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TB KNOWLEDGE AND PERCEPTION;
TRENDS: EVIDENCE FROM PAKISTAN

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ABSTRACT… Objectives: To uncover the trend regarding TB knowledge and perception of its transmission as well as underlining the socio demographics aspects associated with TB cure among the reproductive venerable women. **Methods**: Quantitative frame work along with inferential analysis have been carried out by using the Pakistan Demographic and Health Survey 2006-07 and 2012-13 of ever married women. **Results**: Trend regarding TB awareness and its cure and treatment have been changed over time by 4.31% and 4.49% respectively in PDHS 2012 compared to PDHS 2006. Whereas an adequate knowledge of TB transmission thought air when coughing and sneezing remain constant after equating the two surveys. To understand the functional relationship of variables multinomial logistic regression analysis was carried out separately for PDHS 2006 and PDHS 2012. Two models revealed that early reproductive age group 15-19 of ever married women believed that TB cannot be curable compared to their counterparts upper age groups 45-49. Illiterate ever married women are more pronounced [OR=5.38 and OR=10.30] that TB is an incurable infectious disease compared to women having higher educational degree in PDHS 2006 and PDHS 2012 respectively. Location and geographical area of residence, wealth index, and media exposure have positive association about TB knowledge of cure and treatment. **Conclusion**: Although the awareness level improved but it still needs to launch some massive and wide-ranging awareness programme regarding an adequate knowledge of various diffusion modes of tuberculosis by utilizing all media modes predominantly television. Potential struggles are obligatory where the subordinate literacy rate and limited health care settings meticulousness in remote areas, so that the illness and death due toTB can be minimized.

Key words: Ever married women; multinomial logistic regression; Pakistan; socio demographics aspects; TB

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INTRODUCTION

Tuberculosis is an infectious disease and a major public health anxiety particularly in developing countries. Ninety eight percent of TB deaths and 95% of TB cases take place in low and middle income families.[1] In 2012 globally the number of TB new cases were 8.6 million and 1.3 million people died.[2] Although there are effective drugs and treatments 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 TB.[3,15] 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 country and ranked as a 6th most populous country in the globe and placed 2nd in Islamic countries after Indonesia. Pakistan is at 6th position as the top TB burden country of the world. The estimated incidence of TB in Pakistan was 231/100,000.[2] The prevalence and 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%.[17]

From Pakistan prospective numerous studied conducted to pinpoint the significant associated factors regarding TB knowledge control and management.[4,7] This study designed to measure the extent of change about TB knowledge and its cure over time from PDHS 2006-07 to PDHS 2012-13, and also modelling was carried out to highlight the factors associated with the knowledge and perception towards TB cure in Pakistan.

METHODS AND MATERIAL

Data source

So far three demographic health survey has been conducted as part of the MEASURE DHS international series. The national institute of population studies coordination these survey with the technical support from ICF International and Pakistan Bureau of Statistics and the USAID supported financially. The most recent data sets PDHS 2006-07 and PDHS 202-13 for ever married women with sample size 10023 and 13558 respectively used for present study.

Logistic regression model has several kinds for an application particularly depending upon the dependent variable used for analysis. Multinomial Logistic Regression is simply the extension of binary logistic regression[18,20], when dependent variable has more than two categories. In the present study the response variable has three category namely (i) TB cannot be curable (ii) TB can be curable (iii) respondent do not know about TB cure. TB can be curable is considered as a baseline category.

RESULTS

Ever married women PDHS-2012: The maximum (20.1%) and the minimum (4.2%) respondent's falls in age group 25-29 and 15-19 respectively. The percentage of rural (53.2%) respondents are higher compared to urban (46.8%). Punjab and Sindh have higher percentage of ever married women followed by KPK, Baluchistan and GB. More than half (56.2%) of the ever married women are illiterate. 43.5% ever married women are wealthier followed by poor (37.4%) and middle (19.1%) families. Television is accessed by higher proportion of women compared to other media sources (Table-I).

