

A Cross-sectional Study on Knowledge, Attitude, and Practice Regarding Notification of Tuberculosis Patients by Private Practitioners of Urban Chennai, India

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ABSTRACT

Introduction: India accounts for one-fourth of global incidence of Tuberculosis (TB) with 2.79 million estimated cases, annually. To improve and intensify case finding, the Government of India declared TB a notifiable disease in May 2012. It is now mandatory that, all public and private health providers notify TB cases to the designated public health authorities. To facilitate notification, the central government has created a web-based, case-based notification system called Nikshay. Notification also provides support to the private sector in adherence to standards of TB care which helps in the monitoring of the patients, contact screening and adherence to the treatment.

Aim: To assess the knowledge, opinion and barriers regarding TB notification and its processes amongst private practitioners offering TB services.

Materials and Methods: This was a cross-sectional study with both analytical and descriptive components, which was conducted on the private practitioners of urban Chennai for a period of three months from April 2021 to June 2021. Study was done on a convenient sample of 150 private practitioners in urban Chennai. Any registered medical practitioner with a bachelor degree in medicine (MBBS) with private practice in urban Chennai with a minimum of one year practice was included in the study. The knowledge, attitude and practice of notification of TB among private practitioners and other proportions were summarised into percentages and 95% Confidence Intervals (CI) were calculated. The categorical data

was analysed by Chi-square (χ^2) test. Strength of associations was assessed through odds ratio and 95% CI. The analysis of the data was done using Statistical Package for Social Sciences (SPSS) version 28.0.1.1.

Results: Amongst the total sample of 150 study participants, 90% had said that TB notification was mandatory, of whom 80% said that, they had prior sensitisation on the notification procedures. Only 46% were aware of the honorarium given after notification. Attitude of the study participants towards notification, though 100% of the study participants agreed that TB notification was necessary, while 56.7% said that, government should do more towards the sensitisation of the notification procedures. Only 5.3% of the study participants, had initiated treatment on their own and 4% had started treatment based on clinical suspicion. Nikshay registration was more among those whose duration of practice was more than or equal to five years (p -value=0.03), those who had prior sensitisation on TB notification procedures (p -value <0.001), those who had TB patients in their Outpatient Department (OPD) (p -value <0.001), and among those who were aware of the honorarium given for notification (p -value <0.001).

Conclusion: Nikshay registration was significantly more among those, who had prior sensitisation and those, who were aware about the honorarium that, they will receive after notifying. This shows that simple awareness creation can significantly increase the Nikshay registration, thereby, increasing the TB notification.

Keywords: Awareness, Contact tracing, Disease notification, Sensitisation, Treatment

INTRODUCTION

At the start of 2020, the central government has renamed the Revised National TB Control Programme (RNTCP) the National Tuberculosis Elimination Program (NTEP) [1] India with 2.79 million estimated cases annually, accounts for one-fourth of global incidence of TB. In year 2016, out of total 10.4 million, estimated cases 6.67 million TB cases were notified by all countries to the World Health Organisation (WHO). India alone accounts for nearly one million missed cases, among the estimated 3.73 million global missed cases [2]. Notification also provides support to the private sector in adherence to standards of TB care which helps in the monitoring of the patients, contact screening and adherence to the treatment [3]. It has been reported that, about 46% of TB patients in India are treated 'outside Directly Observed Therapy (DOT)/RNTCP sources' in the private health sector [4]. A total of 3472 TB patients, were notified under RNTCP in year 2016, out

of which only 16 TB cases (<0.5%) were notified by private sector [5]. Finding these 'missing' cases and treating them successfully is vital to ending TB by 2030, as envisaged by the United Nations Sustainable Development Goals [6].

In May 2012, Government of India issued a gazette notification, which makes it mandatory for private practitioners to notify any case of TB that, they diagnose or treat [7]. To increase the notification, the Government of India made non notification a punishable under section 269 and 270 of the Indian Penal Code (IPC) (45 of 1860) in March 2018 [8]. To facilitate notification, RNTCP created a web-based, case-based notification system called Nikshay.

Notification also provides an entry-point for engaging private-care providers in delivering higher-quality TB care [9]. Thus, the aim of the present study was to assess the knowledge, attitude, and practice of TB notification among private practitioners of Urban

Chennai and also, to increase the awareness of TB notification, among the study participants.

MATERIALS AND METHODS

A cross-sectional study with both analytical and descriptive components was conducted on the private practitioners of Urban Chennai from April 2021 to June 2021. The descriptive component was used to identify the knowledge and attitude of TB notification of the private practitioners and the analytical component was used to find the association between certain factors hindering the notification of TB and the practice of TB notification. The study was submitted to the Institutional Ethics Committee of ACS Medical College (Registered no: ECR/1182/Inst/TN/2019) and was granted approval vide letter (IEC/ACSMCH Dt. 16.12.2020).

