



A COMPARATIVE STUDY OF VARIABLES PERTAINING TO PATIENTS AND HEALTHCARE PROFESSIONALS WITH A PARTICULAR EMPHASIS ON DOTS TREATMENT

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Abstract

Tuberculosis continues to kill despite improved treatments. Patients' unwillingness to adhere to therapy for various reasons, as well as medical personnel' struggles to overcome hurdles to strategies like directly observed therapy (DOTS), hinder disease management. The study's purpose is to examine patient and healthcare provider variables related to DOTS treatment. **Method:** This study employed qualitative and quantitative data from primary-care practitioners in Meerut, Uttar Pradesh. The healthcare providers responded 20 (66.6%) questions about DOTS positively and 10 (33.3%) negatively. Data was recorded and distributed using a spreadsheet. Transcripts were utilized to analyze qualitative data. **Result:** 58.9% of 30 professionals questioned know about the DOTS. Professionals face several challenges, including a lack of patient commitment to treatment (49.4%), difficulties for patients joining basic health clinics (BHCs) (20.0%), difficulties for specialists getting to the location where patients were treated (9.8%), a shortage of human resources/personnel (3.9%), and a patient's use of illegal drugs (4.1%). Blaming the user and a lack of resources are the key difficulties, along with the experts' lack of access and expertise, according to the participants' views. **Conclusion:** Tuberculosis is a curable but devastating illness. High antibiotic dose, poor mental health, social stigma, etc. accompany the illness. Educating and counselling patients about illness, its symptoms and consequences is critical to improve their health and well-being. This strategy allows clients to express their concerns and acquire an appropriate answer.

Keywords: Antibiotics, BHC, DOTS, Drugs, NTEP, Healthcare professionals, Mental health, Tuberculosis.

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1. Introduction

Relationship between patient and physician has long been acknowledged as the source of enchantment and creativity in the practice of medicine [1]. Interpersonal and communication skills of a surgeon include the capacity to obtain information to aid in proper diagnosis, to Counsel effectively, to provide therapeutic instructions, and to build caring connections with patients [2]. It is imperative for the efficient provision of health care that these fundamental clinical skills be mastered to achieve the highest possible outcome and level of patient satisfaction [3].

To have a good therapeutic health professional-patient relationship, there must be shared views and sentiments about the nature of the issue, the aims of therapy, and the psychological support that is provided. It is from this foundational ability to communicate effectively with others that all other abilities in interpersonal relationships are built. Patients and general practitioner should be included in the process of determining the best way to communicate [4].

When a healthcare assistant and a patient communicate, the goal is always to enhance the patient's health and treatment. Patients have expressed dissatisfaction with nursing assistant-patient communication even when many clinicians thought it was good or even great. Many physicians believe they are better communicators than they really are. Tongue et al, reported that 75% of orthopedic surgeons questioned thought they communicated well with their patients, while just 21% of their patients felt the same way about their doctors' communication skills. A more open line of contact between patients and their doctors has often shown up in patient surveys [5].

The ancient Greek school of Cos established the foundations of patient-centered medicine. Patient-centered care has been more popular in recent years, but it has not always been the norm. As an example, in the 1950s to 1970s, doctors found unfavorable news about cancer therapy as cruel and injurious to patients because of the poor prognosis. Individualism is a recent development in the medical model from paternalism. This approach of shared decision making and open communication with patients was made possible by the health care consumer movement [6].

One of the world's leading causes of mortality from infectious illnesses, TB is seen as a public health problem and a disease that is being ignored [7]. Even once a patient has recovered

Clinically, TB therapy is difficult and time-consuming, requiring many medications and lasting up to six months. Since treatment desertion is common and may cause the development of *M. tuberculosis* that is resistant to therapy, this can be a major problem for disease management. As a countermeasure, the World Health Organization suggests using DOTS (directly observed short- term therapy) [8,9].

The health care team and the patient should work together to decide on the best treatment method. Since the patient's autonomy is not considered in the therapeutic care process, certain TB care providers follow tight regulations established by worldwide epidemiological techniques for disease control [10].

