International Journal of Community Medicine and Public Health
Iqbaal SD et al. Int J Community Med Public Health. 2024 Mar;11(3):1266-1271
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20240630

Original Research Article

Assessment of the utilisation of monetary aid and its indicators among patients on anti-tubercular treatment in north India: a cross sectional study

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Received: 19 January 2024
Accepted: 21 February 2024

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ABSTRACT

Background: A good dietary practices are for plays a crucial role in influencing recovery from tuberculosis and it is a modifiable risk factor. Adequate nutrition is needed for faster recovery along with proper drug absorption and other thermodynamics of drugs besides adherence to drug treatment. It helps in better weight gain besides others benefits. So, the government of India started Nikshay Poshan Yojana (NPY) and providing monetary aid in form of Direct Benefit Transfer since March 2018 for patients. As there are very few studies which have tried to analyze and explore the effect of direct monetary benefits in many schemes. Aim and objectives of current study was to assess monetary support indicators and its utilization among TB patients.
Methods: A cross-sectional study was conducted where the patients were taken using sequential sampling from Designated Microscopic Centers from January 2020 to December 2021. Data was analyzed using SPSS 20.0 and results were presented in tabular form.
Results: Approximately 63.9% patients received Direct Benefit Transfer money. Approximately 69.5% of those who received money used it. However, no significant association ascertained between DBT money used and under-nutrition.
Conclusions: Knowledge about TB and DBT should be provided through already existing ICT tool. Purpose of DBT money should be stressed at initiation of treatment to eliminate TB by 2025 as envisioned under National TB elimination program.

Keywords: Direct benefit transfer, Tuberculosis, Nutritional status, Nikshay, Nikshay Poshan Yojana, Monetary aid, Cash benefit

INTRODUCTION

Tuberculosis (TB) is one of the oldest diseases known to mankind and a formidable challenge for the public health across the world. 45% of the world TB burden is in South-East-Asia region with India has around one fourth of total global TB burden, of which 55% is attributed to under-nutrition.[1] A good dietary practice plays crucial role in recovery from tuberculosis as it is a modifiable risk factor.[2] Nikshay is a web-based application of information and communication technology (ICT) which serves as a National TB Patient Information management tool for all types of TB patients. Patients with active TB need 20-30% more energy hence nutritional requirement

significantly increases but TB as such decreases the appetite leading to weight loss.[3] The scheme called "Nikshay Poshan Yojana" (NPY) was launched in April 2018 by the government of India. NPY was launched under the aegis of Ministry of Health and Family Welfare (MoHFW) under the National TB elimination program (NTEP). In the NPY monetary aid in the form of direct benefit transfer (DBT) is provided so that TB patients can fulfil their increased nutritional need. The DBT provides 500 rupees per month to the notified TB patients for the duration of their treatment.[4] Only few studies have been conducted to assess DBT among TB patients in India. We planned a cross- sectional study about monetary aid indicators and its utilization among patients on anti-tubercular treatment in Aligarh district.

METHODS

This was a cross-sectional study and conducted at four selected DMCs and its DOTS centre in Aligarh district between January 2020 to December 2021 on patients undergoing anti-tubercular treatment. The study was conducted on patients aged between 18 completed years to 60 years, those who ready to give consent. Patients who were not ready to give consent and having comorbidity like HIV, DM, and condition like pregnancy excluded from study. Sequential sampling method was used which is complex. The ultimate size of the sample in this method can't fix in advance. Whenever a particular group of samples selected or rejected on basis of a single sample, it is known as single sampling. In same way if decision is rest on two samples, it is called double sampling and if decision rest on three samples it is called multiple sampling. However, if number of samples is more than two but it is neither certain nor decided in advance, this type of system it referred as sequential sampling. In brief, one can go on taking samples one after another as long as one needs to do so.[5] The face-to-face interview schedule was pre-tested by performing a pilot study to assess the feasibility and appropriateness of the research instruments and methods to be used in the study. The questions were asked in locally known language in Hindi which is understood and well-spoken in the area. Rapport was built for in depth better communication skill through interview. Based on the result of pre-test exercise, the interview schedule was modified according to the response elicited and the words used in the questionnaire were modified to suit them to be easier to understand for the participants. Pretested and predetermined oral questionnaires encompassing the various aspects of patient particulars with their housing characteristics relevant to study was recorded. The indicators related monetary utilization along with their and knowledge and use of a few services: TB Aarogya sathi, Nikshay Sampark, provided through ICT among TB patients was studied. Dietary history, clinical profile and nutrition oriented clinical examination including anthropometry along with others appropriate task was also performed. The questionnaire collected information about the socio-demographic characteristics among the study population along with indicators related to monetary utilization. COVID-19 appropriate protocol followed while interviewing the participants (patients and caregiver). Informed consent was taken from the participants and confidentiality was ensured. They were also informed about DBT provided under NPY if they were unaware about it.