Study was done on a convenient sample of private practitioners in Urban Chennai {As approved via. mail on 6/12/2020 by Indian Council for Medical Research (ICMR) officials}. A total of 150 private practitioners were selected to participate in the study.

Inclusion criteria: Any registered medical practitioner with a bachelor's degree in medicine (MBBS) with private practice of minimum one year in urban Chennai were included in the study.

Exclusion criteria: Practitioners of alternative systems of medicine such as ayurveda, homeopathy, siddha, unani were not included in the study.

Questionnaire

This was a personalised structured questionnaire-based study to assess the knowledge, attitude, and practice of TB notification among private practitioners of Urban Chennai. The questionnaire was adapted from a previous study on TB notification [10] after some modifications to include Nikshay details. The questionnaire was reviewed by experts and any modifications that were suggested were made. Information was collected from the participants using self-administered structured questionnaire under the guidance of the investigator following which there was a session on creating awareness on the notification procedures. Participants who were found to have poor knowledge and attitude on TB notification were made aware about the various notification procedures and the consequences of non notification. A short talk was also given by the investigator on creating awareness about Nikshay registration and its importance.

STATISTICAL ANALYSIS

The data entry and analysis was done using Statistical Package for Social Sciences (SPSS) version 28.0.1.1. The knowledge, attitude and practice of notification of TB among private practitioners and other proportions were summarised into percentages and 95% confidence intervals were calculated, wherever, appropriate. The associations were analysed by crosstabs and Chi-square (χ^2) test were used for statistical significance. Strength of associations was assessed through odds ratio and 95% confidence interval of the odds ratio. The p-value of less than 0.05 was considered as significant.

RESULTS

More than half of the study population (53.3%) was above the age of 45 years and the rest were below the age of 45. Males were more in number (56%). General practitioners were 52 % of the study population [Table/Fig-1].

Among the study participants, 90% had correctly said that, TB notification was mandatory, of whom 80% said that they had prior sensitisation on the notification procedures. Only 46% were aware of the honorarium, given after notification [Table/Fig-2].

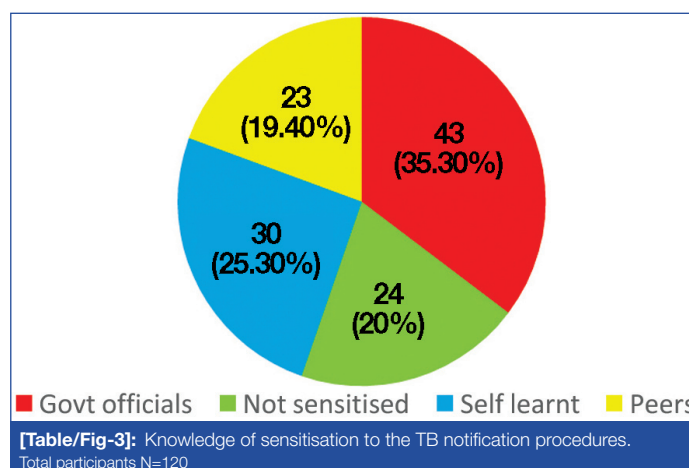
Variable (Classification of variable)	Number (n)	Percentage (%)	95% CI
Age			
≤45 years	70	46.7	38.5-55
>45 years	80	53.3	45-61.5
Gender			
Male	84	56	47.7-64.1
Female	66	44	35.9-52.3
Specialisation			
Anaesthetist	4	2.7	0.7-6.7
General practitioner	78	52	43.7-60.2
Obstetrics and Gynaecology	17	11.3	6.7-17.5
Dermatology	9	6	2.8-11.1
Pulmonary medicine	10	6.7	3.2-11.9
Orthopaedician	4	2.7	0.7-6.7
Paediatrician	9	6	2.8-11.1
Neurology	5	3.3	1.1-7.6
ENT surgeon	3	2	0.4-5.7
Cardiologist	5	3.3	1.1-7.6
General surgeon	4	2.7	0.7-6.7
Ophthalmologist	2	1.3	0.2-4.7
Duration of practice			
<5 years	10	6.7	3.2-11.9
≥5 years	140	93.3	88.1-9.7

[Table/Fig-1]: Socio-demographic profile of the study participants. N=150 participants

Variable (classification of variable)	Number (n)	Percentage (%)	95% CI
Is TB notification mandatory?			
Yes	135	90	84-94.3
No	15	10	5.7-16
Have you been sensitised on TB notification procedures?			
Yes	120	80	72.7-86.1
No	30	20	13.9-27.3
Are you aware of the honorarium for notification?			
Yes	69	46	37.8-54.3
No	81	54	45.7-62.1
Are you aware of web enabled case-based notification called Nikshay?			
Yes	85	56.7	48.3-64.7
No	65	43.3	35.3-51.7

[Table/Fig-2]: Knowledge of Tuberculosis (TB) notification among the study participants. Total participants N=150

When asked about prior sensitisation to the TB notification procedures, 80% were sensitised through some source [Table/Fig-3].



