

Short Report

Tuberculosis: Moving From Cure to Prevention in Pakistan.

Samina Iqbal kanji

The Aga Khan University School of Nursing and Midwifery, Pakistan

Corresponding author: kanji.samina@gmail.com

Introduction and Significance of the Issue

For many years, most of the world's population is fighting its battle against the disastrous organism, biologically known as "Mycobacterium Tuberculosis". According to Gul, Fatima, and Shabbir (2013), tuberculosis (TB) is amongst the leading causes of mortality globally, and 98% of these deaths are unfortunately prevalent in developing countries. Similarly, Pakistan is sharing the huge burden of morbidity and mortality by TB despite the preventable nature of disease. According to World Health Organization (2013), Pakistan is ranking fifth amongst the 22 high TB burden countries by sharing the prevalence rate of 373 per 100,000 cases. Tuberculosis can be defined as "an infectious bacterial disease caused by Mycobacterium tuberculosis, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory disease" (WHO, 2013). Moreover, according to the Nair, Wares, and Sahu (2010), tuberculosis mostly affects the age group of adults who can contribute productively towards the economy of the country. Therefore, high TB burden can further play a huge role in increasing poverty in Pakistan.

Keeping in mind the infectious nature of the disease, this prevalence will be doubled in the upcoming years if proper measures will not be adopted for the prevention, as well as the treatment of the disease. Despite many measures operationalized by the country in the last years, tuberculosis is shattering the socio-economic infrastructure of the country by negatively affecting the quality of life of its people. As, according to Awan, Iqbal, and Waqas (2011), healthy individuals can aid in increasing the resourceful human capital and therefore plays a crucial role in the economic and social growth of a country. Moreover, in a country like Pakistan, that is already fighting its battle to achieve the Millennium Developmental Goals; worsening poverty, absence from employment, increased death rates etc. will exaggerate the burden if realistic measures will not be adopted. On the other hand, I develop the curiosity to explore this issue when every now and then I came across patients at the clinical site with the history or active nature of TB. Moreover, as a Pakistan citizen, it was very alarming for me when I came to know that Pakistan has gone from 6th to 5th rank among the highest TB prevalent countries despite successful

treatment initiatives for example: Direct Observation Therapy (DOT) centers. The great evidence for this unsuccessful coverage is given by WHO that Pakistan ranked 4th world highest population with Multiple Drug Resistance Tuberculosis (MDR-TB) as mentioned in Achakzai (2014). Therefore, as a public health nurse, I felt the need that tuberculosis should be viewed from a holistic lens rather than just viewing this disease as a medical emergency. This paper will discuss the causes of tuberculosis under the broad umbrella of social, environmental, medical, and organizational determinants.

Social and Environmental Determinants of Tuberculosis

"The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels" (WHO, 2013). In the light of this statement, I will discuss few of the major causes of tuberculosis social emergencies in Pakistan.

Poverty

Our health industry is fighting with the treatment of tuberculosis for many years, but still the gap remains the same. The one reason for this could be the quality of life standards of our people in which they live and breathe. According to Kakakhel (2014), 60.19% of Pakistani population lives below poverty line i-e earning less than Rs 200/day. Unfortunately, poverty affects the entire disadvantaged family, and the cycle ultimately continues to generations. Inadequate earning results in un-fulfillment of basic life necessities that is: food, clothing, and shelter. According to Hargreaves et al (2011), countries having the high rates of TB are also having huge burden of poverty and malnutrition, as it lowers the patient's immunity, and provide opportunistic environment to the bacteria to breed. Additionally, according to Mehnaz (2012), almost 40% of the children less than five years in Pakistan are suffering from malnutrition. As stated above, TB mostly occurs in the productive age, therefore when this malnutrition strikes in the childhood; it ultimately makes young adults more prone to this disease because of implicit low immunity. Another important result from poverty is the rapid urbanization for better family earnings. According to Chandra, Sharma, Joshi, Aggarwal, and Kannan (2014), rapid

urbanization in the developing countries without proper measures to raise socio-economic standards is resulting in slums resembling overcrowded areas where TB can easily spread. One of the vicious cycles behind this could be that people are producing more to have less out of pocket expenses, but on the other hand are having fewer opportunities in terms of shelter and food to raise their socio-demographic standards. In a study done by Abbasi (2010) at Islamabad, it was identified that out of 200 patients; 51.5 % were the ones who were sleeping in a room having > 4 people, and 67% were the ones living in a room of 4 people. Hence, it can be inferred that overcrowded homes with less opportunity for air exchange are more vulnerable to spread of TB. Besides, a large number of Pakistani low- middle income population is using public transport specially buses and vans for their transport. Those are another contributor for disease spread because of overloaded buses with no preventive measure. This determinant was well supported by the study of Campos, Perez, Sanchez, Bedoya, and Martin (2007), it was revealed that the risk of TB prevalence increases by a factor of 4.09 for those who are travelling in minibuses, as compared to those using private transports. Hence, from the above mentioned facts, it can easily be analyzed that TB is more prevalent in poverty residing areas.

