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Original Research Article

Who found it easy to avail nutritional support through direct benefit transfer under national TB elimination programme in Eastern India: an early evidence from Jharkhand

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ABSTRACT

Background: National TB Programme of India launched Nikshay Poshan Yojana (NPY) through Direct Benefit Transfer (DBT) in April 2018, to provide financial support for additional nutritional requirement during TB treatment. This study aims to understand the enabling attributes in availing Nikshay Poshan Yojana (NPY) through Direct Benefit Transfer (DBT) among notified TB patients from the Indian state of Jharkhand for the year 2019.
Methods: This is a retrospective cross sectional descriptive study using secondary data obtained from Nikshay web portal for the Indian state of Jharkhand in the year 2019. State level data on TB Notification and NPY DBT scheme is downloaded from the Nikshay portal in excel format and analysed using Excel 2016 version. Odds Ratio and P value are calculated and analysed to prove any statistically significant associations.
Results: The study found higher odds (1.08, 95% CI: 1.03, 1.14; P value 0.004) of having patients who belong to 15 to 65 years, female sex (odds ratio 1.05, 95% CI: 1.01, 1.09; P value 0.018), seeking care in public sector (odds ratio 4.05, 95% CI: 3.83, 4.27; P value <0.00001) and with drug sensitive TB (DS TB) (odds ratio 1.39, 95% CI: 1.1, 1.59; P value <0.00001), among those who received at least one instalment of DBT.
Conclusions: TB patients belonging to productive age group, female sex, seeking care in public sector and with DS TB have higher odds of receiving NPY among the study population.

Keywords: Direct benefit transfer, National TB elimination programme, Nikshay poshan yojana

INTRODUCTION

Tuberculosis (TB) is a chronic infectious disease caused by Mycobacterium Tuberculosis (MTB). The disease poses challenges to the public health machinery of India. India accounts for 27 per cent of the global TB burden and 32 per cent global deaths due to TB.[1] The country has come up with a National Strategic Plan for Tuberculosis Elimination 2017-2025 to accelerate the efforts towards TB elimination in the country.[2] This strategic document was further updated and the latest version of National Strategic Plan to End TB in India 2020-2025 aims to achieve rapid reduction in TB burden, morbidity, and mortality to achieve Sustainable Development Goals (SDGs) of 80 per cent TB incidence reduction by 80 per cent and 90 per cent morality reduction by the year 2025.[3]

Nikshay Poshan Yojana (NPY) through Direct Benefit Transfer (DBT) under National TB Elimination Programme (NTEP), India

Undernutrition results in 55 per cent of the TB incidence in India.[4] To address undernutrition and improve TB treatment outcomes, the Government of India (GoI) has launched Nikshay Poshan Yojana (NPY), through Direct Benefit Transfer (DBT) under National TB Elimination Programme (NTEP) of India. In Sanskrit (an ancient Indian language), Nikshay means 'without Kshay or Tuberculosis', Poshan means nutrition and Yojana means scheme. So, in essence, Nikshay Poshan Yojana is a nutritional support scheme to root out Tuberculosis. NPY aims to provide financial support to meet the additional nutritional requirement during TB treatment. A benefit of Indian National Rupees (INR) five hundred per month is provided to TB patients for the entire duration of treatment. Every patient who is on TB treatment as on 1st April 2018 or later, is eligible for NPY irrespective of age, sex, type of health care provider, site of disease or drug sensitivity status.[5]

Bank account details of all TB patients are entered into Nikshay web portal by NTEP field staff. The details undergo a digital verification through Nikshay and Public Financial Management System (PFMS) of India with the concerned bank website. Once the account details are verified, NTEP staff process the benefits at the field level. These are further checked and approved at the district level by District TB Officers (DTOs). After the approval of DTO, payment is directly released into patient's bank account as Direct Benefit Transfer (DBT). Nikshay allows patients to 'forego' NPY benefits if they prefer to do so. In such instances, the web portal does not permit further financial transactions under NPY for that patient.[6]

Studies on individual and health system enablers of NPY is limited though there are few studies on the coverage and utilisation of the scheme. So, objective of this study was to understand the facilitating attributes in availing NPY through DBT among notified TB patients from the Indian state of Jharkhand.

