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Perspectives of Health Care Professionals and general Population regarding Tuberculosis in Pakistan: A Systematic Literature Review

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Abstract

The purpose of this study was to find out how well-informed health care professionals and the general population in Pakistan are about Tuberculosis. A systematic review of all published articles until Apr 2021 was performed using Preferred Reporting Items for Systematic Review and Meta-Analysis guidelines. PubMed, UpToDate, Cochrane Library, and Google Scholar were searched for relevant published studies using related MESH terms and keywords. Finally, thirteen papers were chosen as meeting the inclusion criteria. In all the research, there was a lack of information and awareness. Private practitioners lacked the ability to maintain follow-up, educate the public, motivate patients, and stick to the therapeutic regimen. Tuberculosis had an impact on a person's personal and social life. A negative outcome occurred from a delay in diagnosis. Community mobilization to spread general awareness is necessary eradicating tuberculosis. The establishment of a national training programme for health-care professionals is required. Incorporating the pharmacist's involvement in the launch of community-based awareness initiatives are critical if Pakistan is to be Tuberculosis-free country.

Keywords: Pandemic, Private Practitioners, Pharmacists, Policy Makers, Public awareness

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Introduction

Tuberculosis (TB) is caused by bacteria called Mycobacterium tuberculosis. The bacteria usually attack the lungs, but other body parts can also be at risk. Symptoms include cough for more than three weeks, fever with chills, sweating at night, loss of appetite, weakness, and in worst cases, blood in sputum with chest pain. TB spreads through the air when an infected person with lung TB coughs, sneezes, or talks (1).

TB is one of the significant causes of morbidity and mortality worldwide. TB is one of the top ten causes of death worldwide. An estimated about 10 million people were affected by TB in 2018. Pakistan is ranked 5th in the highest TB prevalence, with 6% of TB cases among total reported in the world. In contrast, other high burden countries are India, Indonesia, China, Nigeria, and South Africa, (2). 60% of cases among the total reported in the world appeared in these Six mentioned countries. In September of 2015, Seventeen new Sustainable Development Goals (SDGs) were adopted at the United Nations Summit. According to SDGs, the target was set to End TB by 2035 (3). TB is considered as stigma affecting family and social relationships resulting in adverse health and economic crisis. Individuals with TB and their families face negative attitudes and a sense of judgment (4).

Since the Alma Ata declaration in 1978, global efforts to improve access to Primary Health Care had started (5). In 2001, TB declared a public health emergency in Pakistan, and the National Treatment Program (NTP) initiative was launched with the incorporation of expanded Directly Observed Therapy Short-Course (DOTS) program (6). Although TB services are integrated into the Health Care system at the district level, However, the private sector is regarded as the first entry point into the Health care system for most of the users (7).

TB is Preventable and Curable (8). The diagnosis and commencement of treatment play a significant role in the eradication of TB (9). An undetected and untreated individual is the potential to transmit the disease to other healthy individuals (10). Several studies from other countries showed poor Knowledge, Attitude, and Practice regarding TB (11-19). The focus of this review is to investigate the Knowledge, Attitude, Perception, and Practice (KAP) regarding TB among health care professionals and the general public in Pakistan.

Methodology

This systematic review was performed using guidelines of Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) (20). A literature search was undertaken in March and April of 2021 to review all those studies available online till April 2021 that demonstrate Knowledge, beliefs, and practices towards TB in Pakistan. PubMed, UpToDate, Cochrane Library, and Google Scholar were searched to identify relevant literature. The literature was searched using Boolean operators for combinations of several keywords to identify the relevant articles. Keywords used in the search strategy are described in Figure 1.

1. "Knowledge"
2. "Attitude"
3. "Practice"
4. "Tuberculosis"
5. "Pakistan"
6. "(1) AND (4) AND (5)" OR "(2) AND (4) AND (5)" OR "(3) AND (4) AND (5)" OR " (4) AND (5)"

Figure 1: Search Terms and Strategy used literature identification

Study selection

The admissibility of articles was determined in two stages. The first stage involved identifying and reviewing titles and abstracts. A complete evaluation was conducted in the second step to find papers that fulfilled the eligibility and inclusion criteria.

