaper and TV are positively associated .i.e. ($p<0.000$). Wealth index and Knowledge about TB and its cure are found to be significant. Poor has least knowledge about TB and its cure. The knowledge about TB and occupation of respondent are statistically significant but occupation has no more effective in knowledge about TB cure .i.e. ($p<0.373$). The detail explanations of bivariate analysis about TB and its cure are illustrated in Table 3.

Table 3: Cross tabulation of outcome variable versus explanatory variables

		Tuberculosis can be cured				Ever heard about TB		
Covariate	**Response**	**No**	**Yes**	**Don't know**	**p-value**	**No**	**Yes**	**p-value**
	15-19	.0%	92.0%	8.0%		13.8%	86.2%	
	20-24	2.0%	94.1%	3.9%		8.5%	91.5%	
	25-29	1.9%	91.5%	6.6%		5.4%	94.6%	
Age	30-34	.8%	96.2%	3.0%		4.9%	95.1%	
	35-39	1.1%	96.5%	2.5%	0.026	4.2%	95.8%	0.004
	40-44	.7%	96.2%	3.1%		3.0%	97.0%	
	45-49	.7%	94.9%	4.4%		3.6%	96.4%	
	Punjab	1.4%	93.8%	4.8%		3.4%	96.6%	
	Sindh	1.2%	94.8%	4.0%		3.4%	96.6%	
	KPK	.4%	98.7%	.8%		5.2%	94.8%	
Place of	Baluchistan	1.1%	91.8%	7.1%	0.000	5.1%	94.9%	
residence by	GB	1.4%	94.8%	3.8%		13.4%	86.6%	0.000
region	Islamabad (ICT)	.4%	99.6%	.0%		1.4%	98.6%	
	Urban	1.0%	96.3%	2.7%		3.3%	96.7%	=
Residence	Rural	1.1%	93.9%	5.0%	0.004	5.8%	94.2%	0.000
	Illiterate	2.1%	89.9%	8.0%		9.2%	90.8%	
Educational level	Primary	1.5%	93.3%	5.2%		3.0%	97.0%	
	Secondary	.6%	97.0%	2.4%	0.000	4.1%	95.9%	0.000
	Higher	.3%	99.3%	.4%		1.2%	98.8%	
Read newspaper	No	1.8%	91.5%	6.7%		7.3%	92.7%	
	Yes	.5%	97.9%	1.6%	0.000	2.3%	97.7%	0.000
	No	1.2%	94.5%	4.3%		4.6%	95.4%	
Listen radio	Yes	.8%	96.2%	3.0%	0.123	4.6%	95.4%	0.935
	No	2.2%	89.8%	8.1%		12.0%	88.0%	
Listen TV	Yes	.8%	96.2%	3.0%	0.000	2.9%	97.1%	0.000
	Poor	1.6%	91.5%	6.9%		8.5%	91.5%	
Wealth quintile	Middle	1.1%	95.7%	3.2%		3.3%	96.7%	
	Rich	1.1%	95.1%	3.8%	0.000	1.9%	98.1%	0.000
Respondent	No working	.0%	94.0%	6.0%		14.4%	85.6%	
occupation	Working	1.1%	95.1%	3.8%	0.373	4.3%	95.7%	0.000

Binary logistic regression analysis:

Binary logistic analysis revealed that respondents in early ages have less likely to hear about TB. Ever married men with no education has sufficient lack of knowledge about TB [OR=0.191] as compared to their counterpart having higher educational degree. Respondents watching TV have more prone to know about TB [OR=2.942] compared to those have no access to TV. Respondents belong to Sindh, Punjab and KPK 4.75, 3.89 and 3.62 times more knowledge about TBrespectively as compared to those lived in GB. Respondents are

Table 4: Binary Logistic Regression analysis about knowledge of STIs

Covariate	Response	Ever married men
	15-19	0.234 *
	20-24	0.340 *
	25-29	0.532 *
Age (ref 45-49)	30-34	0.535 *
	35-39	0.613
	40-44	0.997
Place of Residence (ref rural)	Urban	0.764
	No education	0.191 ***
Education (ref higher)	Primary	0.528
	Secondary	0.345 ***
Read newspaper (ref no)	yes	1.293
Watching TV (ref no)	yes	2.942 ***
	Poor	1.578
Wealth index (ref rich)	Middle	1.666
	Punjab	3.890***
	Sindh	4.758***
Place of Residence by province	KPK	3.628***
(GB)	Balochistan	3.740 *
Occupation (ref working)	Not working	0.306**

Key: values represent odds ratio; ref implies reference category; ***p<0.001, **p<0.01, *p<0.05 and GB= GilgitBaltistan

not working for money 0.306 time less heard about TB compared to their counterpart who worked. Factors along with odds ratio are showed in Table 4.

DISCUSSION AND CONCLUSION:

Pakistan is a developing country with lower literacy rate; higher proportion lived in rural areas and limited health care settings and quality of life. In this study an attempt has been made to explore TB related awareness, knowledge of cure and its transmission of ever married men and also highlighting the socio demographic factors that have potential influence towards TB knowledge and its cure. On the basis of quantitative analysis higher proportion of the respondents heard about TB and also agreed that TB is a curable infectious disease. While the adequate knowledge of TB transmission when coughing and sneezing is about 57%. While the incorrect transmission knowledge about TB spared varying systemically in our finding. Binary logistic regression analysis revealed that early reproductive age groups of ever married men less likely to heard about TB compared to their counterparts upper age groups14. Education is an important indicator regarding decease knowledge 4-6. The importance of education is acknowledged globally, better educated individuals indeed to have a better health and a lower risk of mortality20.Respondents with no education has sufficient lack of knowledge about TB [OR=0.191] as compared to their counterpart having higher educational degree. Location and geographical area of residence found to be significant; urban has more knowledge regarding TB and its cure in bivariate analysis. Respondents belong to Sindh, Punjab, KPK and Baluchistan more heard about TB compared to GB. Socio economic status (SES) as measured by family income educational struts is associated with many measure of health status21. In Pakistan the majority of people are spending their life under the poverty line, 31% survives on US$1/day, and 85% earn less than US$2/day. Poor has less knowledge about TB and its cure in our findings5, media exposure22 have positive association about TB knowledge of cure and treatment in our study particularly TV play a major role in awareness.

