

KNOWLEDGE, ATTITUDE AND PRACTICE ON TUBERCULOSIS NOTIFICATION BY PRIVATE MEDICAL PRACTITIONERS OF KANCHEEPURAM, SOUTH INDIA – 2016-17.

Chitrasena S⁽¹⁾, Chitra A⁽²⁾

(1) Senior Health Officer, Directorate of Public Health and Preventive Medicine – Tamil Nadu

(2) Professor, Institute of Community Medicine, Madras Medical College.

Abstract

Background: Tuberculosis (TB) is a global issue and a major public health problem in India. India ranks first in holding a huge number of TB cases which goes un-notified. Nearly half of the TB patients are being treated in private sector. If TB patients diagnosed and treated under any sector is reported to public health authorities, an appropriate, adequate, complete and supervised drug treatment to combat resistance may be ensured. Govt. of India declared tuberculosis a notifiable disease on 7th May 2012. In spite of these steps, TB notification by private health care providers is still a big challenge.

Objective: To assess the knowledge, attitude and practice of TB notification among the private practitioners.

Methodology: A cross sectional study was conducted among estimated sample of 91 private practitioners with a minimum qualification of MBBS in Kancheepuram township of Tamil Nadu. Data was collected using a semi – structured, self – administered questionnaire.

Results: About 96.7 percent of practitioners know that TB notification is mandatory and 82.4 percent know to whom they should notify. Almost all felt that it is important to notify tuberculosis. Only 27.5 percentage were aware about NIKSHAY. Regarding the notification, 51.6 percent of participants had good knowledge. The perceived difficulties of private practitioners in providing patient information on notification are patient's aadhar number and date of diagnosis. The preferred mode of communication to notify TB are through toll free number, phone call and field workers. Only 9 (12 percent) among 75 practitioners notified tuberculosis cases through field workers and phone call to public health authority. The notification practices were better in the participants with good knowledge compared to those with poor knowledge (p=0.004).

Conclusion: The study reveals that the participants were well aware of mandatory notification of tuberculosis. But there is high prevalence of poor knowledge on the process of notification and practice regarding TB notification among the private practitioners. Training programs and supportive supervision are crucial to raise their awareness and practice. Eliminating the barriers in the notification process will also help in improving the practice.

Keywords: NIKSHAY, Private Practitioners, Tuberculosis, Tuberculosis notification.

INTRODUCTION

Tuberculosis (TB) is a global issue and a major public health problem in India. The World Health Organization's (WHO) "End TB Strategy" which was approved in 2014 by World Health Assembly, calls for a reduction in the TB deaths by 90% and 80% reduction in the incidence of TB by 2030, keeping the 2015 data as baseline.(1) The United Nations (UN) in 2015 adopted Sustainable Development Goals (SDG) for 2030, targets to end the global TB epidemic (3.3 - Goal 3 and Target 3).

India holds more than a quarter of tuberculosis cases and also deaths due to tuberculosis. India's Revised National Tuberculosis Control Program (RNTCP) provides free diagnostic and treatment services with a theme of universal access to quality assured TB care as per Standards for TB Care in India (STCI) and a target of "reaching the unreached"(2). Of the BRICS (Brazil, Russia, India, China and South Africa) countries, India has been the last to effectively implement TB notification(3). Even though there is a substantial rise in tuberculosis notification in India by about 34%, there is still a huge gap between notifications of

new cases and the estimated number of incident cases(1). Only 58% of TB cases are being notified in our country(4). India ranks first in holding a huge number of TB cases which goes un-notified, thus making the TB epidemic larger than previously estimated with a major share of Multi – Drug Resistant (MDR) cases(1).

In India, the private sector dominates in health care and most often it is the first point of health care. Nearly half of the TB patients are being treated in private sector(4). As per the drug sales in 2014, an estimate of 2.2 million cases were treated in private sector which is two to three times higher than expected(5). About 50% of retreatment cases notified under RNTCP were previously treated in private sectors(6). The non – standardized, unsupervised



Please Scan this QR Code to

View this Article Online

Article ID: 2021:01:02:05

Corresponding Author : Chitrasena S

e-mail: chitrasena.cs@gmail.com

drug treatment in private sector, easy accessibility of over the counter anti- TB drugs, incomplete treatment due to financial constraints and sense of well-being with initial treatment are the major contributors to drug resistance. The TB patients diagnosed and treated under any sector, if reported to public health authorities – an appropriate, adequate, complete and supervised drug treatment to combat resistance will be achieved by ensuring treatment adherence(7).