		Ever Married Women	
Covariate	Response	PDHS-2006	PDHS-2012
Age	15-19	5.80	4.20
	20-24	15.6	15.1
	25-29	20.1	20.1
	30-34	17.1	18.0
	35-39	16.5	17.0
	40-44	12.8	13.3
	45-49	12.3	12.3
Place of residence	Urban	38.2	46.8
	Rural	61.8	53.2
Residence by province	Punjab	41.5	35.1
	Sindh	27.1	21.7
	KPK	18.6	19.9
	Baluchistan	11.8	14.4
	GB	--	9.0
Education status	No education	66.5	56.2
	Primary	13.4	13.5
	Secondary	13.4	17.8
	Higher	6.6	12.4
Wealth index	Poor	39.8	37.4
	Middle	19.4	19.1
	Rich	40.8	43.5
Access to media	No Access to radio	62.7	81.7
	Access to radio	37.3	18.3
	No access to TV	42.3	35.6
	Access to television	57.7	64.4

Table-I. Demographic characteristics of respondents

Ever married women PDHS-2006: The maximum (20.1%) and the minimum (5.80%) respondent's falls in age group 25-29 and 15-19 respectively. The percentage of rural (61.8%) respondents are higher compared to urban (38.2%). Punjab and Sindh has higher percentage of ever married women followed by KPK and Baluchistan. More than half (66.5%) of the ever married women are illiterate. 40.8% ever married women are wealthier followed by poor (39.8%) and middle (19.4%) families. Television is accessed by higher proportion of women compared to other media sources.

The trend changed over time slightly regarding TB awareness if 100 ever married women heard about TB in PDHS-2006-07 only four more women got aware about TB in PDHS-2012. Figure-I depicts the trend about TB awareness in two surveys.

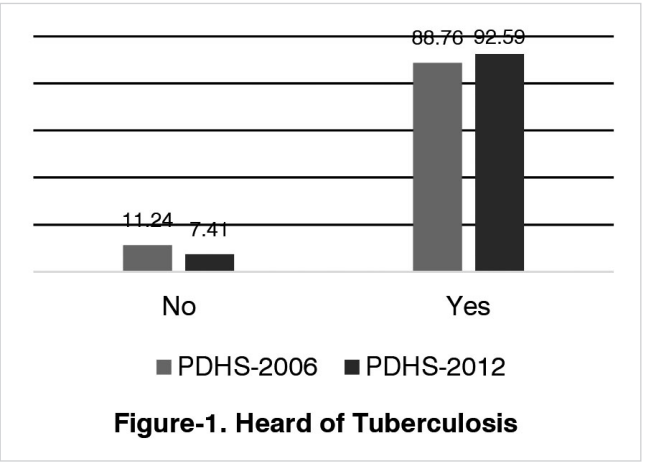

Figure-1. Heard of Tuberculosis

Can tuberculosis be cured?

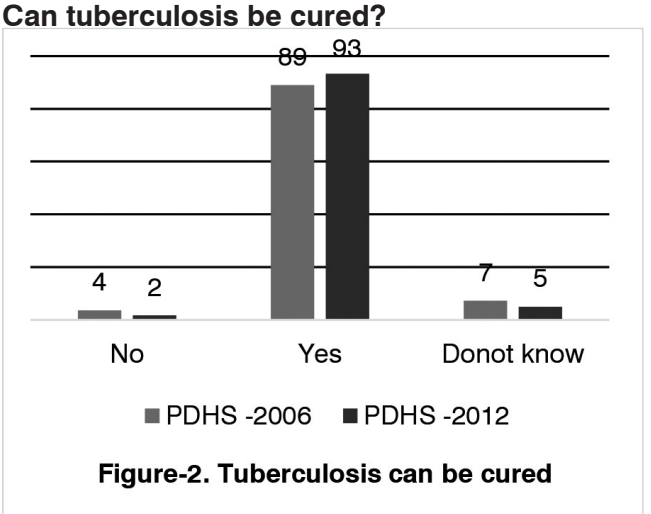

Figure-2. Tuberculosis can be cured

The knowledge about TB can be curable increased in PDHS 2012-13 as compared to PDHS-2006-07. 89% ever married women responded that TB can be cured in PDHS-2006-07 while 93% ever married women agreed that the TB can be cured in PDHS-2012-13. The percent change is 4.49 regarding TB is a curable. Figure-2.illustrates the trend of two Pakistan demographic and health surveys.

