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A Descriptive Study on the Prevalence, Awareness, and Socio-Demographic Factors Influencing Tuberculosis Transmission in Tehsil Mianwali

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Abstract

Globally, tuberculosis (TB) continues to be a significant public health issue, particularly in developing countries where sociocultural dynamics and economic factors influence the disease's management and spread. In the current study, a descriptive research design has been adopted. Multi-stage sampling was used for the baseline survey. Using the multi-stage sampling technique, 90 samples were selected for based baseline survey. The findings reveal that TB-related stigma persists, with 26.2% noting TB is sometimes hidden due to shame and 28.3% observing community avoidance of TB patients. However, over half (57.7%) reported no personal experience of stigma, reflecting mixed community attitudes. Misconceptions persist as 56.5% believe TB is hereditary and 29.3% link it to evil spirits, while 42.0% delay care due to stigma. Geographic, economic, and cultural factors also hinder timely treatment. While 62.4% reject traditional healers for TB treatment, 19.3% still consider them, showing ongoing cultural influence. Likewise, 21.3% believe in home remedies, posing risks of delayed medical care. Create public health campaigns that respect local beliefs but correct misconceptions. Work with religious leaders, spiritual healers, and local elders to share information in a culturally appropriate way.

Key words: Tuberculosis, sociocultural factors,

Introduction

Globally, tuberculosis (TB) continues to be a significant public health issue, particularly in developing countries where sociocultural dynamics and economic factors influence the disease's management and spread. Tehsil Mianwali is a perfect illustration of the complex relationships between various anthropological factors that affect health outcomes, and tuberculosis is still endemic in Pakistan. With a focus on how local cultural values, social norms, and economic realities impact the transmission and management of tuberculosis, this introduction will look at the particular circumstances of Mianwali.

A common ailment in Pakistan, tuberculosis (TB) is brought on by the Mycobacterium tuberculosis bacteria. Tuberculosis is transmitted by airborne particles and primarily affects the lungs, though it can also damage the kidneys, spine, and brain 2. 5–10% of individuals who contract tuberculosis go on to experience symptoms and the illness.3 Latent tuberculosis infection (LTBI) and active tuberculosis disease are the two states in which TB presents itself (Jawed, , Siddiqui, & Qamar,, 2023)

Tuberculosis affects people everywhere in the world. Every year, tuberculosis claims the lives of over two million people, and the problem has gotten worse as drug-resistant Mycobacterium tuberculosis has emerged. The South-East Asian Region had the newest TB cases in 2022 (46%) compared to the African Region (23%) and the Western Pacific Region (18%), according to WHO data. Over two-

thirds of the global total occurred in Pakistan, Bangladesh, China, the Democratic Republic of the Congo, India, Indonesia, Nigeria, and the Philippines. The 30 countries with the highest TB burden accounted for approximately 87% of all new cases. Despite being a preventable and treatable infection, millions of people still pass away from tuberculosis (TB). According to the World Health Organization's (WHO, 2019) most recent estimate, 510,000 new cases of tuberculosis occur in Pakistan annually. With a prevalence, incidence, and death rate of 348,276 and 34 per 100,000 annually, respectively, Pakistan is ranked fifth among high-burden TB countries worldwide. As such, public education and awareness campaigns are essential to safeguarding the broader community (Mesick,, Davis,, & Wanke,, 2019,)

Globally, tuberculosis (TB) continues to be the leading cause of death from curable infection, despite improvements in management during the twenty-first century. With a population of 7.7 billion, TB is the 10th leading cause of death globally, with an estimated 1.7 billion people, or one-fourth of the world's population, latently infected. Pakistan ranks fifth globally in terms of the number of infected people. An estimated 570,000 incident cases, 328,312 notified cases who began treatment by national TB management guidelines, and 241,688 missed TB cases were reported in the Pakistani community in 2019 (Dye & Williams, 2008)

The complex social, cultural, and biological processes that allow the disease-causing Mycobacterium tuberculosis to spread from an infected individual to a susceptible individual are referred to as "tuberculosis transmission" in anthropology. Social network analysis, the cultural production of illness, structural violence, biocultural models, and health-seeking behavior are just a few of the many facets that are involved in this concept. Anthropological components are the many aspects of human culture, society, and biology that anthropologists study.