Statistical analysis

The procedure recommended for data collection was followed strictly. The data collected were checked on daily basis manually for its completeness and consistency for quality control. The data collected during the study was entered in Statistical Package for Social Sciences (IBM SPSS Inc., an IBM Company, Chicago, IL, USA) version 20.0.and analyzed that was provided by university. For descriptive statistics: Frequency, Percentage, Proportion, Mean and Standard Deviation, Graphs, and Cross Tabs were used to summarize the variables in present study and deduce results. Association was ascertained through Chi-square test and other appropriate statistical test. A variable with P value <0.05 was considered significant

RESULTS

The mean age of the patient is found to be 31.60 (SD±11.8) years of age. Majority of cases (62.4%) were in the age group of (18-30) years and followed by (15.1%) in 41-50 years. Approximately half (53.4%) of the TB case in our study was in the males while in female this was 46.6%. Majority (67.6%) of participants were married while unmarried comprises 32.4% of the study population. Majority of patients (56.3%) were from Hindu community. The percentage of Muslim was 42.7%. In our study majority (62.4%) of the patients are from general category. Other backward caste comprises 25.9% while Schedule cast and schedule tribe comprise 11.7% altogether. The data on the educational status reveals a decreasing trend of TB cases with increase in level of education. The illiterate 38% participants were illiterate whereas 24.1% studied up to primary level. Around 19.8% were at high school, 8.3% up to intermediate 5.9% up to graduate while 3.9% with post graduate and above degree. 42.2% of patients were residing in rural areas whereas those in urban slum areas accounted for 39.5% of total population. Only 18.3% of population was living in the urban areas in the current study (Table 1).

Table 1 shows that majority (61.7%) of the patients were unemployed, followed by unskilled (25.9%) and semi-skilled (7.8%). The skilled comprise (1%) of population, semi-professional were (3.4%) while professionals were (0.2%).46.8% have ≤5 members while majority of family size (53.2%) with >5 members in the family. Majority (64.9%) of participants were from nuclear family. Overcrowding was present in majority (62.2%) of household while ventilation while ventilation was adequate in 63.2% of home.

Table 1: Socio-demographic profile of study population (n=410).

Characteristics	N	%
Age (years)		
18-30	256	62.4
31-40	55	13.4
41-50	62	15.2
51-60	37	9.0
Gender		
Male	219	53.4
Female	191	46.6
Religion		
Hindu	231	56.3
Muslim	175	42.7
Others	4	1.0
Caste		
General	256	62.4
OBC	106	25.9
SC and ST	48	11.7
Education		
Illiterate	158	38.0
Primary level	99	24.1
High school	81	19.8
Intermediate	34	8.3
Graduate	24	5.9
Post graduate and above	16	3.9
Marital status		
Married	277	67.6
Unmarried	133	32.4
Occupation		
Professional	1	0.2
Semi-professional	14	3.4
Skilled	4	1
Semi-skilled	32	7.8
Unskilled	106	25.9
Unemployed	253	61.7
Locality/area		
Rural	173	42.2
Urban	75	18.3
Urban-slum	162	39.5
Family size		
≤5	192	46.8
>5	218	53.2
Family type		
Nuclear	266	64.9
Joint	53	12.9
Third generation	91	22.2
Overcrowding		
Yes	255	62.2
No	155	37.8
Ventilation		
Adequate	259	63.2
Inadequate	151	36.8
Regular income		
Yes	280	68.3
No	130	31.7
Social class		
Class-I	13	3.2

Continued.

