Responsiveness Of Tuberculosis Control Mechanism at A Tertiary Care Hospital, Quetta; A Quantitative Study

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Abstract:
Objective: To assess the responsiveness of Tuberculosis control mechanism by using an adapted version of World health Organization questionnaire.
Methods: A cross-sectional study was conducted among 385 Tuberculosis patients who visited Fatima Jinnah Chest Hospital, Quetta from February 2021 to July 2021. Non- Probability convenience sampling was used and data was collected by using 23-item pretested questionnaire. For data analysis descriptive statistics by SPSS version 25 were employed.
Results: Of the 385 respondents 32.2% belonged to age group 15-29 with a mean age of 40 years, 53.8% were male. Nearly half of the respondents 42.3% were illiterate, more than 80 percent had a monthly income of less than 10,000 rupees. Overall responsiveness was 83.9% with dignity domain having the best rate of 79.5%.
Conclusion: Overall results and findings indicate that there is a need for investment in both material and structured improvements at Fatima Jinnah Chest Hospital and improvement of services at primary level to reduce burden at tertiary care hospital like Fatima Jinnah.

Keywords: Healthcare provider; Responsiveness; Tuberculosis

Introduction

Tuberculosis is a highly contagious and potentially fatal disease; the infection is transmitted by its causative organism Mycobacterium Tuberculosis[1].Tuberculosis had an estimated global incidence of 10 million people in 2018, despite it being highly preventable and curable .The highest number of newly diagnosed Tuberculosis cases occurred in the South-East Asian region, with 44% of newly diagnosed cases, followed by the African-region, with 24% of newly diagnosed cases and the Western-Pacific with 18%[2]. Thirty countries declared as high Tuberculosis burden countries accounted for 87% of newly diagnosed tuberculosis cases, while 8 countries including Pakistan accounted for two-thirds of the total cases, with India at top, followed by China, Indonesia, Philippines**,** Pakistan, Nigeria, Bangladesh and South Africa[3].Pakistan thus has the world's 5th highest Tuberculosis burden with the annual incidence estimated at over 562,000[4] While the World Health Organization's Eastern-Mediterranean Region, comprising of 22 countries, account for 8% of the global burden, Pakistan is responsible for 75% of it[5].However, 369,548 cases were notified and put on treatment in 2018, indicating that over a third of the patients did not report to the Tuberculosis control mechanisms in the country and went 'missing' The National Tuberculosis incidence has therefore remained static over the last two decades since the National Tuberculosis Control Program was established and the disease declared a national emergency in 2001, as a significant proportion of cases is missed that spread the disease further[6].A total of 1.5 million patients died due to tuberculosis in 2018[2]. Worldwide tuberculosis is one of the top 10 causes of death and the most prominent cause from a single infectious pathogen[7].World Health Organization estimates that with a case fatality rate of around 8%, a total of 45,000 patients died from Tuberculosis in Pakistan during 2018[4] Multidrug-resistant TB (MDR-TB) also remains a public health crisis and a health security threat. World Health Organization also estimates that there are 484,000 new incident cases of MDR-TB globally, out of which Pakistan is contributing 28,000 annually, only 11% of which are diagnosed and put on

treatment[8].The National Tuberculosis Control Program, Pakistan annual 2018 data showed that a total of 36% (192,452) of the total Tuberculosis cases were neither diagnosed nor notified[6]. The missing of over a third of cases in Pakistan is attributable to the fact that both the public and the private sector are neither associated nor mobilized with the process of identifying and placing on treatment, all the tuberculosis cases reporting to them. There is a huge gap of adequate system responsiveness in relation to Tuberculosis care in Pakistan and achieving adequate responsiveness has remained an elusive challenge for the country's health system. World-Health-Report 2000 has ranked Pakistan's health system at number122 in terms of responsiveness indicating an urgent need for improvement[9].This study was designed to evaluate the responsiveness of hospital's patient services in relation to their expectations, as well as factors impeding their responsiveness. It is believed that the study results will help the decision makers in identifying the critical areas and prioritize system's need to improve Health System Responsiveness