Therefore, Govt. of India declared tuberculosis a notifiable disease on 7th May 2012. All public and private health providers shall notify TB cases diagnosed and/or treated by them to the local district nodal officers for TB notification (7) every month in a standard format or through a web based application called NIKSHAY (meaning – Eradication of Tuberculosis) which can be used by any health functionaries to notify TB cases (8). A gazette notification was published by the Government of India which mandates all private health establishments should inform the details of tuberculosis patients treated by them to NIKSHAY repository(9).

RNTCP has successful partnerships with various organizations viz., Indian Medical Association (IMA), Catholic Bishops' Conference of India (CBCI), Foundation for Innovative New Diagnostics (FIND), World Vision, The International Union against Tuberculosis and Lung Diseases (The UNION) and The Clinton Health Access Initiative (CHAI) to strengthen the notification from private sector. Medical Colleges were involved with RNTCP through the task force mechanism and are contributing in diagnosis, management and formulating policies for the program(2).

In spite of all these steps and efforts, TB notification by private health care providers is still a big challenge (10). India's TB annual status report 2014 states that only 3.1% of TB cases enrolled in RNTCP are being notified by private practitioners(11). Across South India, it varies from 30% (12) in a Chennai region to 82% in Mysore city(13). The private practitioners in cities are supposed to have a higher knowledge and notification practices as they have many Continuum Medical Education Programs. This study was planned in a township area of Kancheepuram to assess the knowledge, perceptions and practice in TB notification among private practitioners which will help in developing appropriate strategies to improve the TB notification.

OBJECTIVE

- To assess the knowledge, attitude and practice of TB notification among the private practitioners of Kanchipuram town.

METHODS

This is a Cross sectional study conducted in November 2016 to February 2017 at Kancheepuram Township among the private practitioners practicing allopathic medicine in Kancheepuram with a minimum qualification of M.B.B.S degree. The Inclusion criteria with the operational definition as the Private practitioner / Clinic (single) will include any Health Establishments where the medical services are provided by single registered medical practitioner with a minimum qualification of M.B.B.S degree who may or may not be attached to any hospital and who were consented. The private practitioners who are not available on two consecutive visits were excluded.

The sample size is calculated based on the proportion of tuberculosis notification by private practitioners - 30%(12) and considering Confidence level of 95% and absolute precision of 10%. Allowing a 10% excess sampling to account for non- response, total sample size was estimated to be 89 participants. Multi stage sampling method was adopted and simple random technique was used by lot method for selecting wards and then the streets. 21 wards were selected in Kanchipuram town to approach a total of 100 private practitioners.

Operational Definitions of TB Notification: Tuberculosis cases diagnosed and/or treated by the practitioner, notified to a local public health authority or Tuberculosis nodal officer by any mode.

Questionnaire: The Semi – structured self -administered questionnaire contained questions about their personal profile – Gender, Educational qualification, period and type of practice, questions to assess their knowledge, attitude and practice on tuberculosis notification and the difficulties in providing information during notification.

Ethics: Permission was obtained from Institutional Ethics Committee of Madras Medical College, Chennai – 3 and Informed consent obtained from the participants after a brief information about the study.

Data entry & Analysis: Totally 100 private practitioners were approached and 9 were excluded and data was collected and cleaned accounting to a total of 91 subjects. The data was analyzed using Statistical Package for Software Solutions (SPSS) version 21. The descriptive and inferential statistics of the private practitioner's responses to the questions were calculated. A two tailed p value of <0.05 was considered as statistically significant.

RESULTS

This study includes 91 participants with a minimum

qualification of M.B.B.S degree from 21 electoral wards of Kancheepuram township area and the socio demographic details are given in table 1.

