

Original Research Article

Impact of patient provider support agency on private sector engagement in Tuberculosis care in Eastern India

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ABSTRACT

Background: India is the country with the world's largest burden of tuberculosis, with a large proportion of patients seeking care from the private healthcare sector, which is fragmented and unregulated. There are significant gaps across the patient care cascade in the private sector on account of underreporting, diagnostic delays, irrational and non-standardized regimens, and catastrophic health expenditures to patients. Considering the gaps, Jharkhand state of India had implemented patient provider support agency scheme under National TB elimination programme to improve private sector engagement, operational since 27 September 2019. PPSA is giving end-to-end NTEP TB service packages to patients seeking care in the private sector.

Methods: This is a retrospective cross-sectional descriptive study using secondary data attained from the Nikshay web portal for Jharkhand and analyzed using Excel.

Results: After the introduction of PPSA, the proportion of private sector notifications in Jharkhand increased from 22.9 percent in 2019 to 33.5 percent in 2020. The Private sector notification rate in the state showed an increase from 34 per lakh population to 39 per lakh population.

Conclusions: Private sector engagement through PPSA has improved TB notification in Jharkhand. PPSA could sustain the provision of TB care in the private sector even during the COVID-19 pandemic. The access to quality data on patients seeking TB care in the private sector in the Nikshay web portal has improved since the implementation of the scheme resulting in better patient support and program monitoring.

Keywords: Private sector, Tuberculosis, Nikshay

INTRODUCTION

Tuberculosis is a major global public health challenge and India has the world's largest burden of tuberculosis (TB).^{1,2} Healthcare in India is dominated by the private sector, where the majority of patients first seek care.³⁻⁶ Private healthcare providers often use inaccurate diagnostic tests for TB, or omit testing altogether, leading to diagnostic delays while patients cycle between different providers.^{4,7,8} Poor diagnostic practices and delayed diagnosis in the

private sector prolong tuberculosis transmission.^{4,7,9} whereas a general lack of counseling and support of treatment adherence hampers successful, relapse-free cure.¹⁰ Even after patients are diagnosed, lack of treatment adherence, monitoring, and support is unfavorable for long-term treatment outcomes.¹⁰

Tuberculosis was made a notifiable disease in 2012, but there still remain major challenges in encouraging private providers to comply with these obligations.¹¹ Moreover,

most cases treated in the private sector are never notified to public health authorities.¹² For these reasons, in India's recently-announced plan to eliminate TB, private-sector engagement forms a key strategic priority. In a demonstration of private sector engagement in India, the 'Public Private Support Agency' (PPSA) model used a combination of patient subsidies and provider incentives to encourage higher standards of diagnosis and treatment amongst private providers¹¹. Originally implemented in two Indian cities, Mumbai and Patna (respectively by the NGOs PATH and World Health Partners), these measures have yielded a rapid increase in TB notification from the private sector.¹³ Considering the gaps, Jharkhand state of India has implemented Patient Provider Support Agency (PPSA) scheme under National TB Elimination Programme (NTEP) to improve private sector engagement, operational since 27 September 2019. PPSA is giving end-to-end NTEP TB service packages to patients seeking care in the private sector. Estimating the number of patients being treated in the private sector is important for several reasons: it provides information about the performance of a public system in detecting tuberculosis cases, while also helping in planning for government intervention in the private sector.¹⁴ Overall, it is crucial to know the scale of the problem: the undetected burden that exists outside the public health system. However, with a lack of systematic data on the private sector, arriving at these estimates has proven difficult.¹⁵

Objectives

The objective of the study is to review the impact of PPSA on private-sector engagement in TB Care in the eastern Indian state of Jharkhand.

METHODS

This is a retrospective cross-sectional descriptive study using secondary data attained from the Nikshay web portal

for Jharkhand for two years from 2019 to 2020. The present study was a cross-sectional retrospective study. Data were obtained from the NIKSHAY portal of the State TB Cell, Jharkhand after taking permission from State TB Training and Demonstration Centre (STDC) Director. Data from the state of Jharkhand for two years, 2019-2020, i.e., from 1 January 2019 to 31 December 2020, was used for this study. The secondary data of the Nikshay portal under NTEP was analyzed to enumerate all the variables in the web-based portal. The data for all four quarters were obtained, evaluated, and summed up to represent the annual statistics. The study was a review of reports obtained from the "Nikshay" database and did not involve patient interaction; therefore, individual patient consent was deemed unnecessary. Data were retrieved electronically in Microsoft Excel and the analysis was done using SPSS Software. The data were expressed in frequency and proportions.