Material and Methodology

This descriptive cross-sectional study was performed from February to July 2021 investigating patients attending Fatima Jinnah Chest Hospital (FJCH), Quetta for Tuberculosis care. The study was conducted after taking ethical approval from institutional review board of Armed Forces Post Graduate Medical Institute. The sample size for the study was 385 calculated from statistical formula $n=z^2pxq/e^2$ by taking responsiveness at 50%. Sampling Technique used was convenience sampling. Any inpatient or outpatient visiting FJCH for Tuberculosis care and Health care providers at the FJCH were included in the study. Patients and HCPs not willing to give consent were excluded from the study. Data was collected from patients using the 23-item pretested questionnaire. All domains of responsiveness were addressed by calculating the mean of each domain. The five-point Likert scale (Very good, good, average, bad, and very bad from 1 to 5) was applied. Responsiveness was categorized into two categories "Good Responsiveness (Very good and good) Poor Responsiveness (Very Bad, Bad and Average). Another important summary rating for "Total Responsiveness" was calculated using the mean of all the domains of responsiveness. the duration to complete the questionnaire was average 8 minutes. Data was analyzed using descriptive statistics (Frequency, Percentage and Mean) by Statistical Package for Social Sciences version 25. Informed consent was taken from all participants and their privacy, anonymity, dignity was ensured. Approval was taken from the Medical Superintendent FJCH Quetta to carry out the research.

Results

The study enrolled 385 patients who attended FJCH, Quetta for Tuberculosis care and the response rate was 100 percent. Mean age of the respondents was 40.57. Socio-demographic characteristics of the subjects are illustrated in Table 1.

Table 1: [Socio demographic characteristics of the respondents]

Characteristics	Frequency (n)	Percentage (%)
Age group		
0-14	13	3.4%
15-29	123	31.9%
30-44	92	23.9%
45-59	71	18.4%
60-69	39	10.1%%
70-79	25	6.5%
80+	22	5.7%
Gender		
Male	207	53.8%
Female	178	46.2%
Monthly Income		
10,000 or less	273	70.9%
10,001-30,000	55	14.3%
30.001-50,000	42	10.9%
50,001+	15	3.9%
Education		
Not Educated	163	42.3%
Primary	59	15.3%
Middle	21	5.5%
Matric	28	7.3%
Intermediate	35	9.1%
Bachelors	42	10.9%
Masters	37	9.6%
Profession		
Housewife	66	18%
Student	69	17.3%
Others	250	64.7%
Area of Residence		
Quetta	208	54%
Kila Abdullah	31	8.1%
Turbat	10	2.6%
Noshki	10	2.6%
Others	126	32.7%

Of all the respondents attending FJCH for Tuberculosis care 296 (76.9%) of patients stated their health status as poor, while the average ranged from bad to very bad. Majority reported responsiveness of FJCH as 83.9%.
Total responsiveness based on demographic subgroups is given in Table 2.

Table 2: [Total Responsiveness among socio-demographic subgroups]

Socio-demographic Variables	Total Responsiveness (Poor) Percentage (%)	Total Responsiveness (Good) Percentage (%)
Age group		
0-14	0	100
15-29	18.7	81.3
30-44	17.4	82.6
45-59	16.9	83.1
60-69	18	82
70-79	8	92
80+	9.9	90.1
Gender		
Male	15.5	84.5
Female	16.9	83.1
Monthly Income		
10,000 or less	15.4	84.6
10,001-30,000	25.5	74.5
30.001-50,000	14.3	85.7
50,001+	0	100
Education		
Not Educated	10.4	89.6
Primary	13.6	86.4
Middle	23.8	76.2
Matric	28.6	71.4
Intermediate	11.4	88.6
Bachelors	28.6	71.4
Masters	21.6	78.4

Among all domains of responsiveness dignity domain scored 79.5%, which was the highest among all domains and confidentiality scored 62.1%, which was the lowest of all domains as illustrated in figure no 1.