Illiteracy and Lack of Awareness

According to Pakistan Today (2013), the 2012 report of UNESCO revealed that 79% of Pakistani population is illiterate, and rank 180 among 221 countries of the world. This is very unfortunate, because each single illiterate individual specially the woman means the entire family is unprivileged. Likewise, in a study by Khurram, Yong, Arshad, and Khar (2009) at Rawalpindi, it was identified that more than 50 % of the population was illiterate, and thus in their families poverty was working hand in hand. Thus, being illiterate provides fewer options for secure employment, and can exaggerate poverty in the same place. On the other hand, lack of awareness in Pakistan is giving rise to stigmatization associated with tuberculosis. The same notion was well supported by the study done by Khan et al (2006) in Karachi, which explored that 47.6 % thought that TB spreads by contaminated food, 32.9 % by blood products, and 27% believed that it is inherited. In the same study, 41% patients kept diagnosis hidden from their friends and families, 39% thought that they cannot marry after this disease, and therefore were not using preventive measures in the society. Thus, lack of awareness is playing a major role in TB spread in the unfortunate population.

Medical Determinants of Tuberculosis

Besides social determinants, there are a few diseases that are highly prevalent in our population, and have proven to be fortunate for TB bacteria. According to Qasim (2013), almost 100,000 people are suffering from HIV in Pakistan, and it serves as an epidemic in the history of Pakistani population. According to Kwan and Ernst (2011), patients with HIV are 20 – 30 times more prone to get TB infection as compare to the general population. Like malnutrition, HIV also weakens a person immune system, thereby allows the bacteria to develop in to a dreadful disease. In addition, according to Suchindran, Brouwer, and Rie (2009), HIV infection is also a strong risk factor for MDR-TB as it not only plays a role in relapse of TB, but also results in mal-absorption of certain drugs due to underline disturbed physiology that could lead to drug resistance. Additionally, in a study done by Deribew et al (2009) for assessing the quality of life (QOL) of patients co-infected with TB and HIV; it was identified that co-infected patients' had low QOL in all domains i-e physical, psychological, social, environmental, and spiritual as compared to those having only HIV. Therefore, we can infer that having both the burdens can further deteriorate the socio-economic, and other aspects of life of our people, thereby further posing the country to triple burden of barriers in achieving the Millennium Developmental Goals.

Organizational Determinants of Tuberculosis

As discussed above, Pakistan is facing a huge burden of MDR-TB, and unfortunately according to WHO (2013), a person infected with MDR-TB spreads the same resistance organism to other people, thereby increasing the disease rates within the population. On the other hand, one should think that why these cases are increasing so rapidly in the community despite their huge treatment expanses and toxic effects of the medication. According to Bull World Health Organ (2009), major causes of MDR-TB is the quality of antibiotic provided, their mismanagement, lack of collaboration between public and private health sectors, and not having access to health care facilities. Though, Pakistan has developed DOTs' center in the country, but its supervision by the health authorities and weak referrals between the National TB Program and other sectors is a huge barrier for the prevention of TB in the community. In a study done by Qureshi, Morkve, and Murtaza (2008) conducted in Multan and Sialkot; it was identified that 76% of the patients first contacted their general physicians, and 18% contacted Hakeem after the presentation of symptoms. In addition, 30 % patients were diagnosed to have TB out of which only 2% were referred to

DOT's for their treatment. However, most of the patients having in loop with private system left their treatment because of financial crisis of the treatment, and contacted DOT's center themselves. But, as discussed above lack of awareness is residing in our population so badly that most of the patient might not have the awareness of these centers, and may continue to spread the strains of not only TB, but also MDR-TB.

Conclusion and Recommendations

The above paper has analyzed the crucial health disease i.e tuberculosis which is now considered as a public health issue due to its causative and effective factors both on the people quality of life. It is significant to analyze tuberculosis holistically so that eradication of disease takes place from the grass root level. Though treatment of TB is very important but there are many other social problems like malnutrition, low socio-economic infrastructure, illiteracy, and lack of awareness that are playing a crucial role in the spread of disease. Therefore, a multi-sectorial approach should be adopted by the government and health system to raise the living standards of the people by investing more in to the preventive paradigm that is food security, increased GDP for education, and health. Also, laws should be implemented to make education free and accessible for the population at least at the primary level. Collaboration between district governments, health sectors, and media should be encouraged so that TB awareness campaigns could be implemented. Besides social factors, medical factors that suppress patients' immunity are very important to tackle like HIV. Stigmatization plays a major role here that also serves to be a barrier in the awareness of such diseases. Therefore, social communities and support groups should be initiated by the country influential stake holders so that all domains of quality of life could be catered. Lastly, collaboration between the private and public sectors is a huge challenge for the Pakistani population in order to eradicate TB. People having low socio-economic background and awareness are dying every day just because of these achievable gaps by the health industry. Hence, a change of paradigm is needed from the curative to the preventive level if we really want to fight this battle against tuberculosis together.