Lack of knowledge about the disease, and other drug use, forgotten doses and other sociodemographic factors, such as low income and education, co-infection with HIV, side effects from anti-tuberculosis drugs, and enhancement in signs, all contribute to non-adherence to TB treatment. These factors all play a role in non-adherence. As a result, when administered by a medical practitioner in whom the patient has confidence, directly observed therapy (DOTS) has the potential to increase the quantity of medications and avert the development of multi drug resistant tuberculosis [11]. The DOTS connects health care providers with patients and their families, allowing them to better understand the social environment in which they work. Even yet, the current practice must be enhanced so that patients may exercise more control over their treatment and engage in talks about their progress, as well as so that the requirements of each patient can be considered throughout therapy [12].

HRQOL (Health related quality of life) impairment is a multi-factor concept including factors such as physical, mental, and social well-being; as a result, although disease affects individuals directly, it cannot be fully understood without reference to the society in which those persons reside. In spite of a common scientific definition of pulmonary Tuberculosis or illness (active TB), there is no specific numerical figure that sums up the effect that TB has on a person. The fact that quantitative studies have found a broad range of values for the health impairment associated with TB before, during, and after treatment is thus not unexpected [13]. DOT's efficacy from the perspective of all the healthcare providers that make up primary healthcare group has not yet been thoroughly investigated, which is why this research was developed.

2. Material and Methods

An investigation of functional and epidemiologic records following the execution of the NTEP DOTS plan was undertaken in the town of Meerut using a descriptive, qualitative-quantitative methodology.

2.1 Inclusion and exclusion criteria

By asking written permission to conduct the study, municipalities that had not agreed to participate in the study were ruled out. Medical professionals, Asha health workers nurses, nursing assistants, and pharmacists were all involved in the study. To exclude professionals, the Free and Informed Consent Term had to be marked incorrectly or the questionnaire had to be returned late.

2.2 Data collection

Individual questionnaires, filled out by individuals with their permission and distributed to health care providers between July and September 2021, were used to gather data. There were three sections of a questionnaire: one focused on the professional's occupation, the other on his or her awareness and view of DOTS guidelines as well as complications; one focused on the healthcare provider's insight of the directly observed short term therapy, highlighting complications and/or amenities in implementation; and one focused on the professional's perception of DOTS.

2.3 Data analysis

The quantitative data were recorded into an Excel 2010 spreadsheet, analyzed using SPSS (version 26), and then categorized into roughly equivalent tables. The Kruskal–Wallis non-parametric tests were performed to compare the answers to directly observed short term therapy (DOTS)-related questions with the significant period of experience and occupation of the variable. The $p < 0.05$ threshold was used to establish significant associations. In order to gather qualitative information, the replies were transcribed and analyzed and subjected to a thematic content analysis. Following free-flowing reading, the interview transcripts were thoroughly analyzed to determine the most important statements. To describe the content's attributes, the raw data was processed and aggregated into units. Using the themes revealed, thematic analysis and categorization were carried out.

3. Result

As part of the National Tuberculosis Elimination Program, we interviewed 200 professionals from Meerut municipalities in Uttar Pradesh. Of the professionals polled, 35% were between the ages of 39 and 48; 41% were Asha health workers; and 42.5% had been in their present roles for more than ten years (Table 1).

Table 1 - Profile distribution of participating professionals from municipalities of Meerut, Uttar Pradesh. (n = 200)		
Variables	n	Percentage
Age group (years)		
17 – 28	25	12.5
29 – 38	65	32.5
39 – 48	70	35
49 – 58	25	12.5
59 years or older	15	7.5
Occupation		
Asha Health workers	86	39
Nurse	35	17.5
Nursing assistant	25	12.5
Physician	20	10
CHO	10	5
Pharmacist	7	3.5

Time of experience		
<5 years	80	40
5 -10 years	35	17.5
10 years or more	85	42.5

The survey was able to establish that more than half of the professionals had a basic understanding of the DOTS requirements when it came to two particular issues. There are 58.9 percent of respondents who believe DOTS for TB is a drug given every day (Monday through Saturday) by a health professional, allowing for contact, shared responsibility, and learning; 76.0 percent of respondents believe DOTS is offered five days a week at their health clinic.