Table 1. Socio demographic details of study participants

Characteristic	Category	Frequency (N=91)	Percentage
Gender	Male	59	64.8
	Female	32	35.2
Type of Practice	Specialist	75	82.4
	General Practitioner (MBBS)	16	17.6
Type of Specialization	Physician	22	39.3
	Pediatrician	10	13.3
	Obstetrician	18	24
	Surgeon	25	33.3
Experience in Private Practice	0-10 Years	41	45
	10-20 Years	20	22
	More than 20 years	30	33
Working in Government Sector	Yes	25	27.5
	No	66	72.5

Knowledge on Tuberculosis Notification among Private Practitioners

About 96.7% of practitioners know that the TB notification is mandatory and 82.4% of participants know to whom they should notify. About 64% and 57% of participants know about the modes of communication and the details needed to notify respectively. But only 27.5% of participants were aware about NIKSHAY. Only 14.3% of practitioners had training on TB notification and among them 85% were trained through Indian Medical Association. Regarding notification, only 51.6% of participants had good knowledge and 48.4% had poor knowledge.

Association between knowledge adequacy about TB notification and socio demographic details:

Among the socio demographic details, the gender, type of specialty and the period of experience in private practice had statistically significant association with the knowledge of tuberculosis notification. (Table 2)

Attitude on Tuberculosis Notification among Private Practitioners

Among 91 participants, almost all felt that it is important to notify tuberculosis. Nearly 98% of practitioners felt that this notification will help them in terms of facilitating contact tracing and social support systems. About 96% of study participants agree to follow RNTCP endorsed TB diagnostic

tests to confirm TB. Nearly 91% of private practitioners felt comfortable in notifying their TB patients. Only 40% of practitioners think that NIKSHAY may be helpful in notifying TB cases.

Table 2. Relationship between knowledge adequacy on TB notification and socio-demographic details of Private practitioners

Factors	Knowledge N (%)		Total	Test	p-Value
	Good	Poor			
Gender					
Male	37 (62.7)	22 (37.3)	59	$\chi^2_{(0.05)} = 8.224$ df = 1	0.004
Female	10 (31.3)	22 (68.8)	32		
Type of Practice					
Specialist	38 (50.7)	37 (49.3)	75	$\chi^2_{(0.05)} = 0.165$ df = 1	0.685
General (MBBS)	9 (56.3)	7 (43.8)	16		
Type of Specialist					
Physician	11 (50)	11 (50)	22	Fisher's exact test	0.026
Pediatrician	7 (70)	3 (30)	10		
Obstetrician	4 (22.2)	14 (77.8)	18		
Surgeon	16 (64)	9 (36)	25		
Experience					
Less than 20 years	26 (42.6)	35 (57.4)	61	$\chi^2_{(0.05)} = 6.036$ df = 1	0.014
More than 20 years	21 (70)	9 (30)	30		

The private practitioners felt that they may find difficulties in providing the following details of TB cases during notification, which is given in Table 3.

Table 3. Perception of difficulties in providing patient information on notifying Tuberculosis

Characteristics	Frequency N	Percentage
Patient Identity Details*		
Patient's Name	6	6.6
Patient's Gender & Age	3	3.3
Patient's Residence	27	29.7
Patient's Phone number	30	33
Patient's Aadhar number	53	58.3
No difficulty	28	30.8
Patient Treatment Details*		
Investigations done	11	12.1
Date of Diagnosis	40	44
Type of TB	8	8.8
Category of Treatment	16	17.6
Date of Anti – TB drugs prescribed	10	11
No difficulty	35	38.5

* Multiple Responses.

The multiple responses on preferred mode of communication to notify tuberculosis is shown in the figure 1.

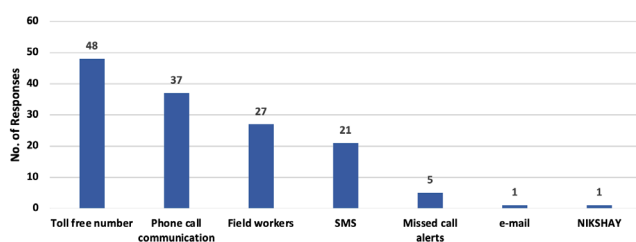


Fig 1. Preferred mode of communication to notify TB (Multiple responses)

Practice on Tuberculosis management among Private Practitioners

Among 91 participants, Seventy four (81.3%) practitioners referred their tuberculosis patients to Govt. health facilities at one or other occasions during their practice. The reasons for referral is shown in figure 2.