Inclusion criteria

All those studies were selected related to either Knowledge OR Attitude OR Practice regarding TB conducted in Pakistan in either Province, Setting, and population until May 2020.

Exclusion criteria

Studies that were not original or did not cover awareness, knowledge, attitude, perception, and practices related to tuberculosis in Pakistan were omitted.

Data extraction

The data were retrieved and organized into following categories that emerged from extraction, i.e. knowledge regarding TB, perception, practice, and TB stigmatization.

Quality assessment

Included studies were assessed for quality with the help of Newcastle and Ottawa Scale tool (21). Data abstraction and appraisal for each study were performed.

Results

A total of 25 records were identified and screened based on titles. Six of the studies were found to be duplicates, and they were eliminated. Furthermore, six papers were removed because they were unrelated to the review based on the entire abstract and text study. As a result, 13 articles were eventually included. Three studies were conducted in Punjab, seven in Sindh, one in Sindh and Khyber Pakhtunkhwa, one in Khyber Pakhtunkhwa, and one across the country. Table 1 outlines the included studies that were analyzed while Figure 2 depicts the exclusion procedure.

The KAP studies were conducted on TB; were all cross-sectional and employed a structured Questionnaire as a tool for data collection. The sampling methods used in majority were convenient sampling.

In two provinces, Punjab and Sindh, eleven studies were conducted. The two studies also contained participants from Khyber Pakhtunkhwa. Among these, seven studies conducted on the general population (22-28), one study on the general population and TB patients (29), two studies on TB patients (30, 31), one on Private practitioners (32), one on the general population along with Health workers (33), and one on Medical Interns (34). Following Themes were extracted from these studies:

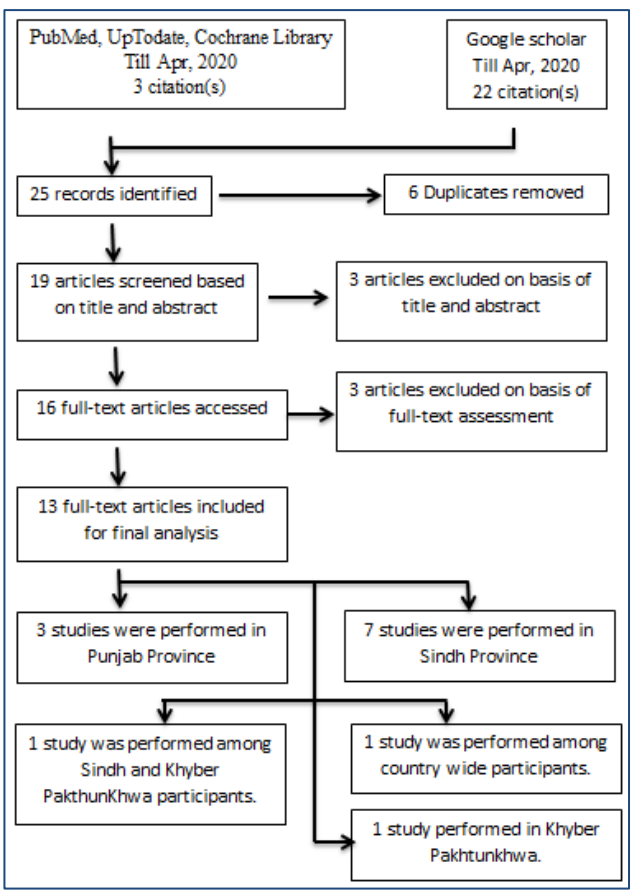

Figure 2: Flow Diagram for Systematic Review Knowledge Attitude and Practice review

Theme 1: Knowledge regarding TB

The study, which investigated knowledge of physicians, concluded that two-thirds (68%) of private practitioners answered correctly, while one-third (32%) lack the correct information regarding its symptoms (32). On the other hand, 53.9% of medical interns underestimated the number of TB cases in Pakistan. While 95% of medical interns correctly answered the transmission of pulmonary TB, 56.5% correctly know the WHO-recommended DOTS treatment plan (34).