The nursing team and the Asha health workers are also held responsible for DOTS, according to the majority of healthcare experts. Accordingly, Asha health workers (n = 45.1 percent), followed by nurses (n = 38 percent) and nursing assistants (n = 11.9 percent) were the most often cited personnel responsible for DOTS for TB (Table 2).

The most often cited difficulty in implementing the DOTS was a lack of patient commitment or adherence to the therapy (n = 48.3%). Third and fourth on the list of difficulties identified by respondents were the difficulty of transferring DOTS specialists to the patient's location and the usage of illegal medications by patients, respectively (Table 2).

When looking at the present study population, the link between the time of experience and BHC's (basic health clinic) DOTS Professionals were statistically significant (Table 3). If the "profession" variable is considered, the person in charge of DOTS has also demonstrated an association (p = 0.089), however statistical significance was not reached (Table 4). There were no significant differences among the other responses that linked DOTS to the variables of occupation and years of experience. 53.2 percent of the interviewees characterized DOTS in patients with TB

as "excellent," "wonderful," "essential," "necessary," or "a good technique," according to the study. 75.5% of those interviewed agreed with directly observed therapy in their written responses.

Table 2 - Distribution of answers related to DOTS given by interviewed professionals (n= 200)	
Questions	%
Understanding about directly observed short term therapy (DOTS)	
Nurses, nursing assistants, Asha health workers and nurses may communicate, share responsibilities, and learn throughout the week (Monday to Saturday)	58.9

From Monday to Sunday, allowing for more contact, shared accountability, and learning among nurses and nursing assistants	34.9
Three times a week, allowing for contact, collective responsibility, and learning by nurses and associates, and Asha health workers	2.8
Interacting with each other once a month for the benefit of nurses, nursing assistants and Asha health workers	1.0
"I don't know how to answer"	2.3
DOTS conducted at the basic health clinic (BHC)	
Yes, six days a week	76.0
Yes, all seven days of the week	8.5
Yes, three days a week	5.7
"I don't know how to answer"	3.9
DOTS is not organized	3.4
It all relies on the availability of health care team.	2.3
In charge of the DOTS	
Nurse	39.0
Nursing assistant	10.6
Other	4.4
Physician	2.1
DOTS greatest challenges	
Patients' inability to stick with their treatment plans	48.3
The user's difficulty in getting transportation to the BHC	31.4
DOTS inability to transport specialists to patients' homes because of the distances	8.8
Involved	
There is a shortage of employees or human resources	4.1

Patients who are using illegal drugs	3.9
The BHC's physical facilities are unfavorable	2.1
At the BHC, DOTS is not a priority	0.5
Lack of management support	0.3
No DOTS is conducted	0.3
Other	0.3

"DOTS is of crucial relevance, considering that many patients stop up or leave therapy before the finish" were some of the findings of the study. In the eyes of the experts questioned, adherence is more about whether or not a patient takes his or her prescription as prescribed than it is about developing a relationship with the setting in which the patient is placed: In order to prevent the spread of drug-resistant bacteria and the development of drug-resistant strains of pathogens, it is essential to carry DOTS on patients. A 42-year-old pharmacist said: "I believe it is fantastic since this way we can secure the patient's cure by making sure the patient takes the medication every day".

Table 3 - Knowledge of professionals about DOTS according to their length of experience				
in basic health clinics in Meerut, UP (n = 200).				
Questions	Length of experience (years)			P value
	<5	5-10	>10	
	(%)	(%)	(%)	
Understanding DOTS				
Allowing for the daily exchange of information and experience among the many types of healthcare professionals (nurses, nursing assistants, and medical assistants) Monday to Saturday	37%	19%	44%	0.884
Nurses, nursing assistants, and Asha health workers may connect, share responsibilities, and learn from one another from Monday to Sunday.	31%	19%	50%	