TB diffusion knowledge and trend

Various questions about TB transmission asked to access the knowledge and conception of ever married women illustrated in Figure-3. 50% ever married women responded that the TB can be transmitted through air when coughing in PDHS-2006-07. The same level (50%) observed in PDHS-2012-13. While 33% respondents reported that the TB transmitted through sharing utensils in PDHS-2006-07 whereas the level goes up (42%) in PDHS -2012-13. The misconception about TB transmission through touching person with TB changed from 14% to 12% from PDHS-2006-07 to PDHS-2012-13. 48% and 46% ever married women agreed that TB can be transmitted through food in PDHS -2006-07 and 2012-13 respectively. Almost the level remain same of ever married women regarding TB transmission through sexual contact in both the survey's. 2% women think that TB can be transmitted by mosquito bite in PDHS-2006-07, while only 1% women think so in 2012-13. 3% and 4% women don't know about TB transmission in PDHS-2006-07 and PDHS-2012-13 respectively. Figure-III illustrates the trend of TB transmission knowledge in two surveys.

Multinomial logistic regression analysis

Factors along with odds ratio are demonstrated in Table-II, both models revealed that the early age groups (15-19) have 2.46 and 2.55 times more responded that TB cannot be curable as compared to their counterparts having age 45-49 in PDHS 2012 and 2006 respectively. Education and the knowledge of TB treatment and cure have same direction, as the educational level raise the knowledge regarding TB treatment and cure also increased. Illiterate ever married women 5.38 and 10.30 times more believed that