Operationally, TB transmission is influenced by social network characteristics such as density, size, and frequency of interactions. Cultural elements like stigma, customary medical practices, and regional illness narratives are also important. A person's socioeconomic status, housing situation, and access to healthcare are all structural factors that affect their susceptibility to tuberculosis. Comorbidities, lifestyle factors, and nutrition are examples of biological and bicultural factors that interact to shape the dynamics of tuberculosis transmission.

Focus groups, interviews, participant observation, ethnographic research, and survey research are some of the techniques used by researchers to examine TB transmission from an anthropological perspective. The steps in the data analysis process include statistical analysis, theme analysis, social network analysis, and qualitative content analysis. Case-control, longitudinal, cross-sectional, and ethnographic case studies are among the study designs. However, methodological, logistical, theoretical, ethical, biological, cultural, social, and structural issues are among the many obstacles that anthropological research on the spread of tuberculosis must overcome. Researchers must prioritize ethical considerations, use mixed-methods approaches, collaborate with interdisciplinary teams, and ensure cultural sensitivity to overcome these constraints.

These components work together to provide us with a comprehensive understanding of human societies and cultures. In many parts of the world, especially in low- and middle-income nations, tuberculosis continues to be a serious public health concern. In Pakistan, where tuberculosis is endemic, understanding the mechanisms of transmission is crucial to both preventing the disease and providing effective care. Tehsil Mianwali is a unique cultural, social, and economic community (Farmer, 1997)

Tehsil Mianwali is a predominantly rural area in the Punjab province of Pakistan that stands out for its diverse communities and blend of modern and traditional lifestyles. The socioeconomic environment is characterized by high rates of poverty, limited access to healthcare, and a dependence on seasonal migration and agriculture as revenue streams. These factors create an environment that is favorable to illnesses like tuberculosis. The persistence of tuberculosis indicates that the underlying sociocultural

and economic barriers are not fully understood and addressed, despite the area's history of health interventions. Thus, it is essential to look into the anthropological aspects of TB transmission in Mianwali to create effective public health programs (Khan & Islam , 2019)

Materials and Methods

In the current study descriptive research design has been adopted. Multi-stage sampling was used for the baseline survey by using a multi-stage sampling technique. 90 samples were selected for based baseline survey. The population of TB patients in Mianwali District was unknown; therefore, through applying Cochran's Formula required sample size was selected. For data collection structured questionnaire was used. The data was processed in SPSS IBM-16.

Ethical consideration

The study placed ethical concerns at its core. The respondents provided informed consent while the researchers explained research goals and participant rights, including their option to withdraw from the study at any point. The researchers protected participant confidentiality through pseudonym assignments and secure data storage methods (Israel & Hay, 2006). A set of ethical guidelines from the relevant institutional ethics committee validated both the research design and data collection methods to meet social research standards.

Result

Socio-demographic characteristics of respondents

Table 4.1 present The socio-demographic characteristics of the respondents according to the data the age distribution shows that the largest proportion of respondents (20.3%) are in the 28–41 age group, an economically active group that is more likely to be socially and occupationally mobile and thus more likely to be exposed to TB (WHO, 2023). In addition, the fact that 15.5% of respondents are in the 14–27 and 42–55 age brackets indicates that there are active intergenerational interactions, which are known to affect both exposure and intra-household transmission (Lönnroth et al., 2009). While only 0.5% of the sample includes individuals 13 years old or younger, this group is particularly susceptible to TB because of underdeveloped immunity and reliance on caregivers who may themselves be exposed (Marais et al., 2004).

Males (42.0%) outnumber females (37.7%), perhaps due to social dynamics in rural Mianwali, where men are more engaged in public spheres and therefore at higher risk of exposure to TB-positive individuals in workplaces or public gatherings (NTP Pakistan, 2021). Respondents' educational levels show that a large number (14.6%) have no formal education, and a large number have only primary (16.5%) or matric (15.5%) education. Limited awareness of TB symptoms, delayed diagnosis, and misconceptions about the transmission of TB are directly linked with low literacy levels, which complicate public health efforts (Liefooghe et al., 1997).