METHODS

This is a retrospective cross sectional descriptive study using secondary data obtained from Nikshay web portal for the state of Jharkhand, for the year 2019. The year 2019 is selected to evade the impact of COVID-19 pandemic on the study. With the permission of the Medical Officer, State TB Training and Demonstration Cell (STDC), Jharkhand, state level data on TB Notification and NPY DBT scheme is downloaded from the Nikshay web portal in excel format. TB Notification data comprised of all the TB patients who were notified in Nikshay web portal and availed treatment from within the state of Jharkhand during the study period. NPY DBT scheme data is collected from Nikshay web portal for all TB patients who were given at least one payment under the scheme. The data is analysed using Excel 2016. The study did not collect primary data from any patients and does not reveal any personal identifiers. So, individual patient consent considered unnecessary for the study. Age group of 15 to 64 years are considered as productive age group in the study. All the other parameters and their definitions are taken as per the NTEP programme definitions according to the Technical and Operational Guidelines for TB Control in India 2016.[7]

RESULTS

There were 57,504 notified TB cases from Jharkhand for the year 2019 in Nikshay web portal.

General profile of notified TB cases of Jharkhand in 2019

Demographic profile

Table 1 shows that paediatric age group constitute 5.6 per cent (n=3225), productive age group constitute 80.5 per cent (n=50288) and TB patients above the age of 65 years constitute 6.9 per cent (n=3958) of the total notification in Jharkhand for the year 2019. Age information is not available for 0.1 per cent (n=33) notified TB cases. Males constitute 69.0 per cent (n=39655), females 30.9 per cent (n=17793) and transgender 0.1 per cent (n=56) of the total notification. Median age among males is 38 years and Inter Quartile Range (IQR) is 26 (25 to 51) years. Among female, median age is 30 years with IQR 24 (21 to 45) years. Median age among transgender is 32.5 years with IQR 26.75 (21.25 to 48) years. Among all notified TB cases, the median age is 35 years and Inter Quartile Range (IQR) is 26 (24 to 50) years.

Table 1: Demographic profile of notified TB cases of Jharkhand in 2019.

Age group	Sex-frequency (%)			Grand total-frequency (%)
	Male	Female	Transgender	
0-14	1757 (54.5)	1463 (45.4)	5 (0.2)	3225 (100.0)
15-64	34709 (69.0)	15533 (30.8)	46 (0.0)	50288 (100.0)
>65	3165 (80.0)	788 (19.9)	5 (0.1)	3958 (100.0)
Blank	24 (72.7)	9 (27.3)	0 (0.0)	33 (100.0)
Grand total	39655 (69.0)	17793 (30.9)	56 (0.1)	57504 (100.0)
Median age (IQR) yrs.	38 (25-51)	30 (21-45)	32.5 (21.25-48)	35 (24-50)

Table 2: Health sector and clinical profile of notified TB cases of Jharkhand in 2019.

Variable	Category	Frequency	Percentage
Type of healthcare provider	Public	44844	78.0
	Private	12660	22.0
Site of disease	Extra pulmonary	6779	11.8
	Pulmonary	49676	86.4
	(blank)	1049	1.8
Type of case	Drug sensitive TB (DSTB)	56488	98.2
	Drug resistant TB (DRTB)	1016	1.8
HIV status	Non-reactive	43048	74.9
	Positive	1	0.0
	Reactive	303	0.5
	Unknown	13223	23.0
	(blank)	929	1.6
Type 2 diabetes mellitus status	Diabetic	1434	2.5
	Non-diabetic	30178	52.5
	Unknown	4023	7.0
	(blank)	21869	38.0
Bacteriological confirmation (Yes/No)	No	28093	48.9
	Yes	29411	51.1

Table 2 shows the health sector and clinical profile of notified cases of Jharkhand in 2019. TB cases who took treatment from public sector constitute 78.0 per cent (n=44844) and private sector offered care to 22.0 per cent (n=12660) of the total notification. Pulmonary TB (PTB) contributes to 86.4 per cent (n=49676) of the total notification whereas Extra Pulmonary TB (EP TB) contributes to 11.8 per cent (n=6779) of the notification of Jharkhand. The site of disease remains blank for 1.8 per cent (n=1049) cases notified in the state for the year 2019. The state has notified 98.2 per cent (n=56488) DS TB episodes and 1.8 per cent (n=1016) DRTB cases. HIV non-reactive cases contribute 74.9 per cent (n=43048), followed by HIV status unknown cases with 23.0 per cent (n=13223) contribution, HIV reactive cases with 0.5 per cent (n=303) and HIV status not reported with 1.6 per cent (n=929) contribution in the total notification. Diabetic cases contribute to 2.5 per cent (n=1434), non-diabetic cases contribute to 52.5 per cent (n=30178) and cases with diabetes status unknown contributes to 7.0 per cent (n=4023) of the notification. Of the notified TB cases had, 51.1 per cent (n=29411) bacteriological confirmation of TB whereas 48.9 per cent (n=28093) of cases did not have a bacteriological confirmation of the disease.