In the general population, 90% of respondents were known to or heard of TB (24), while knowledge about TB was 39% (28). In another study, 99% of respondents reported having heard about TB, while 7% know the

Table 1: Study Characteristics

S.No	Authors (Year)	Type of study	Data Collection Method	Sampling Method	Sample size	Location	Population/ Setting	Results/ findings
1	Sara Ijaz Gilani, M. Khurram. (2010)	Cross-sectional	Structured Questionnaire	Multistage random area probability sampling	2742	Pakistan	General Population	Deficient in knowledge and misconception regarding disease
2	Hasnain Javed *et al.* (2015)	Cross-sectional	Structured Questionnaire	Random	1137	Lahore	Public University Students	Misundersta-ndings and limited knowledge, Folk tales prevails
3	M. A. N. Saqib, *et al.* (2011)	Cross-sectional	Structured Questionnaire	Convenient	252	Rawalpindi	National TB control center	Lack of knowledge related to symptoms prevails which leads to delayed diagnosis.
4	M. U. Mushtaq, *et al.* (2009)	Cross-sectional	Structured Questionnaire	Convenient	1080	Nankana Sahib and Bahawalpur	General Population	Inadequate knowledge.
5	M. Agboatwalla, *et al* (2003)	Cross-sectional	Structured Questionnaire	Lottery method from the Voter database	254	Baldia Town and Tando Jan.	General Population	Low awareness
6	Mubashir Zafar. (2013)	Cross-sectional	Structured Questionnaire	Non-probability convenient sampling	175	Karachi	General Population and TB patients (newly diagnosed)	Lack of proper knowledge
7	Mubashir Ahmed, *et al* (2009)	Cross-sectional	Structured Questionnaire	Convenient	22	Thatta	Private Practitioners	Lack of knowledge of recommended WHO guidelines
8	Ali Khan Khuwaja, Naushaba Mobeen. (2003)	Cross-sectional	Structured Questionnaire	Convenient	204	Karachi	Family practice clinics	Poor Knowledge
9	Javed Ahmed Khan, *et al.* (2006)	Cross-sectional	Structured Questionnaire	Convenient	170	Karachi	TB patient	Misconception concerning TB is common
10	J. A. Khan, *et al.* (2005)	Cross-sectional	Structured Questionnaire	Convenient	460	Karachi, Peshawar and Abbottabad	Medical Interns	Lack of knowledge regarding WHO recommended guidelines
11	S. S. Ali. (2003)	Cross-sectional	Structured Questionarie	Convenient	203	Karachi	Non TB patients	Poor knowledge
12	Syed M. Ali Warsi, *et al.* (2014)	Cross-sectional	Structured Questionarie	Cluster	900	Dadu and Badin	General Population	Misconception about disease
13	Adeela Khan, *et al. (2020)*	Cross-sectional	Structured Questionarie	Mixed-Method	526	Haripur	General population and Health professionals	Lack of awareness regarding TB, Transmission and treatment.

symptoms of TB (33). Among graduating students of universities, 80% had good knowledge about TB (25). Only 39% considered TB as an infectious disease (28). In a survey, 25% knew about Multidrug-resistant (MDR) TB. About the cure, 52% and 51% agree that TB is curable and preventable (27, 28). It was observed that persons with good literacy and income had an adequate awareness of TB (26).

Theme 2: Perception in general population and termination of the treatment plan

Among TB patients, 10% did not consider TB as a preventable disease, 47% thought that contaminated food and utensils are the sources of TB transmission (30).

Regarding termination of TB treatment, 65% of the general population answered that the treatment should be stopped when symptoms resolve, 22% of rural and 14% of the urban population considered the completion of treatment is important, (22).

Theme 3: Practitioners practice and diagnosis of TB

14% of private practitioners only advised sputum microscopy for pulmonary TB diagnosis, and the other 86% recommended combinations of tests, i.e., Chest X-ray, ESR, tuberculin test (32).

Saqib et al. conducted a study and observed that 63% of TB patients visited the health facilities after feeling ill, but only 5% of patients were diagnosed with TB in the early stage (31).

Theme 4: Selection priority regarding the type of treatment in the general population
In Sara Ijaz et al. study, 90% of the general population respondents favored getting treatment from Allopathic doctors, while 10% were in opinion to consult Herbal and Homeopathic treatment, (24).