Characteristics	N	%
Class-II	67	16.3
Class-III	91	22.2
Class-IV	192	46.8
Class-V	47	11.5
Distance of health facility (single trip) (km)		
≤5	283	69.0
>5	127	31.0
Travelling time (single trip) (minutes)		
≤30	283	69.0
>30	127	31.0
Total	410	100

Majority (68.3%) of the participants in the study were with regular income while rests were of the patient's families with no regular income. The data on socioeconomic class (modified BG Prasad) reveals that class-IV makes up (46.8%) followed by class-III (22.2%), then class-II (16.3 %).

Table 2: Adequate prerequisites to avail monetary support present among TB patients (n=410).

Characteristics		N	%
Nikshay ID	Yes	391	95.4
	Not yet allotted	19	4.6
Bank account (Personal or acquaintances)	Yes	316	77.1
	No	94	22.9
Aadhaar card	Yes	381	92.9
	No	29	7.1
Mobile phone	Yes	404	98.5
	No	6	1.5
Have smart phone	Yes	184	44.9
	No	226	55.1

Table 3: Indicators of monetary support and knowledge TB patients (n=410).

Characteristics		N	%
Knowledge and use of TB Aarogya Sathi App	Yes	0	0.0
	No	410	100
Knowledge and use of Nikshay Sampark (1800-11-6666)	Yes	0	0.0
	No	410	100
ICT based calling Received	Yes	294	71.7
	No	116	28.3
Knowledge about DBT	Yes	320	78.0
	No	90	22.0
Know the purpose of DBT	Yes	192	46.8
	No	218	53.2
DBT money received (at least one benefit)	Yes	262	63.9
	No	126	30.7
	NK/NA	22	5.4

The social class-V were (11.5%) while class-I makes up least (3.2%) of the group. Data on distance of health facility (single trip) in kilometres for ATT for patients reveals that majority (69.0%) were travelled ≤5 kms while rest took >5 kms to avail the health facility. The travelling time (single trip) in minutes to avail the health facility for majority (69.0%) of the patients was taking ≤30 minutes and for rest >30 minutes to reach health facility. The present study noted that most (95.4%) of the patients had the Nikshay ID needed for the availing monetary support under Nikshay Poshan Yojana (NPY) by central government. Majority (77.1%) of the participants said that they have personal bank account to get monetary support through DBT in their account. Most of the patents 98.5% have mobile phone. However, only (44.9%) of participant have smart phone while rest 55.1% don't possess smart phone (Table 2).

Table 4: Utilization of received DBT money (n=262).

DBT money used for nutrition	N	%
Yes	182	69.5
No	80	30.5

It was found that no one either aware about or used TB Aarogya Sathi App which is an online platform for many of the services dedicated to the TB patients in spite of 44.9% among them have smart phone. This study also found that no one availed the facility of Nikshay Sampark "a call-based service dedicated to the TB patients" provided by central TB division as none of respondents were aware about it. Data on the ICT based calling received by patients shows that majority (71.7%) had received the call. The data depicts that knowledge about DBT were present in most of the TB patients (78.0%) while the purpose of DBT known to around 46.8%. This study found that DBT money was received (at least one benefit) by majority (63.9%) of the patients undergoing ATT while 30.7% didn't received. 5.4% didn't know the status of their DBT money (Table 3). The (Table 4) shows that 69.5% of the participants who had received at least one benefit of direct benefit transfer (DBT) under

Nikshay Poshan Yojana utilized it for nutrition. According to the annual report released from Central TB Division 2021, 62% beneficiary paid at least one benefit through DBT under NPY. The result from (Table 5) highlights that those who had used the received the money had lower percentage of under nutrition against who hadn't used DBT.

Table 5: Association of monetary support and nutritional counselling with recent nutritional status (n=262).

Characteristics	Under-nutrition		P value
	Present N (%)	Absent N (%)	
DBT used			
Yes	91 (50.0)	91 (50.0)	χ^2=1.253, df=1, p=0.263
No	46 (57.5)	34 (42.5)	
Nutritional counselling received			
Yes	113 (51.4)	107 (48.6)	χ^2=0.466, df=1, p=0.495
No	104 (54.7)	86 (45.3)	

Same pattern noted for nutritional counselling and under-nutrition. Although no statistically significant association proved for both the characteristic in spite of a good hope of improvement what its intended for.