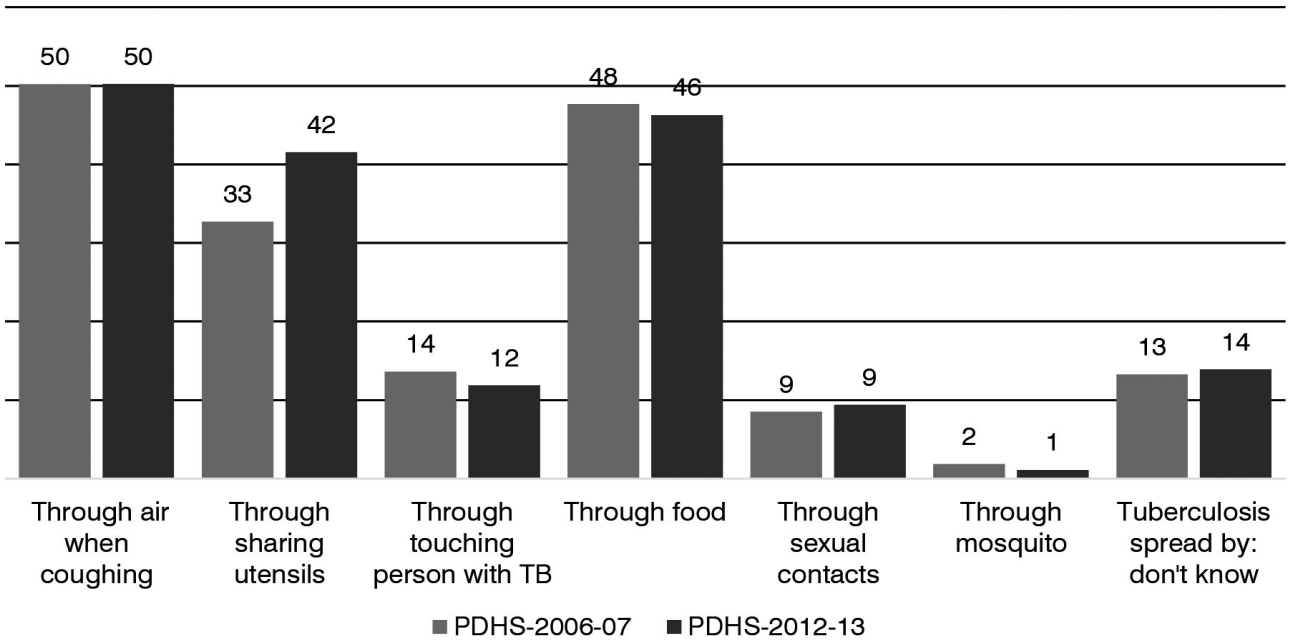

Figure-3. TB transmission knowledge and trend

		PDHS-2012		PDHS-2006	
		Can TB curable?			
Covariate	Response	No	Don't know	No	Don't know
Age (ref: 45-49)	15-19	2.46**	2.28***	2.55***	2.31***
	20-24	1.66	1.39*	1.30	1.53**
	25-29	1.66*	1.23	1.21	1.05
	30-34	1.38	1.38*	1.44	1.10
	35-39	0.99	0.97	0.93	0.79
	40-44	0.96	1.13	1.05	0.87
Education (ref: higher)	No education	10.30***	4.58***	5.38***	5.52***
	Primary	6.38***	2.58***	4.84***	2.81*
	Secondary	5.37**	1.42	1.86	2.00
Residence (ref: rural)	Urban	0.89	1.22	1.61***	1.12
Residence(ref: GB)(ref: Baluchistan2006)	Punjab	0.30***	0.48***	0.85	0.57***
	Sindh	0.29***	0.23***	0.21***	0.18***
	KPK	0.36***	0.32***	0.20***	0.23***
	Baluchistan	0.79	0.99	.	.
Wealth index (ref: richest)	Poor	0.86	2.97***	2.68***	2.86***
	poorest	0.92	1.89***	2.20***	2.15***
	Middle	0.68	1.33	1.51	1.74**
	Rich	0.65	1.21	0.87	1.32
Has radio(Ref. not dejure resident)	No radio	1.42	0.87	1.28	0.71
	Yes	1.19	0.87	0.87	0.58*
Has TV (ref. yes)	No TV	2.13***	1.75***	1.02	1.82***

Table-II. Multinomial Logistic Regression analysis about knowledge of TB cure

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

TB cannot be cured compared to women having higher educational degree respectively in PDHS-2006 and 2012. Whereas the place of residence are found to be significant only in PDHS-2006. Urban 39% less likely to say that TB cannot be cured compared to rural in PDHS 2006. Place of residence by region are found to be significant, Punjab is insignificant in PDHS-2006 and trend has been changed and found to be significant in PDHS-2012. Whereas the residents of Sindh and KPK have more knowledge regarding tuberculosis cure. Poorest ever married women in both the models have 2.97 and 2.86 times more agreed that they don't know about TB treatment and cure as compared to richest ever married women in PDHS-2012-13 and PDHS-2006-07 respectively. Media exposure is also positively associated with knowledge of TB cure for both the respondents. The respondents watching television have more knowledge regarding TB treatment.

DISCUSSIONS

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 compare TB related awareness, knowledge of cure and its transmission of ever married women and also highlighting the socio demographic factors that have potential influence towards TB cure. On the basis of quantitative analysis, the TB awareness level slightly increased i.e. say for 100 women heard about TB in PDHS 2006-07 the increment only four new women in PDHS 2012-13 in our findings. Almost similar level observed in TB cure knowledge. While the adequate knowledge of TB transmission when coughing and sneezing remain constant. While the incorrect transmission knowledge changed over time in spared of TB by sharing tensile increased our finding. Multinomial logistic regression analysis revealed that early reproductive age group 15-19 of ever married women believed that TB cannot be curable compared to their counterparts upper age groups 45-49.[14] Education is an important indicator regarding decease knowledge.[4,6] Illiterate ever married women are more pronounced [OR=5.38 and OR=10.30] that TB is an incurable infectious disease compared to women having higher educational degree in PDHS 2006 and PDHS 2012 respectively in our finding. Location and geographical area of residence found to be significant in 2006, while the place of residence by urban and rural found to be independent regarding TB cure in 2012 survey. Punjab, Sindh and KPK ever married women have more aware about TB cure. Wealth index[5], media exposure[21] have positive association about TB knowledge of cure and treatment in our study.

CONCLUSIONS

Although the awareness level improved but it still needs to launch some massive and wide-ranging awareness programme regarding an adequate knowledge of various diffusion modes of tuberculosis by utilizing all media modes predominantly television. Potential struggles are obligatory where the subordinate literacy rate and limited health care settings meticulousness in remote areas, so that the illness and death due to TB can be minimized.

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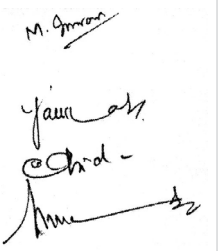
AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Muhammad Imran	Statistical modeling analysis	
2	Jamal Abdul Nasir	Research concept, methodology write up	
3	Abid Ali Chohan	Analysis	
4	Syed Arif Ahmed Zaidi	Data and literature review	