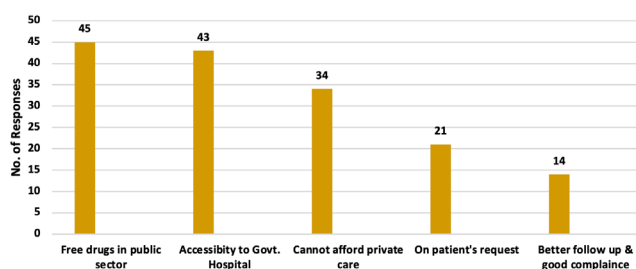


Fig 2. Reasons for referring TB cases to Public sector (Multiple responses)

Practice on Tuberculosis diagnosis and treatment pattern among Private Practitioners

In the past 6 months, 45 practitioners (49.45%) diagnosed about 106 tuberculosis cases. About half of them (24 Practitioners) referred some of their cases to district tuberculosis center for starting of treatment in the past 6 months. Among the 45 practitioners, 28 (62.2%) adhere RNTCP and 17 (37.8%) follow Non RNTCP treatment guidelines.

Practice on Tuberculosis Notification among Private Practitioners

Among 91 practitioners, 16 practitioners have not diagnosed and treated tuberculosis cases in their practice. Till now, only 9 among 75 practitioners (12%) who diagnose and/or treat tuberculosis cases notified their cases to public sector through field workers and phone call information to public health authority. Another 19 among 75 practitioners referred their cases to public sector with referral slips. The multiple reasons for not notifying TB cases are shown in figure 3.

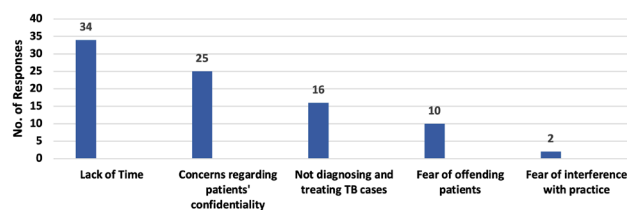


Fig 3. Reasons for not notifying TB cases to Public Sector (Multiple responses)

Relationship between knowledge and practice among the respondents

The relationship between the knowledge and practice of tuberculosis notification among private practitioners who diagnose and/or treat tuberculosis patients is statistically significant and is shown in table 4.

Table 4. Relationship between the knowledge and practice of tuberculosis notification

Knowledge	Practice		Total	p-Value
	Yes	No		
Good	9 (21.4%)	33 (78.6%)	42	Fisher test (Monte Carlo) 0.004
Poor	0 (0%)	33 (100%)	33	

Table 4 clearly points out that the notification practices were better in the participants with good knowledge compared to those with poor knowledge and the difference is statistically significant (p=0.004).

DISCUSSION

The observation in this study is that 96.7% of private practitioners were aware about the mandatory notification of tuberculosis which accords with Chadha S et al and Philip S et al (13,14). But the knowledge about the process of notification is low and only 27.5% were aware about NIKSHAY. Only 13 (14.3%) were trained on TB notification, especially by IMA. Forty seven (51.6%) of participants had good knowledge and 44 (48.4%) had poor knowledge about notification.

In our study, association between gender and years of experience with the knowledge adequacy is statistically significant. Male practitioners are found to have good knowledge compared to females and this could be due to the increased opportunity to attend Continuum Medical Education programs. The knowledge also increases with the number of years of practice as they become more aware of the facilities available with different health sectors and

orientation programs. Four-fifths of our participants were specialists of varied departments, there is no significant difference in the proportion of knowledge when compared to general practitioners as against the Philip S et al study (14). This may be due to the better competence and period of experience in private practice. However, among specialists, pediatricians have good knowledge followed by surgeons, physicians and the least were obstetricians in our study and is statistically significant ($p=0.026$).

