

Tuberculosis in the United Kingdom with Specific Focus on South Asian Ethnic Groups – A Snippet into the Problem

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Abstract

Review Article

Tuberculosis (TB) remains a major public health concern in the United Kingdom, particularly among South Asian ethnic groups, including individuals of Indian, Pakistani, and Bangladeshi origin. Despite forming only around 5% of the UK population, these groups account for a disproportionately high number of TB cases, with incidence rates up to 40 times higher than in the white British population. This literature review explores the underlying causes of this disparity, which include immigration from high-prevalence countries, socioeconomic deprivation, overcrowded living conditions, and comorbidities such as diabetes and vitamin D deficiency. Cultural factors—such as stigma, delayed healthcare-seeking behaviour, and reliance on traditional remedies—further contribute to delayed diagnosis and treatment. Current UK strategies involve port-of-entry screening, latent TB detection through Interferon Gamma Release Assays (IGRA), and targeted community-based interventions. Evidence suggests that culturally adapted approaches, including multilingual resources and involvement of community leaders, can improve screening uptake and treatment adherence. Addressing the elevated TB burden in South Asian communities requires continued investment in culturally tailored public health programmes, integration with broader health services, and a focus on tackling the social determinants of health. Enhanced surveillance and further research are essential to guide effective and equitable TB control strategies in these high-risk populations.

Keywords: Tuberculosis (TB), United Kingdom (UK), South Asian ethnic groups, Incidence rates, Immigration.

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INTRODUCTION

A significant global health burden is borne by tuberculosis (TB), with an estimated 10.6 million new cases diagnosed globally in 2022 alone [1]. While overall incidence rates are declining in the UK, important ethnic differences still exist among South Asian groups, resulting in disproportionately higher TB incidence rates than in the general population [9]. Although making up only 5% of the UK population, South Asian ethnic groups—which primarily include people of Indian, Pakistani and Bangladeshi ancestry—are responsible for a sizable share of tuberculosis cases [6]. This brief review will attempt to review the available evidence of TB incidence rates among South Asian ethnic groups in the UK, risk factors, and public health outcomes of available TB control strategies and preventive methodologies.

The pattern of TB incidence and prevalence of TB in South Asian groups in the UK is complex. The main factors are immigration patterns, genetic susceptibility, attitudes and behaviours to access

healthcare and socioeconomic disparities [3]. Several studies have shown 10-40 times higher incidence rates of TB among South Asian groups as compared to the white population in the UK, shedding light on significant health disparities [8].

Despite extensive research into the epidemiology of TB, notable gaps persist that demonstrate specific determinants contributing to increased incidence rates within South Asian ethnic subgroups, as well as the effectiveness of focused intervention policies.^[1] The most recent evidence demonstrates that TB incidence rates within South Asian communities vary from 0.04% to 0.12% cases, in contrast to 0.00002% to 0.00004% cases in the white British population, showing a significant 10-to-40-fold increased risk in South Asian ethnic groups [13].

In the UK, there are notable differences in the incidence rate of tuberculosis between South Asian ethnic groups. Compared to the general white population, Indian ethnic groups have a lower incidence rate of 30 to 60 cases per 100,000 people, which is still

high. Bangladeshi and Pakistani communities have the highest incidence, according to some studies, there are more than 100 cases for every 100000 people.^[13] This disparity appears to be caused by several factors, including different socioeconomic status migration trends, the prevalence of TB in the country of origin and higher rates of latent TB reactivation [14].

Further epidemiological analysis shows even concerning trends. In the past decade, overall cases of TB in the UK have been declining; however, this reduction in cases is not well documented in the South Asian population, showing relatively widened inequalities [6]. There is clear evidence of geographic clustering, with the highest incidence rates of TB in urban areas. For example, TB cases in Bradford were recorded. Compared to the elderly distribution in the white British population, age-specific patterns reveal a bimodal distribution among South Asians with peaks in young adults (ages 25–34) and older adults (ages 65) [5]. Though there is still a slight male predominance, gender disparities are not as noticeable as they are in high-burden nations [10].