DISCUSSION

The study found that most 95.4% of the patients have the Nikshay ID needed for the availing monetary support under NPY by government. Rest of the participants yet not allotted the Nikshay ID as few patients had not submitted required documents till the time of interview. Around three-fourth (77.1%) of the participants said that they have personal bank account which was needed to get monetary support through DBT in their account. There were good number 94 (22.9%) of patients without personal bank account and poses a hurdle in directly accessing their monetary support provided for nutrition. In a study done in Vadodara, Gujrat by revealed that around 53.9% (985) participants have bank account which is lower than current study and it might be due to different study setting which leads to low access to banking services there.[6] Almost all (98.5%) of the patents had mobile phone which is needed for providing digital services through use of information and communication technology. A significant portion 44.9% of participants have smart phone but none of them used for TB Aarogya Sathi application which shows lack of awareness and knowledge among patients. Lack of awareness substantiated by result of knowledge and use of these services which shows that no one know about either TB Aarogya Sathi app or Nikshay Sampark (1800-11-6666) digital services. In a study done in Vadodara, Gujrat revealed that around 53.9% (985) participants have bank account. A total of 42.2% (771) patients had received at least one instalment of which 75.0% (578) received full amount. Proportion of beneficiary who received benefit from public sector was higher with respect to private sector (70.5% vs. 11.1%) with p value (<0.0001). Around 21.7% (214) of patients with bank account (985) not received DBT while 7.3% (49/671) got only single installment.[7] The current study was found that no one used TB Aarogya sathi App which is an online platform for many of the services dedicated to the TB patients in spite of 44.9% among them have smart phone. This study also found that no one availed the facility of Nikshay Sampark "a call-based service dedicated to the TB patients" provided by central TB division. ICT based calling received by nearly three-fourth (71.7%) of patients. The data depicts that knowledge about DBT were in majority of the TB patients (78.0%) but the purpose of DBT known to nearly half 46.8% of the participants. Present study found that DBT money; at least one benefit, received by majority (63.9%) of the patients undergoing ATT. There are many hurdles noted in availing DBT monetary assistance like, unavailability of personal bank account, Aadhar, mobile phone and delayed allotment of Nikshay ID among others. The data of Central TB division shows that fund released under NPY through DBT to only 62% of eligible beneficiary (at least one benefit) which is in strikingly similar to our study. In a study done in Vadodara, Gujrat revealed that around 42.2% (771) patients had received at least one instalment as monetary aid which is lower than our finding which is evident as in that study only 53.9% of subject had bank account needed to receive the monetary aid.[6] Study done in Puducherry on cash assistance scheme of Janani Suraksha Yojana had shown that 46% of eligible beneficiary received cash transfer while rests were devoid of it. However, only 56.1% of beneficiary had received cash benefit and utilized it.[8] A try to explore the effect of cash transfer as means of social protection through Bosla familia protection (BFP) as means to reduce catastrophic costs on TB patients undergoing ATT. A total of 2167 patients enrolled in study and it is found that there is high success rate of 10.58% higher in group who receives monetary aid than the TB patient who does not received the cash benefit.[9] In a study for assessment of utilization of DBT money proved that nearly half (52.6%) of interviewed patients received cash benefit which is similar to our study. The unavailability of bank account and non-linked bank account with aadhar card was the major reason for not availing DBT money among others.[10] The current study observed that those who had used the received the money had low incidence of undernutrition than who don't utilizes the monetary aid

for nutrition. However, statistically significant association not proved for utilization of cash benefit and improvement in nutritional status. A Study reported that financial incentives had significantly improved the health outcome.[11] Paton in their study proved that nutritional supplementation had significantly associated with nutritional status as p=0.001 was observed.[12]

CONCLUSION

Knowledge about TB and DBT should be provided through already existing ICT tool. Purpose of DBT money should be stressed at initiation of treatment to eliminate TB by 2025 as envisioned under National TB elimination program.

ACKNOWLEDGEMENTS

Authors sincerely thanks to patients and other people who cooperated during study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Iqbaal SD, Ansari MA, Abedi AJ, Mehnaz S, Shamsi J. Assessment of the utilisation of monetary aid and its indicators among patients on anti-tubercular treatment in north India: a cross sectional study. Int J Community Med Public Health 2024;11:1266-71.