Finally it is concluded that respondents with no education, low socio economic status, profound lack of media exposure, those belong to rural areas, occupation and early ages have least knowledge regarding TB and its cure. Potential struggles are needed where the low literacy rate and insufficient media coverage and use TV as a media mode for awareness purpose, so that morbidity and mortality burden due to TB in reproductive age men can be declined.

STUDY LIMITATIONS:

This study based from secondary data set taken from PDHS, in which a few limited question asked about TB knowledge, cure and its transmission to a small proportion of ever married men. The data lacked other important variables like TB treatment and prevention which does not allow establishing temporal relationship on the basis of these findings. This study goal was to only pinpoint the socio demographic factors that might be helpful in anti Tb seeking measures and mechanism.

REFERENCES:

1. Organization, W.H. (2000). Global tuberculosis control.
2. Organization, W.H. (2013). Global tuberculosis control.
3. Gelaw M, G.T., Dejene A, Lemma E, Eyob G. (2001). Attitude and social consequences of tuberculosis in Addis Ababa, Ethiopia. East African Medical Journal 78, 382-387.
4. Anjum, A., Daud, S., &Mukhtar, F. (2009). Tuberculosis: Awareness about Spread and Control. Professional Med J 16, 61.
5. Abbas, S., Malik, J., Issac, N., Safdar, R., and Yasmeen, B. knowledge and conception of tuberculosis. Professional Med J 21, 1213-1221.
6. Khan, J.A., Irfan, M., Zaki, A., Beg, M., Hussain, S.F., and Rizvi, N. (2006). Knowledge, attitude and misconceptions regarding tuberculosis in Pakistani patients. Journal of Pakistan Medical Association 56, 211.
7. Gilani, S.I., and Khurram, M. (2012). Perception of tuberculosis in Pakistan:

findings of a nation-wide survey. Journal of Pakistan Medical Association 62.
8. Jittimanee, S.X., Nateniyom, S., Kittikraisak, W., Burapat, C., Akksilp, S., Chumpathat, N., Sirinak, C., Sattayawuthipong, W., and Varma, J.K. (2009). Social stigma and knowledge of tuberculosis and HIV among patients with both diseases in Thailand. PLoS One 4, e6360.
9. Jurcev Savicevic, A., Popovic-Grle, S., Milovac, S., Ivcevic, I., Vukasovic, M., Viali, V., and Zivkovic, K. (2008). Tuberculosis knowledge among patients in out-patient settings in Split, Croatia. The International Journal of Tuberculosis and Lung Disease 12, 780-785.
10. Deribew, A., Abebe, G., Apers, L., Jira, C., Tesfaye, M., Shifa, J., Abdisa, A., Woldemichael, K., Deribie, F., and Bezabih, M. (2010). Prejudice and misconceptions about tuberculosis and HIV in rural and urban communities in Ethiopia: a challenge for the TB/HIV control program. BMC Public Health 10, 400.
11. Martins, N., Grace, J., and Kelly, P. (2008). An ethnographic study of barriers to and enabling factors for tuberculosis treatment adherence in Timor Leste. The International Journal of Tuberculosis and Lung Disease 12, 532-537.
12. Akhtar, S., White, F., Hasan, R., Rozi, S., Younus, M., Ahmed, F., Husain, S., and Khan, B.S. (2007). Hyperendemic pulmonary tuberculosis in peri-urban areas of Karachi, Pakistan. BMC Public Health 7, 70.
13. Khan, A., Walley, J., Newell, J., and Imdad, N. (2000). Tuberculosis in Pakistan: socio-cultural constraints and opportunities in treatment. Social Science & Medicine 50, 247-254.
14. Ismail, A., and Josephat, P. (2014). Knowledge and perception on tuberculosis transmission in Tanzania: Multinomial logistic regression analysis of secondary data. Tanzania Journal of Health Research 16.
15. Mangesho, P., Shayo, E., Makunde, W., Keto, G., Mandara, C., Kamugisha, M., Kilale, A., and Ishengoma, D. (2007). Commnity knowledge, attitudes and practices towards tberculosis and its treatment inMpwapwa District, central Tanzania. Tanzania Journal of Health Research 9, 38-43.
16. Metzger, P., Baloch, N., Kazi, G., and Bile, K. (2010). Tuberculosis control in Pakistan: reviewing a decade of success and challenges. East Mediterr Health J 16, 33-39.
17. Javaid, A. (2010). Tuberculosis control in Pakistan. Tuberculosis 16.
18. Agresti, A. (1996). An introduction to categorical data analysis.(Wiley New York).
19. Hosmer Jr, D.W., Lemeshow, S., and Sturdivant, R.X. (2013). Applied logistic regression.(John Wiley & Sons).
20. Research, N.B.o.E. (2006). National Bureau of Economic Research: Education and health: evaluating theories and evidence.
21. Santelli JS, L.R., Brener ND, Robin L. (2000). The association of sexual behaviors with socioeconomic status, family structure, and race/ethnicity among US adolescents. American journal of public health 90, 1582.
22. Jaramillo, E. (2001). The impact of media-based health education on tuberculosis diagnosis in Cali, Colombia. Health policy and planning 16, 68-73.

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