Others	62%	21%	17%	
The BHC's approach to DOTS				
The whole week, from Monday to Sunday,	33%	18%	49%	0.310
Six days a week	35%	19%	46%	
Three days a week	32%	27%	41%	
Others	53%	13%	34%	
In charge of DOTS at BHC				
Asha health workers	39%	25%	36%	0.007
Nursing Assistant	32%	14%	54%	
Nurse	33%	16%	51%	
Others	47%	6%	47%	
Difficulties in implementing DOTS				
Transportation to and from the BHC (patients)	37%	17%	46%	0.728
The conveyance of medical personnel to the location of the patient	30%	18%	53%	
Insufficient human resources	37%	19%	44%	
Commitment from users is lacking	35%	22%	42%	
The use of illegal drugs by patients	27%	13%	60%	
Others	60%	9%	32%	
Total	37%	19%	44%	

Health care providers and patients' relationships have also been addressed in these statements: It's a necessary move, given the findings, but it shows a lack of public health commitment on the part of the populace. (Nurse—33 years old); - "It is necessary that the family participates by partnering with the administration of the medicine, but it is crucial that the team performs its share".

TB patients require better therapy that is both effective and compassionate, as articulated in the following way: "I feel that a screening may be done to determine the amount of knowledge about the illness and the socioeconomic structure of the family. Yes, DOTS is critical if problems are found, but if they aren't, one may just check regularly" (A 25-year-old nurse).

Table 4 - Knowledge of professionals working in basic health clinics about DOTS according to their professional category (n = 200)						
Questions	Profession					P value
	Asha health workers (%)	Nurse (%)	Physician (%)	Dentist (%)	Others (%)	
Understanding DOTS						
Allowing for the daily exchange of information and experience among the many types of healthcare professionals (nurses, nursing assistants, and medical assistants) Monday through Saturday	67%	26%	8%	4%	3%	0.412
Nurses, nursing assistants, and Asha health workers may connect, share responsibilities, and learn from one another from Monday through Sunday	49%	24%	7%	7%	4%	
others	85%	4%	4%	8%	8%	
The BHC's approach to DOTS						
The whole week from Monday to Sunday	73%	15%	3%	9%	0%	0.375
Six days a week	58%	26%	7%	4%	5%	
Three days a week	54%	23%	9%	9%	5%	
Others	60%	13%	8%	16%	3%	
Responsible for DOTS at the BHC						
Asha health workers	74%	22%	7%	4%	3%	0.089
Nursing assistant	49%	34%	10%	2%	5%	

Nurse	60%	24%	8%	8%	2%	
Others	57%	13%	7%	13%	10%	
Difficulties in implementing DOTS						
Transportation to and from the BHC (patients)	51%	26%	9%	7%	6%	0.276
The conveyance of medical personnel to the location of the patient	65%	26%	6%	0%	3%	
Insufficient human resources	44%	31%	6%	12%	6%	
Commitment from users is lacking	64%	22%	6%	5%	3%	
The use of illegal drugs by patients	60%	27%	0%	7%	7%	
Others	64%	18%	9%	9%	0%	
Total	60%	24%	7%	6%	4%	

4. Discussion

The professionals seem to comprehend what the questioners know about critical parts of DOTS operations that are clearly defined in the standards. Because some participants were unfamiliar with the DOTS guidelines for TB, this technique has certain limitations.

For TB, most professionals agreed with the NTEP in their description, which calls for patients to take medicine under the administration of a doctor from Monday through Saturday, resulting in communication and collective responsibility as well as learning for everyone involved (nursing assistants, nurses, and Asha health workers).

There were no statistically significant differences in awareness of the term "DOTS" between those who deal with the approach directly (i.e., nurses, nursing assistants, and Asha health workers) and those who do not ($p = 0.412$). Health workers' understanding of DOTS has been corroborated by studies in various countries, highlighting the need for advances that remove apparent hurdles and increase the knowledge of professionals participating in DOTS procedure [14].

Choowong et al. stress the need of specialists who can advise and monitor patients while also encouraging them to adhere to treatment regimens on their own will. It's not only about ensuring that the prescription is taken in an authoritarian manner; rather, the focus is on strengthening the patient-physician relationship and empowering them to take ownership of their own health care decisions in the course of their everyday lives [15].