RESULTS

Various variables for notified TB patients from the private Sector of Jharkhand for the year 2019 were compared to those for the year 2020 to see the before and after launch effect of PPSA on private sector engagement.

A total of 12,660 TB patients were notified in the private sector in 2019. There was an increase in number of patients notified to 14,965 in 2020. After the introduction of PPSA, the proportion of private sector notifications in Jharkhand increased from 22.9 percent in 2019 to 33.5 percent in 2020. The private sector notification rate in the state showed an increase from 34 per lakh population to 39 per lakh population. The proportion of pediatric TB patients in the 2019 private sector was 11.4% as shown in (Table 1). A decline was seen in the 2020 private sector pediatric TB proportion (8.5%).

Table 1: Age and gender profile of private sector patients in 2019 vs. 2020.

Socio-demographic factors	Age (years)	Private sector (2019), N (%)	Private sector (2020), N (%)
Age (years)	0-14	1449 (11.4)	1268 (8.5)
	15-24	2582 (20.4)	3031 (20.3)
	25-34	2580 (20.4)	2921 (19.5)
	35-44	1978 (15.6)	2515 (16.8)
	45-54	1710 (13.5)	2288 (15.3)
	55-64	1346 (10.6)	1816 (12.1)
	>64	1013 (8.0)	1126 (7.5)
	Blanks	2 (0.0)	0 (0.0)
	Total	12660 (100.0)	14965 (100.0)
Gender	Female	4505 (35.6)	5551 (37.1)
	Male	8143 (64.3)	9412 (62.9)
	Transgender	12 (0.1)	2 (0.0)
Grand total		12660 (100.0)	14965 (100.0)

Table 2: Diagnostic profile on the basis of anatomical site, drug resistance pattern, and microbiological confirmation of private patients in 2019 vs. 2020.

Parameters		Private sector (2019), N (%)	Private Sector (2020), N (%)
Anatomical site	Extra pulmonary	1422 (11.2)	3052 (20.4)
	Pulmonary	11170 (88.2)	11820 (79.0)
	(blank)	68 (0.5)	93 (0.6)
	Grand total	12660 (100.0)	14965 (100.0)
Drug sensitivity pattern	DSTB	12652 (99.9)	14953 (99.9)
	DRTB	8 (0.1)	12 (0.1)
	Total	12660 (100.0)	14965 (100.0)
Microbiological confirmation	Yes	11041 (87.2)	11239 (75.1)
	No	1619 (12.8)	3726 (24.9)
	Total	12660 (100.0)	14965 (100.0)

Table 3: TB profile on the basis of UDST Coverage, HIV and diabetic screening, and bank seeding in private patients of 2019 vs. 2020.

Parameters	UDST	Private sector (2019), N (%)	Private sector (2020), N (%)
UDST done	No	10657 (84.2)	6469 (43.2)
	Yes	2003 (15.8)	8496 (56.8)
	Grand total	12660 (100.0)	14965 (100.0)
HIV status	Non-reactive	4352 (34.4)	11473 (76.7)
	Reactive	13 (0.1)	44(0.0)
	Unknown	7781 (61.5)	3369 (22.5)
	(blank)	514 (4.1)	78 (0.5)
	Total	12660 (100.0)	14965 (100.0)
Diabetic status	Diabetic	187 (1.5)	1139 (7.6)
	Non-diabetic	2778 (21.9)	10469 (70.0)
	Unknown	187 (1.5)	469 (3.1)
	(blank)	9508 (75.1)	2888 (19.3)
	Grand Total	12660 (100.0)	14965 (100.0)
Bank seeding	Yes	7304 (57.7)	1821 (12.2)
	No	5356 (42.3)	13144 (87.8)
	Blank	0 (0.0)	0 (0.0)
	Total	12660 (100.0)	14965 (100.0)

Table 4: Treatment outcome of private patients in 2019 vs. 2020.