[Table/Fig-3]: Knowledge of sensitisation to the TB notification procedures. Total participants N=120

When participants were asked on their practice of TB notification procedures, 69.3% of the study participants said that, they had suspected TB in their patients. Only 5.3% of the study participants had initiated treatment on their own and 4% had started treatment based on clinical suspicion [Table/Fig-4].

Variable (Classification of variable)	Number (n)	Percentage (%)	95% CI
Have you ever suspected TB in your clinic patients?			
Yes	104	69.3	61.3-76.6
No	46	30.7	23.4-38.7
How do you diagnose TB in the cases you suspect TB?			
Refer to Government facilities	45	30	22.5-38
Refer to private diagnostic facilities.	2	1.3	0.2-4.7
Refer based on patient's preferences	47	31.3	24-39.4
Have own diagnostic facilities	10	6.7	3.2-11.9
Never suspected TB	46	30.7	23.4-38.7
What do you do after confirmation of diagnosis of TB?			
Initiate treatment on their own	8	5.3	2.3-10.2
Refer to Government facilities	48	32	24.6-40.1
Refer based on patient's preferences	48	32	24.6-40.1
Never came across TB	46	30.7	23.4-38.7
Have you initiated TB treatment without confirming the diagnosis?			
Yes	6	4	1.5-8.5
No	144	96	91.5-98.5
Do you specifically ask for TB symptoms in diabetics?			
Yes	132	88	81.7-92.7
No	18	12	7.3-18.3

[Table/Fig-4]: Practice of TB diagnosis among private practitioners.

When asked about notification of TB, 45.3% of the study participants said they had notified a case of TB and 20% of them had notified through Nikshay. Details can be seen in [Table/Fig-5].

Variable (Classification of variable)	Number (n)	Percentage (%)	95% CI
Have you notified a case of TB?			
Yes	68	45.3	37.2-53.7
No	82	54.7	46.3-62.8
Through what mode did you notify?			
Through	30	20	13.9-27.3
Nikshay Through	3	2	0.4-5.7
Mail phone call	27	18	12.2-25.1
Other means	8	5.3	2.3-10.2
Never notified	82	54.7	46.3-62.8
Factors that interfere with notification			
Never came across	46	30.7	23.4-38.7
TB case	68	45.3	37.2-53.7
Notified regularly	3	2	0.4-5.7
Lack of time	13	8.7	4.7-14.4
Lack of awareness	5	3.3	1.1-7.6
Stigma (patient's privacy) Referred to Government facility, so did not see the need	15	10	5.7-16

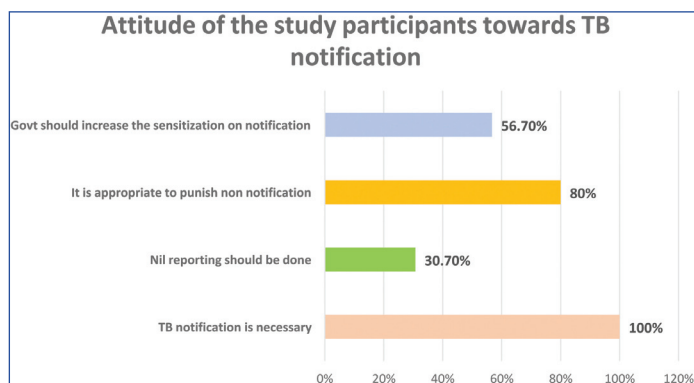
[Table/Fig-5]: TB notification related details of the study participants. (Total participants=150).

Among the study participants, 36.7% were aware of their Nikshay ID details can be seen in [Table/Fig-6].

Total no. of subjects	Number of practitioners with Nikshay registration (n)	Percentage (%)	95% CI
150	55	36.7%	28.96-44.92

[Table/Fig-6]: Nikshay registration details of the study participants.

Regarding the attitude of the study participants towards notification, though 100% of the study participants agreed that TB notification was necessary, 56.7% said that the Government should do more towards the sensitisation of the notification procedures and only 30.7% practitioners said that, only sure TB cases should be reported, otherwise nil reporting should be done. Details can be seen on [Table/Fig-7].



[Table/Fig-7]: Attitude of the study participants towards TB notification.

Nikshay registration was more among those whose duration of practice was more than or equal to five years, those who had prior sensitisation on TB notification procedures, those who had TB patients in their Outpatient Department (OPD) and among those, who were aware of the honorarium given for notification and these associations were statistically significant. However, the other associations were not statistically significant. Details can be seen in [Table/Fig-8].