As for family structure, 46.4% of the respondents live in households with 6–10 members, and 11.0% live in families of over 10 members. This is especially the case for TB risk, where household crowding is a well-known risk factor for transmission, in the context of poorly ventilated and sparse living space environments (Baker et al., 2008). From these findings, it becomes apparent that to fully understand TB transmission in Mianwali, anthropological factors such as household composition, gender roles, and educational disparities need to be central to any efforts in improving the status of TB.

Table 4. 1Socio-demographic characteristics of Respondents

Current Age of Respondent	**F**	**(%)**
13 or less	2	(0.5)
14-27	21	(15.5)
28-41	26	(20.3)
42-55	21	(15.5)

56 & above	20	(14.6)
Gender		
Male	47	(42.0)
Female	43	(37.7)
Education		
No Education	20	(14.6)
Primary	22	(16.5)
Middle	18	(12.8)
Matric	21	(15.5)
Intermediate	3	(0.9)
Graduation & Above	6	(2.8)
Family Size		
1-5 Members	23	(17.4)
6-10 Members	51	(46.4)
10 & above	16	(11.0)

Socio-economic status of respondents (TB patients) in the study area

Table 4.2 examines the respondents according to monthly household income and occupational status, which are both important socio-economic determinants of TB transmission in Tehsil Mianwali. The data shows that a considerable number of respondents (19.3%) have a monthly household income of PKR 51,000 or more while a large chunk (10.1%) earn PKR 20,000 or less. The rest of the respondents are spread almost evenly across the PKR 20,001–50,000 range. They are indicating a mix of socio-economic status of the population, but low income has quite a big portion, so that's a vulnerable part for TB. The risk linked to poverty associated with TB is entrenched in overcrowded living conditions, malnutrition and lack of access to health care (Lönnroth et al., 2009; Wingfield et al., 2014).

The majority of respondents (45.2%) are farmers or housewives, which are groups that are often integrated into the traditional and rural socio-cultural context. Occupations of this type are often associated with poor working and living conditions, low health literacy and little contact with the formal health care system, all of which can contribute to the continued transmission of TB (Farmer, 1997). Furthermore, 15.5% of respondents are in the government or private sector, which may have better access to health care but also may be at risk of transmission in the workplace. The sample is comprised of 7.5% students and 3.5% unemployed. Given that the proportion of formally employed individuals is so low, it hints at the presence of an informal or subsistence economy that, anthropologically speaking, organizes notions of disease, access to treatment and interaction with biomedical health systems (Kleinman, 1980).

Summarily, the income and occupation profile of the respondents points to socio economic vulnerabilities that are in line with the broader structural determinants of TB. When viewed through an anthropological lens, these socio economic patterns highlight the importance of TB interventions that tackle the medical as well as the social and economic dimensions of disease transmission in rural Pakistan.

Table 4. 2Family Monthly Income and Occupation of the respondent (n=90)

Monthly Household Income In PKR	**F**	**(%)**
≤ 20,000	15	(10.1)

20,001 – 30,000	16	(11.0)
30,001 – 40,000	18	(12.8)
40,001 – 50000	16	(11.0)
51000 & above	25	(19.3)
Occupation		
Farmers/Housewives	50	(45.2)
Students	12	(7.5)
Govt./Private Employ	21	(15.5)
Unemployed	7	(3.5)

Household Living Conditions and Social Interaction Patterns Related to TB Risk

Key insights into household living conditions and patterns of social interaction that directly affect the risk of tuberculosis (TB) transmission in Tehsil Mianwali are provided in Table 4.4. The analysis of the data shows that overcrowding is a widespread problem: 33.4% of the respondents own 3–5 people can sleep in a room, while 29.3% of the surveyed persons live in even more tight conditions, at the rate of 6 or more people can sleep in a room. Overcrowding is a major risk factor for airborne diseases such as TB as it promotes prolonged close contact and poor ventilation, which are conducive to transmission of Mycobacterium tuberculosis (Baker et al., 2008; Lönnroth et al., 2009). Given the high level of cohabitation of extended families in confined spaces in rural Pakistani contexts, exposure risk is amplified, particularly when isolation protocols are not in place. Cultural norms of communal living and caregiving were revealed as an important dimension of disease transmission exposed through the sharing of household items with TB patients (27.3 percent of respondents). TB is not usually spread through utensils or bedding, but these behaviors represent close physical proximity and frequent contact, which are known to increase transmission risk in family settings (WHO, 2023). Furthermore, these practices are frequently based on social values of solidarity, patrimonial duty, and hospitality, which an anthropological perspective enables us to show (Farmer, 1997; Kleinman, 1980).