Status of receipt of NPY through Direct Benefit Transfer (DBT)

Status of receipt of DBT among all notified TB cases of Jharkhand in 2019

As shown in Table 3, out of the total notified TB cases, 33.6 per cent (n=19335, 95 per cent CI= 33.2 per cent, 34.0 per cent) received at least one instalment of DBT. Remaining 66.4 per cent (n=38169, 95 per cent CI= 66.0 per cent, 66.8 per cent) of the TB patients did not receive any payment under NPY.

Table 3: Status of receipt of NPY through DBT among all notified cases of Jharkhand in 2019.

Received at least one DBT instalment (Yes/No)	Frequency	Percentage (95% CI)
Yes	19335	33.6% (33.2%, 34.0%)
No	38169	66.4% (66.0%, 66.8%)
Grand Total	57504	100.0%

Status of receipt of DBT based on demographic, health sector and clinical categories

Table 4 shows the status of receipt of DBT based on demographic, health sector and clinical categories. Among cases belonging to productive age group, 33.8 per cent (n=17018) received at least one instalment and 66.2 per cent (n=33270) did not receive any payment under NPY. Among other age groups, 32.1 per cent (n=2317) received at least one DBT instalment whereas 67.9 per cent (n=4899) did not receive any payment under NPY. Among female cases, 34.3 per cent (n=6106), males, 33.3 per cent (n=13211) and transgender cases, 32.1 per cent (n=18) received at least one DBT instalment. Of the patients who sought care in public sector, 39.2 per cent (n=17593) and in private sector, 13.8 per cent (n=1742) received at least one payment under NPY. Among pulmonary TB cases, 34.0 per cent (n=16906) and of the

total of 6779 extra pulmonary TB cases, 35.7 per cent (n=2422) received at least one DBT instalment. Those patients whose site of disease is not reported, 0.7 per cent (n=7) received at least one DBT instalment. Among DSTB cases, 33.7 per cent (n=19062) and DRTB cases, 26.9 per cent (n=273) received at least one instalment of NPY. Among 29411 bacteriologically confirmed cases, 35.8 per cent (n=10523) received at least one instalment under NPY.

Table 4: Status of receipt of DBT based on demographic, health sector and clinical categories.

Categories	Sub categories	Status of receipt of DBT – Frequency (%)	
		Yes	No
Age group	15-64 years (productive age group)	17018 (33.8)	33270 (66.2)
	Other age groups/ age not reported	2317 (32.1)	4899 (67.9)
Sex	Female	6106 (34.3)	11687 (65.7)
	Male	13211 (33.3)	26444 (66.7)
	Transgender	18 (32.1)	38 (67.9)
Healthcare provider	Public	17593 (39.2)	27251 (60.8)
	Private	1742 (13.8)	10918 (86.2)
Site of disease	Pulmonary	16906 (34.0)	32770 (66.0)
	Extra Pulmonary	2422 (35.7)	4357 (64.3)
	Blank	7 (0.7)	1042 (99.3)
Type of TB	DSTB	19062 (33.7)	37426 (66.3)
	DRTB	273 (26.9)	743 (73.1)
Bacteriological confirmation (Yes/No)	Yes	10523 (35.8)	18888 (64.2)
	No	8812 (31.4)	19281 (68.6)

Table 5: Association of DBT receipt status with demographic, health sector and clinical categories.

Variable	Category	Status of receipt of DBT		Odds Ratio (95% CI)	P value
		Yes	No		
Age group	15-64 years (productive age group)	17018	33270	1.08 (1.03-1.14)	0.004
	Other age groups & age not reported	2317	4899		
Sex	Female	6106	11687	1.05 (1.01-1.09)	0.018
	Male & transgender	13229	26482		
Healthcare provider	Public	17593	27251	4.05 (3.83-4.27)	<0.00001
	Private	1742	10918		
Site of disease	Extra Pulmonary	2422	4357	1.11 (1.05-1.17)	0.000108
	Pulmonary & site not reported	16913	33812		
Type of TB	DSTB	19062	37426	1.39 (1.21-1.59)	<0.00001
	DRTB	273	743		
Bacteriological confirmation (Yes/No)	Yes	10523	18888	1.22 (1.18-1.26)	<0.00001
	No	8812	19281		

Association of DBT receipt status with demographic, health sector and clinical categories