It was shown that most people understood that nurses and Asha health workers are engaged in the process of DOTS responsibility. Statistics suggest that BHC employees with >10 years

of practice have greater familiarity with the individual in charge of directly observed therapy. Researchers found that the amount of experience Asha health workers have with DOTS, impacts their understanding of the standard [16]. This study's evaluations of various professional groups reveal that, while statistically non-significant, Asha health workers and members of the nursing team are more aware of their role in performing DOTS.

In order for the program as a whole to run well, each member of the team must be aware of their DOTS responsibilities. The protocol specifies particular responsibilities for each kind of TB care provider, including the Asha health workers who monitor medication administration in accordance with team planning and with the guidance of nursing professionals.

Interdisciplinary cooperation in family health teams and other primary healthcare settings is critical to clinical operations because it brings together health care providers from several disciplines. This interplay is most evident in teamwork. Transportation issues and lack of patient commitment were the two most significant stumbling blocks to directly observed short term therapy continuity, according to the data. Poverty, gender discrimination, and other structural problems, as well as user-related variables (in terms of motivation, knowledge, and attitudes), as well as societal factors (such as those in a family or community), all contribute to the breakdown and failure of the DOTS [17].

There is evidence to show that techniques that do not address the dialog between the patient and the health care providers tend to place all of the responsibility on the patient, making it more likely that the patient will fail to adhere to therapy. Specialists also play an important part in therapy, especially when it comes to user embracement, which may help strengthen bonds and increase the likelihood of success in treatment [18]. When it comes to discussing treatment adherence in a fair and less-blaming way, it's vital to widen one's perspective of therapy. According to the DOTS recommendations, treatment adherence is a two-way street, with both the patient and the health care team playing a role. The inability to provide effective treatment for TB patients demonstrates the difficulties in blaming either the user or the team.

There are several factors at play here, and this therapeutic effort is an attempt to address them all. Patients and their families are encouraged to participate in the therapy process via educational activities aimed at empowering them [19]. To see a connection between patient and health professional that is penetrated by affectivity and time for dialogue, describing a humanized form of care throughout the process of monitoring therapeutic activity is conceivable.

Professionals' explanations of DOTS, on the other hand, focus on just the logistics of taking the drug, obscuring the broader biopsychosocial concerns that need to be addressed. The health care provider's familiarity with the patients' surroundings, as well as their particular requirements and quirks, is an important element in spotting treatment difficulties and opening up new channels of communication with patients and their families [20].

For these reasons, participants in this survey cited team qualification as an essential method. Patients may be more likely to adhere to therapy if the healthcare personnel are well-trained in TB- related elements, and this may be accomplished by including patients in their own care.

Additionally, by keeping the team up to date, experts are better equipped to recognize TB at an early stage and design effective countermeasures. The experts stressed the need of allowing for a "screening" of patients receiving treatment, considering factors such as their knowledge of the illness, the structure of their families, and their socioeconomic status, among others. As a result, the frequency of visits to patients with improved health conditions might be increased by determining the necessity for daily drug monitoring [4].

No such options exist in existing standards, which are only flexible if medicine administration is well monitored (home, health service and shared). The study's inability to statistically examine the many situations in which these professionals operate stands out as a constraint. Living conditions, sanitation, access to employment and education and other services, structure and organization of services vary from municipality to municipality. In addition, since their demands and requirements are dependent on their position in the service, managers, patients, and health professionals all have unique viewpoints.

5. Conclusion

It is difficult to implement DOTS in this region's healthcare department because patients are unwilling to participate in treatment, as well as having difficulty getting to the basic health clinic due to a lack of resources and transportation. To address the study's results on health care professionals' lack of understanding about DOTS, it's vital to create dialogues about the obstacles experienced by patients in the area, solutions to conquer them, and the necessity of encouraging the relationship ahead of taking medicine. Recognize the health care group's role in therapy adherence. For all of these reasons, DOTS health care professionals and administrators must have the administrative abilities to reorganize and plan operations and services based on their social and cultural setting.

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