In the social interaction category, 24.2% of respondents attend large gatherings monthly, and 5.9% attend them weekly. Weddings, religious events, and traditional festivals (melas) are central to communal life in Mianwali, and these include them. Although these get-togethers encourage communal associations, at a same time, they are also transmission channels, as is normal with poor TB awareness and disease control strategy (Glaziou and others 2018). Such patterns reveal the intricate interaction between cultural practice and risk to public health and show that efforts to prevent TB must take into account social behavior and local customs if they are to succeed.

Table 4. 3 Household Living Conditions and Social Interaction Patterns Related to TB Risk

Questions	Frequency	Percentage
How many people sleep in one room?		
1-2 Members	16	11.0%
3-5 Members	39	33.4%
6 & Above	35	29.3%
Do you share household items (utensils, bedding) with a TB patient?		
No	57	53.1%
Yes	33	27.3%
How often do you attend large gatherings (e.g., weddings, mela, religious events)?		
Never	7	3.5%

Rarely	43	37.7%
Weekly	10	5.9%
Monthly	30	24.2%

Knowledge and Awareness of Tuberculosis (TB) Transmission, Symptoms, and Curability among Respondents

Table 4.5 provides critical knowledge and awareness of tuberculosis (TB) among respondents in Tehsil Mianwali, which is an important factor in understanding how anthropological and cognitive dimensions contribute to the persistence and spread of TB. However, a large proportion of participants failed to correctly identify the mode of TB transmission; 39.8% correctly identified that TB can be transmitted through the air via coughing or sneezing, while 17.4% thought that sharing utensils can transmit TB, and 5.9% thought that physical contact can transmit TB. Based on this misinformation and on their own cultural knowledge, these beliefs educate a basic knowledge gap that prevents disease control (Liefooghe et al., 1997; Mushtaq et al., 2010). However, a small proportion (1 2.2%) of them openly admitted that they do not know how TB spreads, which could be a social desirability bias or when they have limited exposure to accurate information.

Only 27.3% of them identified coughing with blood and 24.2% identified a prolonged cough as symptoms of TB, which are core clinical signs according to WHO guidelines (WHO, 2023). Very few respondents (6.7%) associated symptoms such as weight loss and (5.1%) fever or night sweats with TB, suggesting fragmented or incomplete symptom recognition. The unavoidable partial awareness of the disease puts it at a higher risk of delayed diagnosis and continued community transmission, especially in rural or underserved areas (Khan et al., 2006).

Regarding preventive measures, 35.5% said mask wearing, 16.5% knew about BCG vaccine, and 11.9% knew about improving ventilation, a key intervention in TB prevention. Only a small fraction (2.8%) fell back upon tradition, and relied on desi totkas, which prove that folk knowledge system has a lasting effect. Although these traditional beliefs are culturally important, they can at times interfere with biomedical treatment adherence if they serve as substitutes rather than complements to medical care (Kleinman, 1980; Farmer, 1999).

The findings also show that less than half (47.5%) of the respondents knew that TB is curable, 6.7% thought it is not, and 21.3% were not sure. Additionally, 61.2% were not aware of the existence of different TB types (e.g. latent vs. active or drug-resistant forms) and almost one third were unaware of the national awareness campaigns such as Stop TB Pakistan. The lack of awareness is a major public health communication gap in which biomedical messaging is either not reaching or not resonating with the target population (Raviglione & Pio, 2002).

In general, the data present a compelling case to articulate culturally sensitive and context specific TB education programs that bridge local belief systems with biomedical knowledge in the area of Mianwali to enhance prevention, early diagnosis and treatment adherence.

Table 4. 4 Knowledge and Awareness of Tuberculosis (TB) Transmission, Symptoms, and Curability among Respondents

Statements	Frequency	Percentage
How is TB transmitted?		
Air (coughing/sneezing)	45	39.8%
Sharing utensils	23	17.4%
Physical touch	10	5.9%
Contaminated water	7	3.5%

Don’t know	5	2.2%
Common symptoms of TB		
Cough lasting >2 weeks	30	24.2%
Blood in sputum	33	27.3%
Fever/night sweats	9	5.1%
Weight loss	11	6.7%
Don’t know	7	3.5%
Preventive measures you know		
BCG vaccine	22	16.5%
Wearing masks	41	35.5%
Improving ventilation in homes	17	11.9%
avoiding crowded spaces	4	1.5%
Traditional remedies (e.g., desi totkas)	6	2.8%
Can TB be cured?		
No	11	6.7%
Yes	52	47.5%
Don't Know	27	21.3%
Types of TB		
No	64	61.2%
Yes	26	20.3%
Awareness of TB campaigns (e.g., Stop TB Pakistan):		
No	32	26.6%
Yes	**57**	**53.8%**

Misconceptions about TB among Respondents

Table 4.6 attempts to explore the deeply rooted misconceptions and socio-cultural barriers that shape the TB-related behaviors of respondents in Tehsil Mianwali. There are many misbeliefs about TB etiology: 29.3% of respondents believe that TB is caused by evil spirits or curses, which shows the persistence of supernatural explanations for disease, particularly in rural South Asian contexts. The about world view is a culturally embedded explanatory model that pathologizes illness as resulting from moral failings, spiritual imbalance and external curses, a phenomenon in which medical anthropology has been a common preoccupation (Kleinman, 1980; Helman, 2007).

It is equally worrying that 56.5% of participants think TB is hereditary. Fatalism, discrimination within families and refusal to seek medical care, especially among women and socially marginalized people, may result from this misconception (Liefooghe et al., 1997). Understanding of causation is a contributory factor to delays in diagnosis and treatment that will increase risk of transmission and complications.

The reasons for delaying TB care are further explored in the section on socio anthropological constraints to effective health-seeking behavior. Fear of stigma (42.0%) was the most cited reason, implying that TB continues to dominate the social shame, and resultantly, symptoms of the disease are concealed and patients avoid formal healthcare systems. This is consistent with similar settings in Pakistan, where TB patients are isolated, lose social standing, and are denied marital prospects (Mushtaq et al., 2010). Other reported barriers are distance to health facility (16.5%), treatment cost (8.3%), and preference of traditional medicine (4.3%). These factors indicate that both structural and cultural elements need to be addressed in TB control strategies.

From an anthropological point of view, these findings show that TB is not only biomedical, but a socially and culturally constructed condition. Due to misconceptions and stigma, health behaviors and outcomes are influenced, thus culturally informed health education and engaging the community serves as vital components in any successful TB intervention in Mianwali and **similar contexts.**

Table 4. 5 Misconceptions about TB among Respondents

Misconceptions	Frequency	Percentage
TB is caused by evil spirits or curses TB		
False	55	50.8%
True	35	29.3%
TB is hereditary		
False	30	24.2%
True	60	56.5%
Reasons for delaying TB care (if any):		
Cost of treatment	13	8.3%
Fear of stigma	47	42.0%
Distance to facility	22	16.5%
Belief in traditional medicine	8	4.3%

Beliefs and Practices Regarding Traditional Remedies for TB Treatment

Table 4.7 helps to understand the cultural beliefs and health seeking behavior of respondents in Tehsil Mianwali about the use of traditional remedies for TB. The majority (62.4%) declared they would not seek treatment for TB from a Pir or Hakeem, while some notable minority (19.3%) would still prefer to be treated by traditional healers. This patter is one of pluralistic medical care including formal biomedical care with indigenous healing practices (Kleinman, 1980). This is because illness, especially chronic diseases like TB, is often interpreted through spiritual or moral lenses (Helman, 2007), and spiritual and traditional healers continue to be consulted because of deep rooted cultural frameworks. Twenty one point three percent of respondents also believed in cultural remedies like kali mirch (black pepper), honey, or roghan (medicinal oils) for TB management. These are often used in folk medicine all over South Asia and considered instead as a ‘natural’ and ‘accessible’ intervention compared to biomedical ones. While such remedies may provide symptomatic relief or nutritional support, their reliance over proven medical treatments delays time to diagnosis and appropriate management of TB continues to allow for ongoing TB transmission and exacerbation of the disease (Qidwai et al., 2003). The data also imply that although biomedical discourse still dominates national health campaigns, traditional beliefs still have sway within selected groups of the population. In such a case, culturally suitable education for health is required to avoid shutdown of traditional practices; rather, they must be incorporated respectfully to lead people to evidence based care (Farmer, 1999; WHO, 2023). In understanding these beliefs, public health practitioners in anthropologically diverse settings, such as Mianwali, where spiritual, herbal, and other approaches to illness exist not only as alternate but an integrated view point are going to require.

Table 4. 6 Beliefs and Practices Regarding Traditional Remedies for TB Treatment

Would you consult a Pir/Hakeem* (traditional healer) for TB treatment?		
No	65	62.4%

Yes	25	19.3%
Do you believe in cultural remedies for TB (e.g., kali mirch, honey, roghan)?		
No	63	60.0%
Yes	27	21.3%

Treatment Adherence, Health Education, and Socioeconomic Impacts of TB on Households

Table 4.8 discusses issues of treatment adherence, health education and the broader socioeconomic burden of tuberculosis (TB) in households in Tehsil Mianwali. The results reveal that although the majority of respondents (67.2%) did not abandon treatment, 15.5% of them confessed to leaving TB treatment incomplete. Incomplete treatment of this behavior has serious public health implications, including drug resistance and continued transmission (WHO, 2023). Adherence was often poor, as evidenced by poor adherence among the rural poor in Pakistan, even where there was still (Fochsen et al., 2006).

Worryingly, 44.2% of respondents said they were not educated about TB by healthcare workers. The lack of such communication gap is a missed opportunity with regard to an effective behavioral intervention strategy. This is because health education plays a critical role in reinforcing stigma reduction, early diagnosis, and treatment compliance, especially in communities where traditional beliefs and misconceptions about TB still exist (Baral et al., 2007).

The economic impact of TB on households is clear: 44.2% of them experienced moderate income loss and 21.3% experienced severe income disruption. This makes poverty and disease a cycle that is strengthened by TB. According to Farmer (1999), TBs are not by themselves biological events but are embedded in structural inequalities that make the poor more vulnerable and unable to deal with long-term health issues. Relatedly, 43.1% of families reported that they could afford TB treatment only with difficulty, and 14.6% could not afford it. However, these responses reflect the hidden costs of so-called "free" treatment, for example, travel costs, loss of income, and time away from work and school that also disproportionately affect low-income households (Bates et al., 2004).

Additionally, 32.4 percent leave work or go to school because of TB care duties, among the highest opportunity costs and burden of care, which are usually a woman's or older children's responsibility in the traditional household (Somma et al., 2008). As such, this table provides a socio-economic and an educational representation of the multifaceted challenges experienced by TB-affected households and highlights the need to address TB as a socio-economic disease through a more holistic and culturally sensitive public health initiative.

Table 4. 7 Treatment Adherence, Health Education, and Socioeconomic Impacts of TB on Households

Variables	F	%
Have you or family members ever left TB treatment incomplete?		
No	69	67.2%
Yes	21	15.5%
Did healthcare workers educate you about TB?		
No	49	44.2%
Yes	41	35.5%
How has TB affected your household income?		
No Impacts	14	9.2%
Moderate loss	49	44.2%
Severe Loss	27	21.3%

Can your family afford TB treatment (e.g., travel, medicines)?		
Not at all	20	14.6%
With difficulty	48	43.1%
Easily	22	16.5%
Do you skip work/school due to TB care responsibilities?		
No	52	47.5%
Yes	38	32.4%

Community Attitudes, Stigma, and Awareness Related to Tuberculosis (TB)

Table 4.9 examines the social environment of tuberculosis (TB), specifically community attitude, stigma, and public awareness in Tehsil Mianwali. The data show that stigma is alive and well, with 26.2% of respondents agreeing that people "sometimes hide their TB status because they are ashamed and 16.5% saying that they "always" do. This not only delays the diagnosis and treatment of it but also maintains the misinformation and fear, especially in rural communities that are closely knit, where social image and family honor are important (Somma et al., 2008). Related to this understanding of TB as a 'social disease', the anthropological literature has long noted that the behaviors associated with health are embedded in the norms of local communities (Courtwright & Turner, 2010).

Attitudes towards TB patients were mixed, with only 27.3% describing their communities as 'very supportive' and 28.3% admitting that people actively avoid TB patients. Such avoidance is an internalization of fear of contagion, and patients often become socially isolated, both of which negatively affect mental wellbeing and decrease treatment adherence (Baral et al., 2007). A striking 23.2% of the respondents had experienced stigma directly as a result of TB, confirming that stigma is not only expected (Goffman, 1963) but also lived. As a result of this stigma, there often remains little disclosure, it is not complied with, or even reluctance to seek out healthcare, specifically among women and marginalized populations who already carry many layers of social vulnerability (Kipp et al., 2011).

Despite rising awareness of medical issues, stigma is still pervasive and lacks culturally informed, community-based education campaigns that involve all the biomedical messages. In addition, they need to deal with the emotional and social consequences of TB, dispel myths, and promote inclusive narratives of recovery and community care (WHO, 2023; Das & Das, 2020). Table 4.9 data highlight that even well-structured TB programs may not be effective without dealing with these underlying social attitudes.

Table 4. 8 Community Attitudes, Stigma, and Awareness Related to Tuberculosis (TB)

Variables	F	%
Do people in your community hide TB due to shame?		
Never	6	2.8%
Rarely	30	24.2%
Sometime	32	26.2%
Always	22	16.5%
How supportive is your community toward TB patients?		
Very supportive	33	27.3%
Neutral	23	17.4%
Avoids them	34	28.3%

Have you experienced stigma due to TB?		
No	61	57.7%
Yes	29	23.2%

Discussion

This research has critically examined the anthropological dynamics that shape the transmission, perception, and treatment of tuberculosis (TB) in Tehsil Mianwali, a culturally rich but medically underserved area in Pakistan. This study used a qualitative ethnographic approach, including in-depth interviews, participant observation, and narrative analysis, to explore the socio-cultural, economic, and gendered dimensions that constitute individual and collective experiences with TB. The research shows that TB in Mianwali is not just a biomedical problem but is entangled with cultural beliefs, social norms, gendered power relations, economic inequalities, and institutional failures.

A cultural interpretation of TB as a spiritual or supernatural affliction is one of the most dominant themes to emerge from this study. In many parts of Mianwali, TB is considered to be caused by divine punishment, black magic, or ancestral curses, not a transmissible bacterial infection. These cultural interpretations hold up medical intervention for a long time, as people tend to seek spiritual healers or traditional practitioners rather than health professionals. This is in line with previous studies conducted in rural Pakistan and South Asia, where cultural and religious paradigms heavily influence disease interpretation (Atif et al., 2021; Khan et al., 2019).

These interpretations have far-reaching implications. Not only do they prevent timely diagnosis and treatment of TB, but they also perpetuate cycles of misinformation and stigma. Cultural beliefs then become self-reinforcing, passed on through the generations, and resistant to biomedical explanations unless culturally sensitive health education is undertaken.

One of the most pervasive social consequences of TB was found to be stigma. Many TB patients are afraid to tell even their closest family members for fear of being ostracized. In most cases, patients are socially excluded to the extreme, including being avoided during communal meals, evicted from households, or isolated in their own homes.

Not only are these fears about contagion, but they are also the result of the moral judgment that is embedded in cultural narratives. TB is often considered a 'shameful disease' and is morally condemned and socially degraded. Munro et al. (2007) demonstrated that these experiences of stigma negatively impact mental health, adding a further psychological burden to patients who are already ill physically. Ali et al., 2020).

This study uncovers a major anthropological dynamic of the gendered nature of TB experiences. In particular, women face disproportionate stigma and unique barriers to accessing healthcare. Cultural norms that restrict female mobility and societal expectations about modesty and silence are formidable barriers to early diagnosis and treatment. In many instances, female patients need permission from male family members to visit clinics, which can be fatal in the progression of the disease.

Furthermore, TB diagnosis has serious repercussions for women's social status and marriage prospects. Many female participants had stories of broken engagements, divorce, and rejection by in-laws, all of which reflect a deeply rooted gender bias in health-related stigma. These findings are in line with gender sensitive TB research in similar patriarchal societies (Sarfraz et al., 2021).

Another important determinant of TB outcomes in Mianwali was found to be socioeconomic status. Access to healthcare is severely hampered by poverty, unemployment, and geographic isolation. The transportation costs to urban hospitals are too much for many families to bear, and the cost of prolonged treatment is often too much for many families to bear. In such situations, people use local remedies and spiritual healing not because they believe in it, but because they have no other choice.

The study also documented how economic hardship forces difficult decisions—between feeding their children and buying medicine. In addition, overcrowded living conditions, poor ventilation and

inadequate housing contribute to the transmission of TB, particularly in low income households. Such economic vulnerabilities worsen both the spread and severity of the disease, as corroborated by Rashid et al. (2020).

The data showed that Mianwali relies heavily on traditional, spiritual and indigenous healing systems. Shrines and hakims, local herbalists and spiritual leaders are often the first point of contact for TB symptoms. Though they offer cultural and emotional support, their interventions are not usually in line with biomedical protocols.

Belief is not the only reason for this reliance; it is also due to accessibility and trust. Traditional healers provide a more approachable alternative in a healthcare system that is often overburdened, understaffed, and impersonal. This emphasizes the importance of combining culturally accepted practices with formal medical systems to develop a more holistic approach to healthcare.

There was a large gap in public knowledge about TB, especially regarding its transmission, prevention, and treatment. Many participants thought TB was hereditary or was caused by contaminated food or utensils. Misconceptions about these conditions help to fuel stigma and poor health practices, including unnecessary isolation or dietary restrictions.

The study highlights the critical need for public health communication strategies that are locally language-specific, culturally sensitive, and involve community leaders. We demonstrated that misinformation, especially that spread through social media or informal channels, amplified fear and discouraged health-seeking behavior.

The research also revealed major structural shortcomings of the local healthcare system. They include the absence of diagnostic facilities, frequent stockouts of medication, overcrowded clinics, and poor patient-provider communication. Healthcare professionals were reported by many patients to be dismissive or to misunderstand them, eroding trust and discouraging future engagement with the system.

These anthropological challenges are compounded by such systemic inadequacies. These healthcare system failures are compounded by cultural misconceptions and economic hardships when combined, and they severely compromise the effectiveness of TB control programs in the region.

While many patients' experiences were bleak, the study also showed how social support can help reduce the burden of TB. Family members who provided emotional, logistical, and financial support were more likely to help patients finish their treatment and have better psychological outcomes. In contrast, the lack of such support often resulted in despair, treatment abandonment, and further isolation.

This finding fits with larger anthropological literature, which has stressed the relational nature of health and illness and the role of community solidarity in managing chronic diseases (Farmer, 2001).

Conclusion

This research has critically examined the socio-cultural dynamics that shape the transmission, perception, and treatment of tuberculosis (TB) in Tehsil Mianwali, a culturally rich but medically underserved area in Pakistan. This study used a descriptive research design to explore the socio-cultural, economic, and gendered dimensions that constitute individual and collective experiences with TB. The research shows that TB in Mianwali is not just a biomedical problem but is entangled with cultural beliefs, social norms, gendered power relations, economic inequalities, and institutional failures. Cultural interpretation of TB as a spiritual or supernatural affliction is one of the most dominant themes to emerge from this study. In many parts of Mianwali, TB is considered to be caused by divine punishment, black magic or ancestral curses, not a transmissible bacterial infection. These interpretations have far-reaching implications. Not only do they prevent timely diagnosis and treatment of TB, they also perpetuate cycles of misinformation and stigma. Cultural beliefs then become self-

reinforcing, passed on through the generations, and resistant to biomedical explanations unless culturally sensitive health education is undertaken.

One of the most pervasive social consequences of TB was found to be stigma. Many TB patients are afraid to tell even their closest family members for fear of being ostracized. In most cases, patients are socially excluded to the extreme, including being avoided during communal meals, evicted from households or isolated in their own homes.

Not only are these fears about contagion, but they are also the result of the moral judgment that is embedded in cultural narratives. TB is often considered a 'shameful disease' and is morally condemned and socially degraded. Munro et al. (2007) demonstrated that these experiences of stigma negatively impact mental health, adding a further psychological burden to patients who are already ill physically.

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