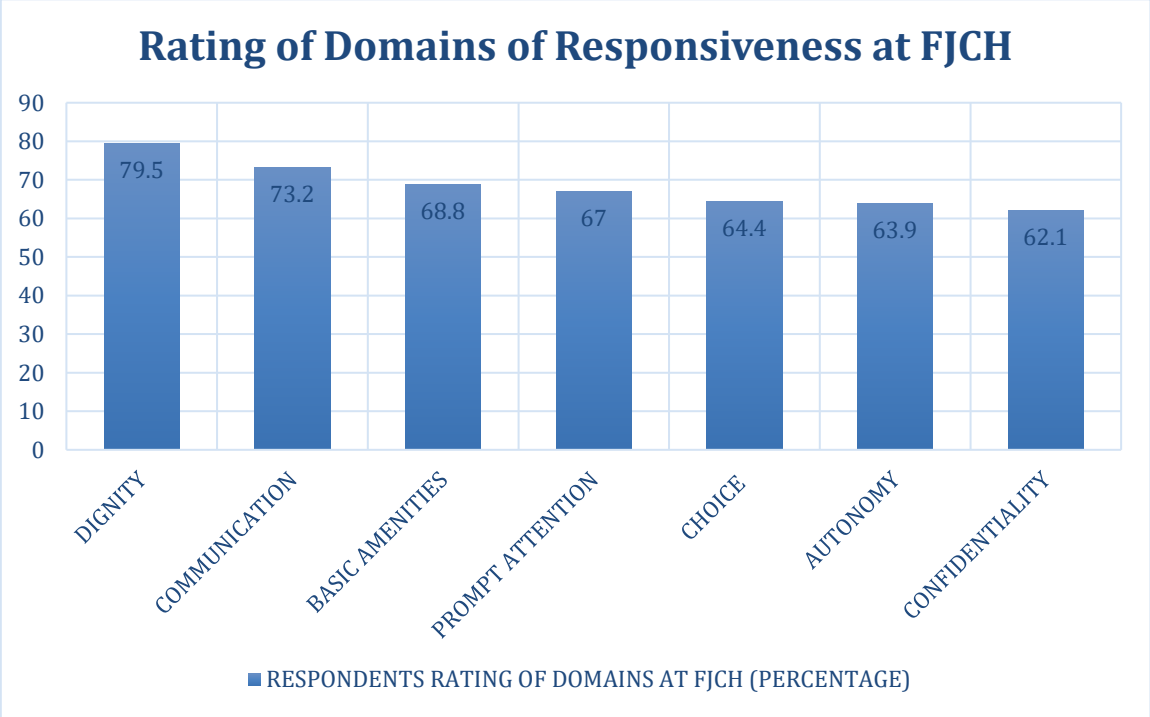

Figure1: Respondents rating of Domains of Responsiveness at FJCH

Ranking of responsiveness domains is shown in Figure 2.

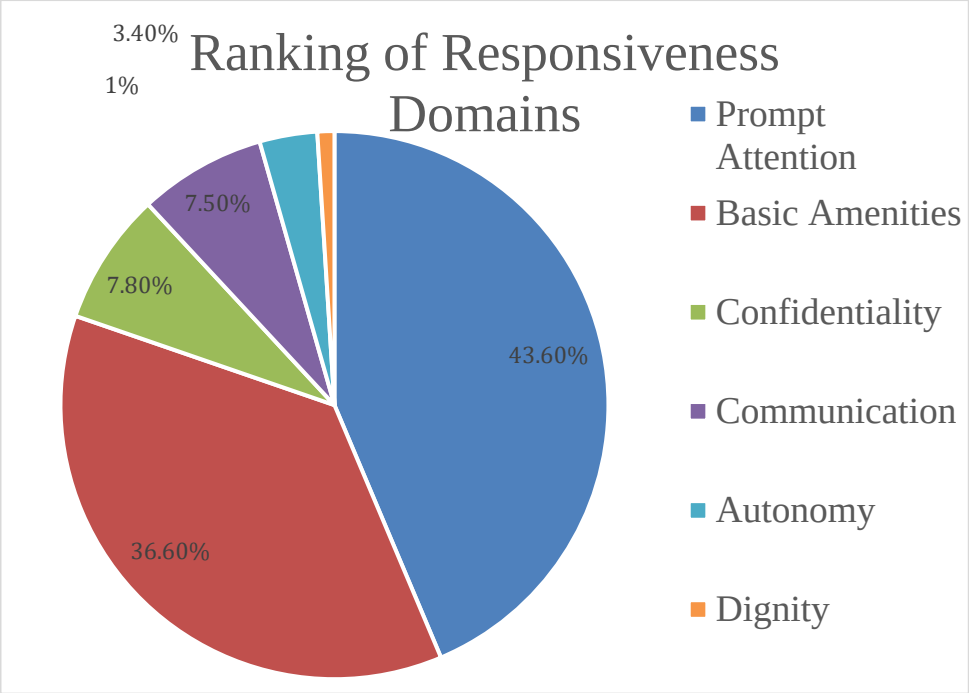

Figure 2: Most Important Domain of Responsiveness based on patient's view

DISCUSSION:

The literature search that was carried out did not reveal any previous studies for evaluating health-system responsiveness in a tertiary-care hospital in Balochistan province of Pakistan.