Treatment outcome	Private sector (2019), N (%)	Private sector (2020), N (%)
Success	8343 (65.9)	3170 (77.3)
Died	243 (1.9)	187 (4.4)
Lost to follow up	911 (7.2)	591 (14)
Others	3117 (24.6)	133 (3)
Blank	46 (0.4)	19 (0.4)
Grand total	12660 (100.0)	4100

No significant change was seen in gender notification by the private sector in 2019 vs. the private sector in 2020. The (Table 2) shows the proportion of extrapulmonary TB notifications increased from 11.2% in 2019 to 20.4% in 2020 private sector. No significant difference was seen in diagnosis on the basis of drug sensitivity. The same proportions of drug-sensitive TB were seen in both years private sector. 87.2% of patients were bacteriologically confirmed in the 2019 Private sector. There was a reduction in 2020.

There was a huge increase in UDST uptake in the private sector in 2020 as compared to 2019 observed in (Table 3). 56.8% of patients underwent UDST in 2020 private sector as compared to only 15.8% of patients in 2019. Only 22.5% of patients in the 2019 private sector had unknown HIV status as compared to 61.5% of patients in the 2020 private sector. Only 22% of patients in the private sector in 2020 had unknown or blank Diabetic status as compared to 76% of patients in the 2019 Private sector. Only 12.2% of patients had bank seeding in the private sector in 2020

as compared to 57.7% of patients in 2019. An improvement in treatment success was seen after the launch of PPSA from 65% in 2019 to 77% in 2020. However, there was an increase in the number of patients who died and were lost to follow-up after the launch of PPSA as well. The (Figure 1) explains that the median enrollment delay has decreased from 31 days in private patients in 2019 to 3 days in 2020. Treatment initiation delay has reduced from 1.6 days to 1.4 days in 2020 as compared to 2019.

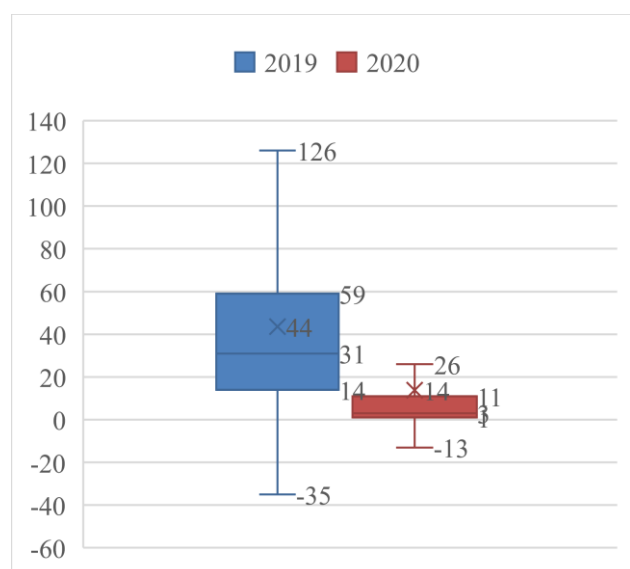


Figure 1: Enrolment delay.

DISCUSSION

As per the WHO Global TB Report (2020) in India, the percentage notification of TB from the private sector is about 31% of all TB notifications. About 46% of patients were found on the prevalence survey by private care providers.¹⁶ In the present study, there was a 25% decline in the notification of pediatric TB cases notified in the private sector for the year 2020 as compared to 2019. A similar result was reported in WHO 2021 report according to which between 2019 and 2020, there was a 24% decrease in notifications of TB cases among children, from 523820 to 399107.¹⁷ Possible reasons for decline in proportion of pediatric TB notification could be the effect of COVID in 2020 and also the increase in adult proportion of notification. Our study reported increased extrapulmonary TB notifications from 11.2% in 2019 to 20.4% in 2020 Private sector. A similar finding was seen in a study in Mumbai's private cohort of TB patients by Huddart et al.¹⁸ 87.2% of patients were bacteriologically confirmed in the 2019 Private sector. There was a reduction in 2020. These rates were much higher than the study by Huddart et al.¹⁸

Our study reveals a huge increase in UDST uptake in the Private sector in 2020 as compared to 2019. 56.8% of patients underwent UDST in 2020 Private sector as compared to only 15.8% of patients in 2019. This could be

one of the most pronounced attainments of PPSA. An escalation in UDST points toward a larger number of patients with accurate diagnoses based on their Rifampicin sensitive status, thus receiving precise therapy and decreasing in chances of the drug-sensitive cases being converted to resistant ones. A study by Gopinath et al on tuberculosis control measures in urban India strengthening the delivery of comprehensive primary health services which was a multi-centric study including 5 cities from 3 States (Maharashtra, Gujrat, and Karnataka), reported a much higher UDST performance in private sector facilities ranging around 88% in Bruhat Bengaluru Mahanagara Palike (BBMP) between 2018 and 2019.¹⁹

In the present study, only 22.5% of patients in the 2019 private sector had unknown HIV status as compared to 61.5% of patients in the 2020 private sector. Only 22% of patients in the private sector in 2020 had unknown or blank Diabetic status as compared to 76% of patients in the 2019 Private sector. A study by Paul et al on the public-private model to scale up DM screening while assessing TB showed 63% were cured with TB & DM.²⁰ Such a design recruited a highly representative sample of urban TB dwellers, similar to our study (77%). Similar findings of an increase in known HIV and diabetes status in TB Patients of the private sector were seen after the launch of the Private sector agency JEET (Joint Effort to Eliminate TB) in Patna and Mumbai in a study by Suseela et al.²¹ Only 12.2 % of patients had bank seeding in the private sector in 2020 as compared to 57.7% of patients in 2019. There are not enough studies on bank seeding. A possible reason for the drop in bank seeding could be the effect of COVID. Sumalata et al in their study in five districts of Telangana reported the delayed or incomplete seeding of Bank accounts into the TB surveillance system i.e., Nikshay as a potent barrier to the effective implementation of the Nikshay Poshan Yojana which is the direct benefit transfer scheme to aid nutritional support of TB patients.²²

Our study reported an improvement in treatment success after the launch of PPSA from 65% in 2019 to 77% in 2020. As per Dewan et al 85% of treatment success was seen in PPP, similar to our study (77.3%). As per the WHO (public private mix for TB care and control), private-public partnerships (PPP) have been helpful in decreasing the burden of TB in patients with HIV/AIDS.²³ There was an increase in the success rate of TB patients after the launch of PPSA and the same findings were seen in a study by Arinaminpathy et al.¹¹ A similar treatment success rate in private providers i.e., 60% in Bengaluru to 87% in Ahmedabad was reported in a study by Gopinath et al.¹⁹ A higher treatment success rate of 88% was seen by Rakesh et al²⁴ in a STEPS study done in 2019 which was a patient-centric and low-cost solution to ensure standards of TB care to patients reaching the private sector in India. There was an increase in the number of patients who died and were lost to follow-up (14%) after the launch of PPSA. Possible reasons could be the influence of COVID. Similar findings were seen by Gopinath et al where the loss-to-follow-up rate ranges from 10% in Surat to 0.5% in

Bengaluru in private providers.¹⁹ Our study witnessed a decrease in enrolment and treatment delay after the launch of the PPSA. Similar findings were seen in studies by Arinaminpathy et al and Deo et al which were studies done in Mumbai and Patna.^{11,25}

Limitations

Limitations of current study were the study compared TB outcomes of 2019 vs. 2020 i.e., before and after the launch of PPSA for TB care in private sector patients of Jharkhand. The impact of COVID which was seen in mid and later 2020, would certainly mask or confound the positive effect of PPSA.

CONCLUSION

PPSAs play an important role in the notification of TB patients. They have been instrumental in increasing the TB success rate and identifying and co-manage illnesses such as Diabetes and HIV that coexist with Tuberculosis. The number (% age) of patients notified by the Private sector has definitely improved. Though some studies by the WHO have pointed out certain fallouts in the Private sector agencies, such as reporting rates of new positives and treatment completion, and consequently the success is not optimal. These should be adequately addressed as a proper partnership of public and private sectors shall achieve the final goal of eliminating Tuberculosis.

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