References

- Abbasi, S. (2010). Risk Factors of Tuberculosis in Children. *Ann. Pak. Inst. Med. Sci*, 6(1), 50-54.
- Achakzai, J. (2014). Pakistan's war against tuberculosis under threat. *The News*. Retrieved from <http://www.thenews.com.pk/Todays-News-6->

241283-Pakistans-war-against-tuberculosis-under-threat

- Awan, M. S., Iqbal, N., & Waqas, M. (2011). The impact of human capital on urban poverty: The case of Sargodha city. *Journal of Sustainable Development*, 4(1),143.
- Chandra, S., Sharma, N., Joshi, K., Aggarwal, N., & Kannan, A. T. (2014). Resurrecting social infrastructure as a determinant of urban tuberculosis control in Delhi, India. *Population*, 35, 51.
- Deribew, A., Tesfaye, M., Hailmichael, Y., Negussu, N., Daba, S., Wogi, A & Colebunders, R. (2009). Tuberculosis and HIV co-infection: its impact on quality of life. *Health Qual Life Outcomes*, 7, 105.
- Gul, H., Fatima, I., & Shabbir, J. (2013). To assess the effect of smoking, passive smoking & socioeconomic status on the development of tb in patients of dhq hospital fsd, 4(2), 77-82.
- Hargreaves, J. R., Boccia, D., Evans, C. A., Adato, M., Petticrew, M., & Porter, J. D. (2011). The social determinants of tuberculosis: from evidence to action. *American journal of public health*, 101(4), 654-662.
- Horna-Campos, O. J., Sánchez-Pérez, H. J., Sánchez, I., Bedoya, A., & Martín, M. (2007). Public transportation and pulmonary tuberculosis, Lima, Peru. *Emerging infectious diseases*, 13(10), 1491.
- Kakakhel, I. (2014). Earning \$2 a day, 60.19% population live below poverty line. *Daily Times*. Retrieved from <http://www.dailytimes.com.pk/business/03-Jun-2014/earning-2-a-day-60-19-population-live-below-poverty-line>
- Khan, J. A., Irfan, M., Zaki, A., Beg, M., Hussain, S. F., & Rizvi, N. (2006). Knowledge, attitude and misconceptions regarding tuberculosis in Pakistani patients. *Journal of Pakistan Medical Association*, 56(5), 211.
- Khurram, M., Yong, I. M., Arshad, M. M., Tul, H., & Khar, B. (2009). Factors affecting relapse of tuberculosis. *J Rawal Med Coll*, 13, 44-48.
- Kwan, C. K., & Ernst, J. D. (2011). HIV and tuberculosis: a deadly human syndemic. *Clinical microbiology reviews*, 24(2), 351-376.
- Mehnaz, A. (2011). State of children in Pakistan-confronting reality. *Journal of Pakistan Medical Association*, 6, 518-9.
- Nair, N., Wares, F., & Sahu, S. (2010). Tuberculosis in the WHO south-east Asia region. *Bulletin of the World Health Organization*, 88(3), 164-164.
- Pakistan ranks 180 in literacy: UNESCO. (2013, December 4). *Pakistan Today*. Retrieved from <http://www.pakistantoday.com.pk/2013/12/04/national/pakistan-ranks-180-in-literacy-unesco/>
- Parry, J. (2009). Divisive drug-resistance. *Bulletin of the World Health Organization*, 87(7), 493-494.

- Qasim, M. (2013, November 30). AIDS epidemic rapidly spreading in Pakistan. *The News*. Retrieved from <http://www.thenews.com.pk/Todays-News-6-217157-AIDS-epidemic-rapidly-spreading-in-Pakistan>
- Qureshi, S. A., Morkve, O., & Mustafa, T. (2008). Patient and health system delays: health-care seeking behaviour among pulmonary tuberculosis patients in Pakistan. *JPMA. The Journal of the Pakistan Medical Association*, 58(6), 318.
- Suchindran, S., Brouwer, E. S., & Van Rie, A. (2009). Is HIV infection a risk factor for multi-drug resistant tuberculosis? A systematic review. *PloS one*, 4(5), e5561.
- WHO EMRO, Stop Tuberculosis, Programmes Pakistan. (2013). Retrieved from <http://www.emro.who.int/pak/programmes/stop-tuberculosis.html>
- WHO, frequently asked questions - XDR-TB. (2013). Retrieved from <http://www.who.int/tb/challenges/xdr/faqs/en/>
- WHO, Tuberculosis (TB). (2013). Retrieved from <http://www.who.int/topics/tuberculosis/en/>