DISCUSSION

The present cross-sectional study done amongst private practitioners of urban chennai showed that 69.3% of the participants had suspected TB among their OPD patients, but only 5.3% of them had initiated treatment on their own and a majority of them had referred the patients to other facilities. A study done by Philip S et al., in Azhapuzha district of Kerala also revealed that, practitioners had quoted that they refer their patients to government facilities [3].

According to Arora R et al., cases that were registered to receive drug-resistant TB care had a higher chance of receiving feedback [11]. Uplekar M et al., reported out that for TB elimination, all countries should have TB on their national list of notifiable diseases [12]. According to another study done on medical practitioners by Satpati M et al., in Mysore district [13], 88% admitted to referring their TB cases to the Government facilities.

The current study showed that 90% of the study participants correctly stated that, TB was a notifiable disease which was similar to the findings of the study done on Mysore [13] which revealed that 83.9% of the participants knew that TB notification was mandatory. A study done by ICMR [13] on TB notification, only 73% participants were aware about the mandatory TB notification and only 33% had ever notified a patient with TB. This is lower than the present study and the reason given the participants for not notifying the case was, lack of time and fear of offending the patients. The present study showed that the percentage of practitioners registered with Nikshay was 36.7%.

This was more than the rates found on the Mysore study [13] which showed that 15.5% of the study participants were registered

Variables	Grouping of variable (number)	Number of subjects with Nikshay registration (out of 55)	Number of subjects without Nikshay registration (out of 95)	Odds ratio (95% CI of odds ratio)	Chi-square value	p-value
Age	>45 years (80)	30	50	1.08 (0.55-2.10)	0.003	0.95
	≤45 years (70)	25	45	1.00		
Gender	Males (84)	32	52	1.15 (0.59-2.25)	0.17	0.68
	Females (66)	23	43	1.00		
Duration of practice	≥5 years (140)	55	85	Undefined	4.63	0.03*
	<5 years (10)	0	10	1.00		
Sensitisation on TB notification	Yes (120)	55	65	Undefined	19.78	<0.001**
	No (30)	0	30	1.00		
Having TB patients in their OPD	Yes (104)	48	56	4.78 (1.97-11.65)	13.06	<0.001**
	No (46)	7	39	1.00		
Aware of honorarium for notification	Yes (62)	42	20	12.12 (5.48-26.80)	43.65	<0.001**
	No (88)	13	75	1.00		

[Table/Fig-8]: Association between Nikshay registration among private practitioners in urban Chennai and certain suspected factors.

(*Statistically highly significant, **Statistically highly significant); Bold p-values are significant

with Nikshay. Though the registration rates of the current study were more than that of the other study, the prevalence was still exceptionally low and there is a definite need to improve this. In a recent study by Vinay V et al., the awareness about the Nikshay application (app) was more among public sector physicians (64.7%) compared to the private practitioners (40.8%) and the reason for non notification in the was stigma associated with TB and the technical difficulty of the Nikshay app [14]. Unfortunately, more comparison could not be done as the number of quantitative studies done on the topic were very few.

According to the current study, only 46% of the study participants were aware of the honorarium for TB notification and Nikshay registration was more among them, the association was also statistically significant ($p < 0.001$). A study conducted by Nirgude AS et al., in Dakshina, a coastal district of Karnataka concluded that the coverage was low and there were significant delays in receiving the benefit and that the coverage was poorer in urban areas [15]. The current study also showed that there was a statistically significant association between Nikshay registration and prior sensitisation to TB notification procedures (p -value < 0.001), this shows that easy interventions can significantly increase the Nikshay registration among practitioners. When asked about, whether punitive action should be given for non notification, 80% of the participants agreed that punitive action was needed, this was more than the number of study participants, who had opined that punitive action should be taken (47.7%) in a study done in Mysore [11], the difference could be because the data was collected from different states. A similar study done in Taiwan by Tan H-F et al., on private practitioners on reporting of communicable diseases said that, most doctors didn't report the case because they didn't want to violate the patients privacy and found the reporting procedure troublesome [16].

Limitation(s)

The study was originally planned to be conducted on a simple random sample selected from Thiruvallur district in Tamil Nadu, but unfortunately because of the ongoing pandemic that could not be achieved and so after obtaining permission from ICMR, the study was conducted on a convenient sample of private practitioners from urban Chennai.

CONCLUSION(S)

The present study has been a valuable eye opener in revealing facts about the low prevalence of Nikshay registration (36.7%) among

private practitioners in urban Chennai and that Nikshay registration was significantly more among those, who had prior sensitisation and those, who were aware about the honorarium that, they will receive after notifying. This shows that simple awareness creation in the above mentioned areas can significantly increase the Nikshay registration, thereby, increasing the TB notification.

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