Ninety one percent of private practitioners said that they feel comfortable in notifying their TB patients to public sector. However, they feel that there is difficulty in providing some patient details like aadhar number (58.3%), phone number (33%) and residential address (29.7%) which is supported by Thomas BE et al (12). Even though 38.5% of participants felt that they have no difficulty in providing patients diagnostic and treatment details, 44% of people felt it is difficult to provide information on date of diagnosis.

Among 91 participants, only 45 (49.45%) had diagnosed tuberculosis patients in the past 6 months. Among 45 practitioners, 24 (53.3%) referred some of their cases to public sector for starting of treatment. Among 45 practitioners, only 28 (62.2%) adhere to RNTCP treatment guidelines and others follow Non RNTCP regimens. Main reasons for not notifying cases were lack of time and concerns regarding patients confidentiality which is supported by Thomas BE et al, Velayutham B et al and Yeole RD et al (12,15,16).

Regarding notification, till now only 9 participants (12%) notified TB cases among 75 participants who diagnose and/or treat them. Two of them notified through field workers and 7 of them through phone calls to public health personnel. Nineteen participants reported that they refer the cases to public sector through referral slips. None of them notified via NIKSHAY as against Chadha S et al(13). This may be due to the lack of awareness, motivation, training and lack of time in engaging web interfaces to notify cases. Most of the participants prefer to notify the cases through toll free number (52.8%), Mobile phone communication (40.7%), field workers (29.7%) and SMS (23.1%) which is supported by Thomas BE et al and Philip S et al study (12,14).

Relationship between knowledge and practice among the respondents

Even though 96.7% of practitioners know that TB notification is mandatory, the knowledge on process of notification is low and even among practitioners with good knowledge, the notification practice is low due to the barriers like lack of time, fear of breaching patient's confidentiality and providing patient details like Aadhar number.

The notification practices were better in the participants with good knowledge compared to those with poor knowledge and is statistically significant ($p=0.004$). This implies that training programs are more crucial to impart knowledge on tuberculosis notification among private practitioners which would definitely result in good practice with efficient supportive supervision.

CONCLUSION

The study reveals that the participants were well aware of mandatory notification of tuberculosis. But there is high prevalence of poor knowledge on the process of notification and hence poor practice regarding TB notification among the private practitioners. Training programs are required to raise their awareness and supportive supervision will help to enhance the attitude and practice of TB notification. At the same time, the barriers in the notification process must be eliminated in order to make it easy and time saving to improve the practice.

LIMITATIONS

A limitation of the present study is that the findings and their interpretations are restricted only to the private practitioners. Further studies are needed that include the district program managers and the notified patients so that the barriers in that group can also be known and rectifications can be made. Though statistically significant results were obtained while studying the association between knowledge, attitude and practice of TB notification with their socio-demographic factors in this study, further larger studies with stratification of specialists, practice settings are needed to prove it.

RECOMMENDATIONS

All the private practitioners must be trained on TB notification to impart knowledge in turn to improve their practice. A district liaison officer should impart constant motivation, academic updates, support and monitoring. The notification process must be made simple, time saving and the web based applications should be in user – friendly manner.

REFERENCES

1. WHO | Global tuberculosis report 2016 [Internet]. WHO. World Health Organization; 2017 [cited 2017 Jan 27]. Available from: http://www.who.int/tb/publications/global_report/en/
2. TB India 2015 : Ministry of Health and Family Welfare