The TB incidence is higher in South Asian groups than in Black African and Caribbean communities when compared to other ethnic minorities [17]. The higher TB incidence rate among South Asian communities in the UK appears to be caused by several social determinants. One of the main factors is socioeconomic deprivation; research shows a strong correlation between the incidence of tuberculosis and measures of social disadvantage such as unemployment, low income and overcrowding in housing.^[7] The most disadvantaged segments are frequently found in areas with a large South Asian population, who live in an environment that is favourable for TB transmission, in the UK [8].

There is a two to three times higher incidence of TB amongst diabetic patients, which is more prevalent in South Asians [3]. South Asian populations are also prevalent in vitamin D deficiency in the UK, which has been linked to limited sun exposure and dietary patterns and has also been linked to higher TB susceptibility among this group [12]. Several cultural factors have been attributed to South Asian communities that may be linked to the increased incidence of TB in this cohort. These factors are widely researched by several studies, including poor healthcare-seeking behaviours, stigma associated with TB and the use of traditional medicine, which may lead to a delayed diagnosis of TB and delayed treatment [13].

The higher TB burden among South Asian groups requires focused public health strategies to address the specific needs of South Asian groups in the UK [1]. Current evidence underpins enhanced case-finding interventions, including active screening in high-

risk groups and systematic contact tracing within extended family households. These strategies seem to be relevant in South Asian communities due to their household structures and cultural attributes [18].

According to the National TB programme, entrants to the UK from high-incidence-rate areas of TB are screened at the port of entry with a chest radiograph. Further to that, now the Latent TB programme is also been introduced, where Interferon Gamma Release Assay (IGRA) is used to diagnose latent TB infections [18]. A study diagnosed 20% latent TB cases (246 from 1229) in new entrants by IGRA, in two British health centres [17]. This signifies the importance of the latent TB detection programme to address the higher incidence rates of TB among new immigrants.

The effectiveness of TB interventions in the UK targeting the South Asian clusters has a positive outcome through community intervention programmes. A systematic review of community-based interventions, for instance, showed that community engagement initiatives in South Asian communities in the UK improved health outcomes [19]. In a similar vein, another study found that the educational outreach program made TB screening uptake significantly higher. This program highlights the contributing factors of its success to other social determinants, such as culturally adapted materials, the community health workers' training, and language-appropriate resources [20].

Therefore, health care service delivery in South Asian communities requires multilingual resources, culturally competent health care workers and training, as well as community engagement with the help of community leaders to increase detection of TB and make community interventions successful by reducing stigma [15].

Opportunities for providing comprehensive care are presented by integrating TB control with larger efforts to reduce health inequality, such as diabetes management programs and mental health services [5]. Sustained investment in focused interventions, community involvement and resolving structural injustices that sustain health disparities are necessary for effective TB control among South Asian populations [3]. Culturally specific health interventions have better outcomes and are more effective in terms of screening uptake and adherence to treatment [1].

With rates 10–40 times higher than the general population, this literature review demonstrates that there are still significant and ongoing TB incidence disparities among South Asian ethnic groups in the UK [8]. As a result of intricate relationships between socioeconomic hardship, migration trends, and possible genetic susceptibility factors, communities in Bangladesh and Pakistan bear the heaviest burden [12-2].

There are still numerous barriers to achieving equitable TB control outcomes despite the potential of targeted screening and culturally appropriate interventions among South Asian communities in the UK [17]. Several significant questions remain regarding the mechanisms of underlying genetic susceptibility, the best screening methods, and the long-term efficacy of community-based interventions [10]. Additional research and analysis are needed to fill in these gaps in the social determinants of TB prevalence among South Asian groups in the UK. Creating precision public health strategies, assessing cutting-edge screening tools and having an in-depth knowledge of social determinant interventions should be the main goals of future research [4].

In conclusion, in order to address inequalities related to TB incidence rates in South Asian communities in the UK, health programmes warrant persistent commitment to focused interventions that consider cultural attributes of these groups to reduce health disparities. The effectiveness of public health interventions will rely on continued investment in community-based engagement of these groups, improvement in healthcare facilities and addressing social and cultural attributes that make targeting TB incidence challenging amongst South Asian communities.

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