The study participants were ethnically diverse with a mean age of 40.5 years. The overall responsiveness was 83.9%, while there was a slight contrast in responsiveness reported by males and females. This result is consistent with the results of a survey in Turkey in which females reported health-system responsiveness slightly lower than the males[10] This difference could be related to the fact that public hospitals are overburdened with patients and minimal space for waiting area hence making it more difficult for females. A study conducted in Mashhad, Iran (compared health-system responsiveness with household's perception in two deprived regions) resulted that participants chose the "quality basic amenities" as the most important responsiveness domain and "social support" was selected as the least important domain of responsiveness[11]. This result is inconsistent with the findings of current study where participants chose "Prompt attention to care" as the important domain of responsiveness and "Patient's dignity" as the least important domain. This dissimilarity could be associated to the fact that Fatima Jinnah Chest Hospital is the only hospital in Balochistan province of Pakistan, where patients travel from far-flung areas to get treated and mostly visited by patients from the low-income households. A similar cross-sectional survey with a sample size of 575 South Asians and 494 Chinese individuals conducted in Hong Kong showed that the Chinese reported generally lower health-systems responsiveness for outpatient and inpatient department services as compared with the South Asian participants [12]The findings of the current study are consistent with South Asian participants of this study. Both studies recommend collective efforts from HCPs and policymakers to improve the existing healthcare-system for patients. Dignity (79.5%) was the highest scored dimension of responsiveness followed by communication 73.2% and confidentiality scored lowest 62.1%. This finding is partially in line with existing literature where a descriptive cross-sectional research carried out in Tanzania showed that among the domains of responsiveness confidentiality scored (86.7%) being the highest scored domain followed by dignity(81.4%)[13].Confidentiality scored least among respondents of the current study, this finding is again similar with the existing literature, a research conducted among 6,113 adults in Germany (To determine total health-systems responsiveness and its relationship with the social determinants for ambulatory care from a patient's view) showed that a total of 90% of all patients who evaluated their last General Physician and Specialist visits were satisfied regarding communication, dignity, trust and autonomy. In contrast to this only half of patient's reported satisfaction for confidentiality in the doctor office. The study concluded that the ratings for confidentiality were distressing[14].Cross sectional study conducted in Iran on health-system responsiveness found responsiveness mean rating were 3.3 ± 0.6 and 3.8 ± 0.6 in a total of 5 for private and public hospitals, respectively[15]. The difference in highest and lowest mean scores of responsiveness were relevant to the choice of care and prompt-attention to health care. Findings of this study are again in line with current study where overall responsiveness have been selected as good, Prompt Attention was the most important domain in current study and dignity was the least important. Balochistan is the biggest province of Pakistan which has a vast area and difficult to reach. In the current study prompt attention was chosen by the respondents as the most important dimension of responsiveness with a score of 43.6% that was comparatively higher than other dimensions of responsiveness indicating that the travel time to hospital and waiting time contributes to poor responsiveness. This is

in line with existing literature where a study analyzed responsiveness of health systems from the community-dwelling adults aged 50 and over's perspective in Russia, Ghana, China, India and South Africa pointed to the fact that travel-time is a crucial contributor for poor responsiveness of health-system in all these countries[16].The results of this study also bore similarity to a study conducted with a sample size of 335 hospitalized patients in Kermanshah Iran on health-system responsiveness and reported that the overall responsiveness score was 72.6. The best rated domain of responsiveness was dignity with 82.2% and least rated domain was autonomy with 62.5, respectively. Socio-demographic variables of the respondents had no noticeable effect on the overall health-system responsiveness score[17].

The data of the current study has been extracted from one tertiary care hospital alone. Therefore, further studies are required to verify and validate the results of the current study in other districts of the Balochistan province and remedial action wherever indicated. Installing multi-lingual teams will help capture insights from multiple languages respondents indicates another region for future studies.

CONCLUSION:

The study findings revealed that while responsiveness of FJCH reported by patients was 83.9% but HCPs have weak work-place trust coupled by a combination of below par working conditions and overflow of patients which are contributing to poor quality service creating a aura of negative patient-provider relations. Findings indicate that there is a need for investment in both material and structural improvements at FJ hospital and improvement of services at primary level to reduce burden at tertiary care hospitals like FJ. The FJCH has enough potential to improve various dimensions of their responsiveness provided they pay more attention to their staff needs such as capacity building, provision of better facilities including those for infection control and personal hygiene in these COVID-19 times. Better arrangements for women to reduce their waiting times and placement of more staff to reduce the burden on the existing staff can help to enhance motivation while ensuring that proper respect is shown to all patients regardless of any consideration. Provision of similar facilities in all district headquarters will help to lessen the burden on this tertiary care institution and complement efforts towards attaining Universal Health Coverage with TB elimination by the year 2030.