- [Internet]. 2015 [cited 2017 Jan 28]. p. 120. Available from: <http://www.tbcindia.nic.in/showfile.php?lid=3166>
3. Nagaraja SB, Achanta S, Kumar AM V., Satyanarayana S. Extending tuberculosis notification to the private sector in India: programmatic challenges? *Int J Tuberc Lung Dis* [Internet]. 2014 Nov 1 [cited 2017 Jan 29];18(11):1353–6. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25299870>
 4. Satyanarayana S, Nair SA, Chadha SS, Shivashankar R, Sharma G, Yadav S, et al. From Where Are Tuberculosis Patients Accessing Treatment in India? Results from a Cross-Sectional Community Based Survey of 30 Districts. Pai M, editor. *PLoS One* [Internet]. 2011 Sep 2 [cited 2016 Oct 12];6(9):e24160. Available from: <http://dx.plos.org/10.1371/journal.pone.0024160>
 5. Arinaminpathy N, Batra D, Khaparde S, Vualnam T, Maheshwari N, Sharma L, et al. The number of privately treated tuberculosis cases in India: an estimation from drug sales data. 2016 [cited 2017 Jan 27]; Available from: www.thelancet.com/infection
 6. Sachdeva KS, Kumar A, Dewan P, Kumar A, Satyanarayana S. New vision for Revised National Tuberculosis Control Programme (RNTCP): Universal access - “reaching the un-reached”. *Indian J Med Res* [Internet]. Medknow Publications; 2012 May [cited 2016 Oct 19];135(5):690–4. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22771603>
 7. Central TB Division, Directorate General of Health Services, Ministry of Health & Family Welfare, Govt of India. Guidance for TB Notification in India [Internet]. 2012 [cited 2016 Oct 19]. Available from: [http://tbcindia.nic.in/WriteReadData/l892s/2362168570Guidance tool](http://tbcindia.nic.in/WriteReadData/l892s/2362168570Guidance%20tool)
 8. Home :: Central TB Division [Internet]. Available from: <http://www.tbcindia.nic.in/>
 9. JitendraR. “NIKSHAY” – harnessing Information technology for delivery of enhanced TB care [Internet]. [cited 2017 Jan 29]. p. 4. Available from: <http://medind.nic.in/nac/t12/i1/nact12i1p4.pdf>
 10. Mahendradhata Y, Lambert M-L, Boelaert M, Stuyft P Van der. Editorial: Engaging the private sector for tuberculosis control: much advocacy on a meagre evidence base. *Trop Med Int Heal* [Internet]. Blackwell Publishing Ltd; 2007 Feb 5 [cited 2016 Oct 19];12(3):315–6. Available from: <http://doi.wiley.com/10.1111/j.1365-3156.2007.01816.x>
 11. Annual Reports :: Central TB Division [Internet]. [cited 2016 Oct 19]. Available from: <http://tbcindia.nic.in/index1.php?lang=1&level=1&sublinkid=4160&lid=2807>
 12. Thomas BE, Velayutham B, Thiruvengadam K, Nair D, Barman SB, Jayabal L, et al. Perceptions of Private Medical Practitioners on Tuberculosis Notification: A Study from Chennai, South India. *PLoS One* [Internet]. Public Library of Science; 2016 [cited 2016 Oct 19];11(1):e0147579. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26820750>
 13. Singh Chadha S, Burugina Nagaraja S, Trivedi A, Satapathy S, N M D, Devi Sagili K. Mandatory TB notification in Mysore city, India: Have we heard the private practitioner’s plea? *BMC Health Serv Res* [Internet]. BioMed Central; 2017 Jan 3 [cited 2017 Jan 29];17(1):1. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28049468>
 14. Philip S, Isaakidis P, Sagili KD, Meharunnisa A, Mrithyunjayan S, Kumar AM V. “They Know, They Agree, but They Don’t Do”- The Paradox of Tuberculosis Case Notification by Private Practitioners in Alappuzha District, Kerala, India. Cardona P-J, editor. *PLoS One* [Internet]. Public Library of Science; 2015 Apr 24 [cited 2016 Oct 19];10(4):e0123286. Available from: <http://dx.plos.org/10.1371/journal.pone.0123286>
 15. Velayutham B, Thomas B, Nair D, Thiruvengadam K, Prashant S, Kittusami S, et al. The Usefulness and Feasibility of Mobile Interface in Tuberculosis Notification (MITUN) Voice Based System for Notification of Tuberculosis by Private Medical Practitioners--A Pilot Project. *PLoS One* [Internet]. 2015 [cited 2016 Oct 20];10(9):e0138274. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26376197>
 16. Yeole RD, Khillare K, Chadha VK, Lo T, Kumar AM V. Tuberculosis case notification by private practitioners in Pune, India: how well are we doing? *Public Heal action. France*; 2015 Sep;5(3):173–9.