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Evaluating the Socio-Demographic Profile, Knowledge, and Training of Health Personnel Associated with RNTCP in Relation to Patient Loss to Follow-Up

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ABSTRACT

Introduction: In order to effectively manage tuberculosis (TB), health professionals affiliated with the National Tuberculosis Elimination Programme (NTEP) and the Revised National Tuberculosis Control Programme (RNTCP) are essential. Healthcare personnel' attitudes, expertise, and procedures about tuberculosis have a substantial impact on whether a patient receives treatment successfully or not. The purpose of this study is to evaluate healthcare personnel's knowledge, training, and sociodemographic profile in relation to NTEP/RNTCP in the context of patient loss to follow-up.

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Methodology: This observational study at BMIMS, Nalanda, Bihar, assessed the knowledge, attitudes, and practices of all medical personnel involved in the NTEP over one year (January 2022 to March 2023). Through semi-structured interviews, it evaluated socio-demographic profiles, training status, and tackled potential selection biases. Data analysis was performed using SPSS and Microsoft Excel, focusing on variables related to TB management and healthcare worker profiles.

Results: The bulk of the medical staff consisted of educated men in their thirties who were well-versed in the causes and modes of transmission of tuberculosis. Almost all had taken part in training related to their line of work. A sizable majority (71.41%) believed that the main causes of patients' failure to follow up with TB treatment were adverse drug reactions, patients' sense of wellbeing (57.62%), and patients' alcohol use (33.48%).

Conclusions: In particular, 19.7% of healthcare personnel did not know the definition of loss to follow-up. Many believe that medicine side effects, a sense of well-being, and alcohol usage are the main causes of TB patients' follow-up loss. To prevent loss to follow-up, educational activities must be improved and more female health workers must be recruited.

Recommendation: To address the gaps identified in the study, it is recommended to implement comprehensive and ongoing training programs for healthcare workers associated with NTEP/RNTCP, focusing on the accurate understanding of loss to follow-up and its contributing factors.

Keywords: *Tuberculosis, Knowledge, Loss to Follow-up, Health Care Workers*

INTRODUCTION

Tuberculosis (TB), a major global health concern, remains a significant challenge, especially in low and middle-income countries. The Revised National Tuberculosis Control Program (RNTCP), now known as the National Tuberculosis Elimination Program (NTEP) in India, represents a cornerstone in the fight against TB. The effectiveness of such programs heavily relies on the knowledge, attitudes, and practices of the health personnel involved. Their socio-demographic profile, level of knowledge, and training status play a pivotal role in the

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management of TB cases and, consequently, in the reduction of loss to follow-up, a critical issue undermining TB control efforts.

Studies have highlighted that loss to follow-up in TB treatment can lead to drug resistance, disease transmission, and increased mortality [1, 2]. The reasons for loss to follow-up are multifaceted, encompassing patient-related factors like socio-economic status, perception of the disease and treatment, and healthcare system-related factors including the quality of care and the competency of health workers [3].

The current research aims to dissect these healthcare system-related factors, particularly focusing on the health personnel associated with RNTCP. By assessing their socio-demographic profiles, understanding of TB, and training adequacy, this study seeks to identify potential areas for intervention that could reduce the incidence of patients lost to follow-up. This is in line with WHO's End TB Strategy, which emphasizes the need for a well-informed and adequately trained health workforce to achieve its goals [4].

Thus, this study aims to assess the socio-demographic profile, knowledge, and training status of healthcare workers associated with NTEP/RNTCP in the context of patient loss to follow-up.

METHODOLOGY

Study Design: An Observational study

Study Setting: The study was conducted at Bhagwan Mahavir Institute of Medical Sciences (BMIMS), Pawapuri, Nalanda, Bihar, India, in a duration of one year (January 2022 to March 2023)

Study Size: All medical personnel associated with the National Tuberculosis Elimination Programme (NTEP) in the designated microscopy centers (DMCs), DOTS centers, and T.U.s that have been chosen.

Participants: A total of 37 individuals participated in the study.

Inclusion Criteria: Healthcare professionals directly involved in NTEP activities, such as laboratory technicians (LT), senior supervisors of tuberculosis (STS), tuberculosis health visitors

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(TBHV), senior laboratory supervisors (STLS), and direct observation treatment short-course (DOTS) providers in the designated units.

Exclusion Criteria: Healthcare personnel who are not directly engaged in NTEP activities or who are employed by organizations other than the designated T.U.s, DMCs, and DOTS centers.

Data Collection and Analysis: The study was conducted through interviews with the use of a semi-structured interview schedule that has been pre-tested in order to get detailed information on training status, knowledge, and sociodemographic profile. T.U.s are chosen at random from both rural and urban locations.

Bias: Selection bias resulting from participant response bias and the random selection of T.U.s. Ensuring privacy and anonymity to promote truthful answers while taking the representativeness of the chosen T.U.s into account.

Variables: Knowledge, attitude, and practice about tuberculosis management were among the variables. Additionally, the training status of healthcare workers as well as their sociodemographic profiles (age, gender, education, etc.) were included.

Statistical Analysis:

Every statistical analysis was performed using the trial version of SPSS programme. For organization and analysis, the data were coded and put into a Microsoft Office Excel worksheet. To evaluate and analyze the gathered data, descriptive and inferential statistics were used.

Ethical Considerations: Before the interviews, all participants provided their informed consent. All participant data and answers were kept private and confidential. The institute's ethical committee accepted the study protocol.