Table 5 shows the association of DBT receipt status with demographic, health sector and clinical categories. The odds of having patients who belong to 15 to 65 years are 1.08 (95 per cent CI= 1.03, 1.14) higher among those received at least one DBT instalment than those who did not receive any payment under the NPY scheme. The log of the odds ratio is 0.08. P value of the odd's ratio is 0.004. The odds of having females are 1.05 (95 per cent CI= 1.01, 1.09) higher among those received at least one payment of NPY than those who did not receive any payment under the NPY. The log of the odds ratio is 0.05. P value of the odd's ratio is 0.018. The odds of having patients who sought care in public sector are 4.05 (95 per cent CI= 3.83, 4.27) higher among those received at least one DBT instalment than those who did not receive any payment under the NPY. The log of the odds ratio is 1.4. P value of the odd's ratio is less than 0.00001.

The odds of having extra pulmonary TB cases are 1.11 (95 per cent CI= 1.05, 1.17) higher among those received at least one payment of NPY than those who did not receive any payment under the NPY. The log of the odds ratio is 0.11. P value of the odd's ratio is 0.000108. The odds of having DSTB are 1.39 (95 per cent CI= 1.1, 1.59) higher among those received at least one DBT instalment

than those who did not receive any payment under the NPY scheme. The log of the odds ratio is 0.33. P value of the odd's ratio is 6.1*10^-06. The odds of having patients with bacteriological confirmation are 1.22 (95 per cent CI= 1.18, 1.26) higher among those received at least one DBT instalment than those who did not receive any payment under the NPY scheme. The log of the odds ratio is 0.198. P value of the odd's ratio is 7.95*10^-27.

DISCUSSION

The study presents findings of analysis of TB patient's profile and the facilitating attributes in availing Nikshay Poshan Yojana (NPY) through Direct Benefit Transfer (DBT) among notified TB patients from the Indian state of Jharkhand for the year 2019. The study observed that demographic profile of notified TB cases of Jharkhand in 2019 is comparable with other studies conducted in lower- and middle-income countries with a median age (IQR) of 35 (24-50) years and male constituting 69.0 per cent of the notification. The proportion of TB patients who sought care in private sector is lower as compared to a similar study conducted in western India by Patel et al.[8] Clinical profile of notified TB cases of Jharkhand is comparable with other studies conducted in eastern India.

The proportion of notified TB cases of Jharkhand who received at least one instalment of NPY is 33.6 per cent (n=19335, 95 per cent CI= 33.2 per cent, 34.0 per cent) in 2019. This shows the poor uptake of NPY scheme in the state. As successful DBT provision involves complex individual and health system enablers, further studies need to be conducted to understand the bottle necks in achieving a wider coverage of NPY in Jharkhand.[9] The state needs to accelerate its efforts in facilitation NPY to TB patients seeking care in private sector as well as DRTB cases as the status of receipt of DBT in these two categories are alarmingly low-13.8 per cent and 26.9 per cent respectively.

Though the study did not look qualitatively into individual and health system enablers of NPY, it found higher odds (1.08, 95 per cent CI: 1.03, 1.14; P value 0.004) of having patients who belong to productive age group than those in extreme age groups, among those who received at least one instalment of DBT. Similar observation is found among female TB patients (odds ratio 1.05, 95 per cent CI: 1.01, 1.09; P value 0.018), patients who sought care in public sector (odds ratio 4.05, 95 per cent CI: 3.83, 4.27; P value <0.00001), EP TB (odds ratio 1.11, 95 per cent CI: 1.05, 1.17, P value 0.00011), DS TB (odds ratio 1.39, 95 per cent CI: 1.1, 1.59; P value <0.00001) and patients with a bacteriological confirmation (odds ratio 1.22, 95 per cent CI: 1.18, 1.26; P value <0.00001). These findings are comparable with the study of Patel et al in western India except for sex. So, it may be inferred that those female TB patients who could access TB diagnosis and care in Jharkhand may have 'individual enablers' in accessing public health action from NTEP than those women who could not access TB services and males or transgenders who could potentially access TB services. However, this may be studied further to throw more light into 'sex and access to TB diagnosis and treatment' services.

This study is limited to information available through NTEP data. The study neither examines the availability of bank account, nor the enablers of having a valid bank account among the study population. So, further studies need to be carried out to understand individual and health system enablers of NPY among TB patients.

CONCLUSION

The study concludes that the general and clinical profile of TB patients who took treatment in Jharkhand for the year 2019 is comparable with other studies from eastern India. Coverage of NPY in the state is not satisfactory, especially among DRTB cases and patients seeking care in the private sector. TB patients belonging to productive age group, female sex, seeking care in public sector and with DS TB have higher odds of receiving NPY among the study population.

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