Acknowledgement

I would also like to express my profound gratitude to my supervisor Dr Humaira Mahmood, Dr Ghulam Nabi Kazi and Dr Shakoh mengal for their wise counseling and encouraging attitude towards conducting this study. And also to Dr Noorullah Musakhail (Medical Superintendent FJCH) and Mr. Abdul Rauf (Senior Microbiologist FJCH) for immensely facilitating me during my study period by ensuring the provision of favorable circumstances and a highly conducive environment and Dr Muhammad Farrukh Habib for helping in publication. This project would not have materialized without their ardent support and expert guidance.

Disclaimer: This was the thesis of Masters in Public Health

Conflict of interest: The study has no conflict of interest to be declared by any author.

Funding disclosure: None to declare.

References

1. Holmes KK, Bertozzi S, Bloom BR, Jha P: Disease Control Priorities. Major Infectious Diseases. 3rd (ed): 3, Washington DC; 2017. 6:10.1596/978-1-4648-0524-0
2. WHO: Global Tuberculosis Report. (2019). Accessed: March 02,2020: https://www.who.int/teams/globaltuberculosis-programme/tb-report.
3. Murray CJ, Ortblad KF, Guinovart C, et al.: Global, regional, and national incidence and mortality for HIV, tuberculosis, and malaria during 1990-2013: a systematic analysis for the Global Burden of Disease Study. Lancet,. 2018, 384:1005-1070. 10.1016/S0140-6736(14)60844-8. Epub 2014 Jul 22.
4. Khan RA, Shaikh AA, Bulaadi GQ: Incidence of Multidrug-resistant Tuberculosis in Sindh, Pakistan. Cureus. 2019, 11:4571. 10.7759/cureus.4571
5. WHO: Factsheet.. (2020). Accessed: March 02,2020: https://www.who.int/news-room/factsheets/detail/tuberculosis.
6. NTP Pakistan: National TB Control Program. (2020). Accessed: March 02,2020: https://ntp.gov.pk
7. Lozano R, Naghavi M, Foreman K, et al.: Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study.. The lancet. 2012, 380:2095-2128. 10.1016/S0140-6736(12)61728-0
8. Akhtar AM, Arif MA, Kanwal S, Majeed S: Prevalence and drug resistance pattern of MDR TB in retreatment cases of Punjab, Pakistan. J Pak Med Assoc. 2016, 66:989-93
9. WHO: World Health Report. (2000). Accessed: March 02,2020: https://www.who.int/teams/globaltuberculosis-programme/tb-report.
10. Ugurluoglu O, Celik Y: How Responsive Turkish Health Care System Is to Its Citizens: The Views of Hospital Managers. J. Med. Syst,. 2006, 30:421-428. 10.1007/s10916-005-9006-8
11. Fazaeli S, Hashemi SA, Ebrahimipour H, Banikazemi SH, Yousefi M: Importance of health System responsiveness in a high and low income areas in Mashhad, Iran: A Household survey. Payesh. 2016, 15:153- 162.
12. Chao J, Lu B, Zhang H, Zhu L, Jin H, Liu P: Healthcare system responsiveness in Jiangsu Province, China. BMC Health Serv Res. 2017, 17:10.1186/s12913-017-1980-2

13. Kapologwe NA, Kibusi SM, Borghi J, Gwajima DO, Kalolo A: Assessing health system responsiveness in primary health care facilities in Tanzania. BMC Health Serv Res. 2020, 20:10.1186/s12913-020-4961-9
14. Tille F, Röttger J, Gibis B, Busse R, Kuhlmey A, Schnitzer S: Patients' perceptions of health system responsiveness in ambulatory care in Germany. Patient Educ Couns. 2019, 102:162-171. 10.1016/j.pec.2018.08.020
15. Daneshkohan A, Zarei E, Ahmadi-Kashkoli S: Health system responsiveness: A comparison between public and private hospitals in Iran. Int. J. Healthc. Manag.. 2020, 13:296-301. 10.1080/20479700.2018.1540183
16. Stewart Williams J, Myléus A, Chatterji S, Valentine N: Health systems responsiveness among older adults: Findings from the World Health Organization Study on global AGEing and adult health. Glob Public Health. 2020, 15:999-1015. 10.1080/17441692.2020.1742365
17. Najafi F, Karami-Matin B, Rezaei S, Rajabi-Gilan N, Soofi M: Health system responsiveness after health sector evolution plan (HSEP): An inpatient survey in Kermanshah. Med J Islam Repub Iran. 2016, 30: