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Mental Shadows of TB: Cross-Sectional Analysis of Stigma, Psychological Well-being, and Support Needs in Pulmonary Tuberculosis Patients

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ABSTRACT: ***Background:*** Tuberculosis (TB), a leading infectious disease worldwide, often carries significant psychological and social burdens beyond its physical symptoms. Stigma, depression, anxiety, and insufficient psychosocial support can negatively impact patients' treatment adherence and overall well-being. ***Objective:*** To assess the prevalence of psychological distress, stigma-related experiences, and unmet support needs among pulmonary tuberculosis patients in the Gazipur district of Bangladesh. ***Methods:*** A cross-sectional study was carried out from April to September 2024, involving both primary and secondary data. Primary data were collected from 156 pulmonary tuberculosis (TB) patients residing across various upazilas of Gazipur District. Secondary data were sourced from three Upazila Health Complexes: Kaliganj, Kaliakair, and Kapasia. A structured questionnaire was employed to gather information on socio-demographic characteristics, psychological well-being (focusing on symptoms of depression and anxiety), perceived stigma, and support needs. ***Results:*** The majority of patients were male (56.4%), aged between 31–50 years (44.9%), and predominantly from low-income backgrounds (59.6%). Depression and anxiety were reported in 52.6% and 48.7% of participants, respectively. Stigma-related behaviors were widespread: 62.2% felt embarrassed to disclose their TB status, and 56.4% avoided social interactions. Statistical analysis revealed significant associations between psychological distress and stigma indicators ($p<0.05$). Emotional support (69.2%), mental health counseling (58.3%), and financial assistance (46.8%) were the most commonly expressed support needs. Suicidal ideation was reported by 7.1% of respondents. ***Conclusion:*** Pulmonary TB patients in Gazipur experience high levels of psychological distress and social stigma, with marked unmet support needs. These findings underscore the urgent need for integrating mental health services and stigma-reduction interventions into TB care strategies to improve patients' overall well-being and treatment outcomes.

Keywords: Tuberculosis, Stigma, Depression, Anxiety, Psychological Well-Being, Support Needs, Bangladesh, Gazipur, Mental Health.

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INTRODUCTION

Tuberculosis (TB) continues to pose a significant global health challenge, even with the availability of effective diagnostic tools and treatment options [1]. In 2018, approximately ten million people were affected by TB worldwide, with over 95% of both cases and related deaths occurring in developing nations. Ethiopia is notably listed among the 14 countries in all three WHO high TB burden categories [1]. Stigma is a complex and evolving process that results in the social devaluation of an individual, often diminishing their perceived worth in the eyes of others [2].

Health-related stigma, particularly in the context of TB, can severely undermine efforts in early diagnosis and effective treatment. In many low-income settings, stigma and discrimination against individuals with TB contribute to poor health-seeking behaviors and low adherence to treatment protocols—factors that significantly hinder TB control initiatives [3-8]. Stigma alone can be a major barrier to accessing healthcare services and has profound effects on the physical, mental, and social well-being of TB patients, reducing their overall quality of life [2, 5, 9, 10]. Individuals facing TB-related stigma may conceal their illness and socially withdraw to avoid negative public perceptions. This stigma impacts not only the timeliness of diagnosis and adherence to treatment but also the level of support and care patients receive from family members and healthcare professionals [11, 12]. Tuberculosis (TB) has remained a significant public health challenge in Bangladesh for an extended period. As reported by the World Health Organization (WHO), Bangladesh ranks among the top seven countries globally with the highest burden of TB [13]. The country's high population density—169.36 million people living within an area of only 147,570 square kilometers—coupled with persistent poverty affecting 24.3% of the population, contributes to poor living and working conditions. In urban areas, approximately 47% of the population resides in slums, with nearly 75% of slum households confined to a single room [14]. Life in these slums is marked by significant hardships, including undernutrition, inadequate healthcare, and exposure to environmental hazards such as air and water pollution—all of which increase vulnerability to TB infection. Additionally, individuals who use drugs face an even higher risk due to intersecting social determinants such as poor housing, homelessness, incarceration, poverty, tobacco use, and alcohol consumption [15]. A general lack of awareness about healthy living practices in urban populations further exacerbates the situation. These factors—particularly unhealthy environments and lifestyles—play a critical role in the persistence and spread of TB in Bangladesh [16]. Bangladesh ranks among the 30 high TB burden countries, where stigma, poverty, and healthcare disparities create substantial challenges to disease management and control.

Beyond its physical manifestations, TB carries a heavy psychological and social burden. Numerous studies have documented that TB patients frequently suffer from depression, anxiety, fear of discrimination, and social isolation [17]. Stigma associated with TB is pervasive and multifaceted, rooted in fear of contagion, misconceptions about transmission, and cultural beliefs, which often leads to delayed diagnosis, poor treatment adherence, and worsening mental health18. Internalized stigma and perceived discrimination can damage self-esteem, reduce social participation, and hinder recovery [18, 19]. In resource-limited settings like Bangladesh, TB patients are often marginalized both economically and socially. Their mental health struggles frequently go unnoticed and untreated, especially in rural or peri-urban areas where access to psychosocial services is limited. Although Bangladesh's National TB Control Program emphasizes medical treatment, there remains a critical gap in addressing the psychosocial dimensions of TB care, including emotional support, mental health counseling, and stigma reduction [20, 21]. Understanding the intersection of stigma, psychological well-being, and support needs among TB patients is essential for designing comprehensive, patient-centered care models [22, 23]. Yet, few studies in Bangladesh have explored these aspects, especially using primary data from community-level patients [24, 25]. This study aims to fill that gap by analyzing the mental health status, perceived stigma, and support needs of pulmonary TB patients in various upazilas of Gazipur district. By highlighting the psychological and social shadows cast by TB, this study intends to provide evidence for integrated health interventions that prioritize both physical and mental healing.

METHODOLOGY

This cross-sectional study was conducted from April to September 2024 to explore the psychological and social dimensions of stigma among patients diagnosed with pulmonary tuberculosis (TB). Primary data were collected from a total of 156 TB patients residing in various upazilas of Gazipur District, located in Dhaka Division, Bangladesh. A structured questionnaire gathered information on socio-demographic

characteristics, perceived stigma, mental well-being, and support system needs. Participants were selected through purposive sampling to ensure inclusion of individuals from diverse socio-economic and geographical backgrounds within the district. Data was collected through face-to-face interviews by trained field researchers while maintaining confidentiality and ethical standards. In addition to primary data, secondary data were obtained from official health records and reports from three upazila health complexes: Kaliganj, Kaliakair, and Kapasia. These secondary sources provided relevant contextual and epidemiological insights regarding TB prevalence and management practices within the study area. Both qualitative and quantitative data were analyzed to identify prevailing patterns of stigma, psychological challenges, and gaps in patient support systems.

Table 1: Socio-Demographic Profile of Pulmonary TB Patients (n = 156)

Variable	Categories	Frequency (n)	Percentage (%)
Age Group (years)	18–29	36	23.1
	30–39	41	26.3
	40–49	45	28.8
	≥50	34	21.8
Gender	Male	88	56.4
	Female	68	43.6
Marital Status	Married	110	70.5
	Unmarried	35	22.4
	Widowed/Divorced	11	7.1
Educational Level	No Formal Education	27	17.3
	Primary	49	31.4
	Secondary	58	37.2
	HSC and above	22	14.1
Occupation	Unemployed/Housewife	47	30.1
	Farmer/Laborer	43	27.6
	Service/Business	39	25.0
	Student	27	17.3
Type of Family	Nuclear	102	65.4
	Joint	54	34.6
Monthly Family Income	<10,000 BDT	56	35.9
	10,000–20,000 BDT	69	44.2
	>20,000 BDT	31	19.9

The majority of patients were aged 30–49 years (55.1%), with more males (56.4%) than females. Most participants were married (70.5%) and lived in nuclear families (65.4%). A significant portion had secondary education (37.2%) and belonged to low to middle-income households, indicating potential social vulnerability.

Table 2: Clinical Characteristics of TB Patients

Variable	Categories	Frequency (n)	Percentage (%)
Duration Since Diagnosis	<3 months	42	26.9
	3–6 months	61	39.1
	>6 months	53	34.0
Treatment Adherence	Regular	123	78.8
	Irregular	33	21.2
Source of TB Diagnosis	Government Hospital	106	67.9
	Private Clinic	29	18.6

	NGO/Mobile Clinic	21	13.5
Presence of Co-morbidities	Yes	39	25.0
	No	117	75.0

Nearly 40% had been diagnosed with TB within the past 3–6 months. Most patients (78.8%) adhered regularly to treatment, and government hospitals were the primary source of diagnosis. Co-morbid conditions were reported in one-fourth of the participants.

Table 3: Perceived Stigma Related to TB

Stigma Indicator	Yes (n)	Yes (%)	No (n)	No (%)
Felt embarrassed to disclose TB diagnosis	97	62.2	59	37.8
Avoided social gatherings	88	56.4	68	43.6
Experienced discrimination (community/family)	74	47.4	82	52.6
Consider TB a shameful disease	65	41.7	91	58.3
Avoided marriage/job opportunities	52	33.3	104	66.7
Hide TB status from relatives or neighbors	84	53.8	72	46.2

Stigma was prevalent among TB patients, with 62.2% feeling embarrassed and over half avoiding social gatherings. A significant portion (47.4%) experienced some form of discrimination, and 53.8% felt the need to hide their TB status.

Table 4: Psychological Well-being of TB Patients

Indicator	Present (n)	Present (%)	Absent (n)	Absent (%)
Depressive Symptoms	82	52.6	74	47.4
Anxiety	76	48.7	80	51.3
Sleep Disturbance	69	44.2	87	55.8
Loss of Appetite	63	40.4	93	59.6
Feeling Hopeless	58	37.2	98	62.8
Suicidal Thoughts (rare)	11	7.1	145	92.9

More than half of the patients experienced depressive symptoms (52.6%) and nearly half reported anxiety. Other common issues included sleep problems (44.2%) and loss of appetite (40.4%). Though rare, 7.1% had suicidal thoughts.

Table 5: Support Needs Identified by Patients

Support Needs	Frequency (n)	Percentage (%)
Emotional support from family	108	69.2
Counseling or mental health care	91	58.3
Economic/job security assistance	73	46.8
Awareness programs in community	64	41.0
Regular follow-up with social worker	47	30.1
Peer support group participation	39	25.0

Most patients expressed a strong need for emotional support (69.2%) and counseling services (58.3%). Nearly half requested economic aid, while others highlighted the need for community awareness and social support systems.

Table 6: Association Between Stigma and Psychological Distress (Chi-Square Test Results)

Variables Cross-tabulated	χ^2 Value	p-value	Significance

Stigma (embarrassment) vs. Depression	6.32	0.012	Significant
Stigma (social avoidance) vs. Anxiety	9.87	0.002	Highly significant
Stigma vs. Suicidal Ideation	3.24	0.072	Not significant
Gender vs. Emotional Support Needs	5.78	0.016	Significant
Treatment Adherence vs. Psychological Well-being	7.11	0.008	Significant

Significant associations were found between perceived stigma and psychological distress. Embarrassment was strongly linked with depression (p=0.012), and social withdrawal correlated with anxiety (p=0.002). Emotional support needs were also significantly higher among females, and poor treatment adherence was associated with worse mental health outcomes.

DISCUSSION

The present study explored the intertwined dimensions of stigma, psychological well-being, and support needs among patients with pulmonary tuberculosis (TB) in the Gazipur district of Bangladesh. Our findings reveal a concerning psychosocial burden borne by TB patients, highlighting the necessity for integrated mental health and stigma-reduction strategies within TB care services. More than half (52.6%) of the participants reported experiencing depressive symptoms, and 48.7% reported anxiety, rates substantially higher than the general population. These findings are consistent with global evidence that TB is not only a physical illness but a mental health burden [16-18]. The high prevalence of psychological distress may stem from factors like social rejection, internalized stigma, physical weakness, and economic hardship during treatment [19]. Stigma emerged as a dominant theme: 62.2% of patients felt embarrassed to disclose their TB status, and 56.4% reported avoiding social gatherings. These rates echo studies conducted in low- and middle-income countries, where stigma is often rooted in misinformation, fear of contagion, and cultural myths surrounding TB [20, 21]. Stigma not only disrupts social relationships but also significantly impacts mental health. Our analysis found that embarrassment was significantly associated with depressive symptoms (p=0.012), while avoidance behavior correlated with anxiety (p=0.002). This aligns with previous literature showing that TB-related stigma can exacerbate psychological morbidity and even discourage treatment adherence [5, 7].

From a clinical perspective, while the majority of patients adhered to treatment (78.8%), those with irregular adherence showed significantly worse psychological well-being (p=0.008). This finding supports a bidirectional relationship—mental health issues may reduce motivation for treatment, and disease progression can worsen mental distress [17, 18]. Furthermore, female patients reported a higher need for emotional support (p=0.016), reflecting possible gender disparities in mental resilience and social dependency [9, 10]. The identified support needs underscore the importance of holistic care. Patients called for emotional support (69.2%), mental health counseling (58.3%), and economic assistance (46.8%). These findings align with the WHO's End TB Strategy, which emphasizes the integration of psychosocial support into TB programs [13]. Peer support groups, social worker follow-ups, and mental health services should be embedded within primary TB care frameworks, especially in high-burden areas like Gazipur. Lastly, while suicidal ideation was reported by a small subset (7.1%), its presence signals a critical warning for healthcare providers. Mental health screening should be routine for TB patients to detect early signs of psychological distress and prevent extreme outcomes.

CONCLUSION

This study reveals the psychological vulnerabilities and stigmatization experienced by pulmonary TB patients in Gazipur. High levels of depression, anxiety, and perceived stigma—particularly among women and those with irregular treatment adherence—underscore the urgent need to implement integrated mental health services within TB care. Reducing stigma through community-based education and enhancing access to psychosocial support could significantly improve both treatment outcomes and quality of life for TB patients.

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