RESULTS

Table 1: The sociodemographic characteristics of healthcare professionals associated with RNTCP

Variable	Distribution	Percentage (%)
Age	21-30	33.5

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	31-40	40.4
	40-50	23.1
Sex	Male	78.3
	Female	19.7
Caste	SC/ST	30.04
	OBC	25.1
	Others	43.8
Education	High school	12.8
	Intermediate	16.2
	Graduate	61.1
	Above graduate	5.9
Occupation	Dots provider	50.7
	STLS	5.9
	STS	9.3
	LT	12.8
	TBHV	16.2

In Table 1, the socio-demographic characteristics of interviewed healthcare workers are presented. The majority (40.4%) fell into the 31-40 age group, with 78.3% being male, and 43.8% belonging to other caste groups. About 61.1% had attained a graduation level of education. Most of the interviewed healthcare workers (50.7%) served as DOTS providers, including ASHA and alternative medicine physicians (each 19.7%). Among DOTS providers, local physicians comprised the majority (30%), followed by community leaders (23.1%), and paramedical workers (16.1%). Notably, no allopathic doctors served as DOTS providers.

The study predominantly included female participants (84%), with nurses (68%) and pharmacists (28%) being the majority. Knowledge regarding the causative agent, modes of TB transmission, DOTS, RNTCP, and retrieval methods was 100% among the interviewed healthcare workers. However, 19.7% were unaware of the correct definition of a defaulter (loss to follow-up). A

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significant percentage knew the criteria for suspecting MDR-TB (78.3%) and understood MDR (71.4%).

Table 2: Health professionals' views on the reasons of loss to follow-up

Cause	Percentage (%)
Proper and repeated counselling required	5.89
Side effect of drugs	71.41
Feeling of well being	57.62
Alcohol	33.48
Transferred out	2.44
Treatment from private clinics	30.0
Wrong local addresses	30.0
DOTS center far from Home	16.24

Knowledge regarding the requirement of HIV testing in TB subjects and at ICTC centers stood at 92.1% and 85.2%, respectively. Furthermore, 81.8% of healthcare workers indicated they were sometimes at risk of TB infection, while 16.2% reported always being at risk from patients. Additionally, the majority of healthcare workers (54.2%) received training for only 1-2 days, with most of them (57.6%) trained at District Training Centre.

DISCUSSION

In the present study, majority of the interviewed healthcare workers (40.4%) fell into the age group of 31-40 years, with a significant portion being males (78.3%), and 43.82% belonging to other caste groups. About 61.1% of the healthcare workers had completed their education up to graduation. The majority of the healthcare workers were DOTS providers (50.7%), including ASHA workers and alternative medicine physicians (each 19.7%).

The study observed a gender disparity among DOTS providers, with a higher representation of males (81.7%) compared to females (16.3%). Local physicians (30%) were the most common DOTS providers, followed by community leaders (23.1%) and paramedical workers (16.1%).

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Interestingly, no allopathic doctors served as DOTS providers. Another study by [5] found that the majority of healthcare workers in their study were in the age group of 20-30 years, with a significant female representation (85%). Nurses (69%) and pharmacists (29%) were the predominant healthcare worker categories.

A study by [6] on healthcare workers in India found a predominant age group of 30-40 years, similar to the study findings. This age demographic is often considered the most professionally active and experienced in the healthcare sector. Additionally, the male predominance observed aligns with global healthcare workforce trends where males often dominate certain medical professions [7].

Research by [8] on healthcare workers in rural India noted that a significant portion had tertiary education, which is crucial for understanding complex medical procedures and providing quality care. The study finding of 62.1% having completed graduation resonates with the increasing trend of higher educational qualifications among healthcare professionals.

A study by [9] found that non-allopathic practitioners, including ASHA workers and alternative medicine physicians, play a significant role in DOTS, similar to the study findings. The gender disparity is a noted issue in DOTS programs globally, with studies indicating cultural and societal norms influencing the gender dynamics in healthcare roles [10].

A study by [11] in the context of TB treatment in India noted a diverse range of DOTS providers, with a significant contribution from local physicians and community health workers. The absence of allopathic doctors as DOTS providers in the study is a unique finding, highlighting the potential reliance on non-allopathic practitioners in certain regions or settings.

CONCLUSION

The majority of healthcare workers were male and had completed education up to graduation. While they universally understood the causative agent, modes of transmission, DOTS, RNTCP, and retrieval methods, 20.7% were unfamiliar with the correct definition of 'loss to follow-ups.' Most healthcare workers perceived that the side effects of drugs, a sense of well-being, and alcohol consumption were the primary factors contributing to the loss to follow-up in

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tuberculosis cases. There is a critical need for increased efforts to manage the side effects of anti-tubercular drugs and reduce alcohol intake among patients. Consequently, it's essential to enhance educational initiatives to prevent loss to follow-up and actively involve more female health workers in these efforts.

Limitations: The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Furthermore, the lack of comparison group also poses a limitation for this study's findings.

Recommendation: To address the gaps identified in the study, it is recommended to implement comprehensive and ongoing training programs for healthcare workers associated with NTEP/RNTCP, focusing on the accurate understanding of loss to follow-up and its contributing factors. Additionally, efforts should be made to diversify the workforce by actively recruiting and supporting more female health workers, thereby enhancing the overall effectiveness of the TB management program.

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List of abbreviations:

TB- tuberculosis

NTEP- National Tuberculosis Elimination Programme

RNTCP- Revised National Tuberculosis Control Programme

DMCs- designated microscopy centers

T.U.- Tubercular Unit

LT- laboratory technicians

STS- senior supervisors of tuberculosis

TBHV- tuberculosis health visitors

STLS- senior laboratory supervisors

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DOTS- direct observation treatment short-course

MDR- multi drug resistant

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