Theme 5: Private practitioner's follow-up plans
Mubashir Ahmed et al. concluded in his survey that 85% of private practitioners in rural areas do not follow up through sputum microscopy. Instead, they rely on clinical improvement and X-ray clearance (32). Private practitioners believed that 60% of patients did not show compliance with the therapy.

Theme 6: Source of information
Different opinions in different researches were found. Electronic media is the source of information (23), 64% TV, and 43.6% thought that health workers are a source of information for them (26). In another research, 60% of people said that doctors are the source of information (22). It was also observed in research that 40% of respondents believed a household member or a friend was the source of information, 37% believed Television, 3% believed doctors, and only 1% mentioned lady Health workers as a source of information (33).

Theme 7: TB as a stigma
33% of the general population considered that TB affects one's personal and social life (24). In another paper, it was found that 75% of people hide their health status if they have TB, afraid of consequence (29).

Discussion

Pakistan's National Tuberculosis Control Program (NTP) was initiated with the goal of reducing TB prevalence in the general population to 50% by 2025 (35). Despite the fact that the number of cases of tuberculosis has dropped, Pakistan remains one of the most severely impacted countries. All of the research came to the same conclusion: there is a misunderstanding regarding the disease, its symptoms, accessible treatments, and its prognosis. Because public awareness of tuberculosis is limited, authorities must pay close attention.
The following suggestions are made based on findings:

1. Initiation of Mass Media Campaign.
The importance of the media in raising community awareness is well acknowledged (36). The National Tuberculosis Program must look at ways to keep people's interest in TB going beyond World Tuberculosis Day, since this will help to keep the disease in the public's and policymakers' minds.

2. Mandatory Continuous Medical Education (CME) for Healthcare Professionals.
The initiation of the DOTS program has shown the improved number of cases (37). People seek therapy from the private sector first. However, it was discovered during a survey in Sindh's rural areas that private practitioners' knowledge was insufficient (32). Simultaneously, the study conducted on medical interns of Sindh and Khyber Pakhtunkhwa also revealed inadequate knowledge (34). Javed A. Khan et al. also suggested the curriculum should be revised with emphasizing on TB along with mandatory continuous medical education as these professionals are also a source of information for the general public, so their information should be correct and up to date. The potential value of the private sector in the detection of TB cases in our community has been demonstrated in previous work (38). The quality of treatment provided by private practitioners will most likely be affected by their empowerment through better education and more involvement.

3. Involvement of Community Pharmacists in National TB Control Program
Community pharmacies are the first place to visit by patients seeking healthcare. As a result, instead of dispensing an Over the Counter (OTC) medicine for symptom relief, the pharmacist must be trained to diagnose the suspected patient and direct them to a TB clinic. Second, if the patient is being treated by a private practitioner, the pharmacist must be up to date on current treatment standards in order to evaluate the prescription while dispensing Anti-TB medications. One of the most essential roles that pharmacists may play in their communities is Public health education, which they can do by constantly engaging their surrounding community in awareness campaigns specific to TB.

4. Mobilizing Community Members to stop Thinking TB as a Stigma.
TB is considered embarrassing throughout the world (39-42), and the same was observed in Pakistan. It's crucial to figure out what socio-cultural elements contribute to TB stigma. Health care providers, the community, and family members all need to be educated about stigma and measures to safeguard patient confidentiality must be implemented. Whole community should support the affected people instead of isolating them from the community.

These strategies, as mentioned above, will aid in the reduction of the TB pandemic in Pakistan and will help in "finding the missing 3 million" untreated TB cases worldwide (43).

Limitations
There are several limitations to this review. To begin with, the studies were limited to two Pakistani provinces: Punjab and Sindh, with no data available for Balochistan, Gilgit, or Baltistan. This may have an impact on generalizability, although the current review made use of all accessible data. This has highlighted the need for further research to be conducted across the country.

Conclusion

This study concludes that there is a lack of adequate awareness in a general population, and healthcare professionals. There is a need to implement methods at the national level to make continuing medical education (CME) mandatory. Patients should be educated on the importance of sticking to their treatment regimen. This review will assist policymakers in Pakistan to develop effective interventions in the future to decrease the prevalence of TB. Incorporation of Community Pharmacist role in TB prevention program and public awareness is the need of the hour to meet the SDGs to eradicate TB.

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