

ORIGINAL ARTICLE

Financial incentive- Does this have impact on outcome of Tuberculosis?**Bhavesh V Modi¹, Bhautik Modi², Paresh V Dave³**¹Associate Professor; Department of Community Medicine, GMERS Medical College, Gandhinagar, Gujarat; ²Associate Professor, Department of Community Medicine, Dr. N. D. Desai Faculty of Medical Sciences and Research, Dharamsinh Desai University, Nadiad, ³Ex-Additional Director (Public Health), Government of Gujarat[Abstract](#)[Introduction](#)[Methodology](#)[Results](#)[Conclusion](#)[References](#)[Citation](#)[Tables / Figures](#)**Corresponding Author**Dr. Bhautik Modi, A/402, Prathna Greens, Near Sargasan Cross roads, KH road, Sargasan, Gandhinagar – 382421, Gujarat
E Mail ID: dr.bhautikmodi@gmail.com**Citation**

Bhavesh MV, Bhautik M, Paresh DV. Financial incentive- Does this have impact on outcome of Tuberculosis? Indian J Comm Health. 2020;32(2):418-422.

Source of Funding: Nil **Conflict of Interest:** None declared**Article Cycle****Received:** 04/05/2020; **Revision:** 27/05/2020; **Accepted:** 09/06/2020; **Published:** 30/06/2020This work is licensed under a [Creative Commons Attribution 4.0 International License](#).**Abstract**

Background: Although most public services provide tests and TB drugs free of charge worldwide, opportunity costs pose barriers to accessing TB services and treatment. 'Kumar Raajratna Bhimrao Ambedkar Vaidakiya Sahay Yojana (KRBAVSY)' popularly known as Free Medical Aid Scheme is in operation in Gujarat since early 70s for SC and since 1991 for SEBC to provide monetary incentive. **Primary objective:** Evaluation of utilization and effectiveness of Financial incentives given under Free Medical Aids scheme on RNTCP in Gujarat. **Methodology:** A retrospective cohort study was undertaken in which all TB patients registered under RNTCP in Gandhinagar district were evaluated for their eligibility for KRBAVSY scheme, and whether eligible patients got benefit or not. Also, treatment outcome of patients were compared. **Results:** Out of total 1430 patients inquired, 896 (62.7%) patients were found eligible for the scheme, while only 87 (9.7%) patients confirmed that they had got the benefit of scheme. Eligible patients who got benefit under scheme had almost five times higher odds of successful outcome of TB treatment. **Conclusion:** The TB patients who got benefit of KRBAVSY scheme had significantly better successful treatment outcome in comparison to the TB patients who did not get benefit.

Keywords

RNTCP; Tuberculosis; Financial Incentive

Introduction

World Health Organisation's (WHO) End TB Strategy has set the target for TB elimination globally at 2035.(1) But India has set its own target for TB elimination a decade earlier that is at 2025. Tuberculosis, which mostly affects the poorest of the poor, is an example of a disease that can substantially contribute to the disease poverty trap.(2,3,4) Although most public services provide tests and TB drugs free of charge worldwide, other indirect and opportunity costs pose barriers to accessing TB services.

The newly enhanced Stop TB Strategy builds on knowledge of what is needed to deliver effective tuberculosis care in the increasingly complex environment of drug-resistant TB and HIV/AIDS co-infection.(5,6,7,8)

Gujarat state TB control programme have taken several initiatives to enhance case detection and treatment

adherence, one of which is linking TB patients to the 'Kumar Raajratna Bhimrao Ambedkar Vaidakiya Sahay Yojana (KRBAVSY)' popularly known as Free Medical Aid Scheme. This scheme provides monthly monetary incentives to patients of AIDS, TB, Cancer and Leprosy. The beneficiaries of this scheme are registered TB patients under RNTCP, who belong to Schedule Caste(SC), Schedule Tribe(ST), Socially and Economically Backward(SEBC) or Economically Backward Class(EBC) and having annual income less than Rs. 27,000 in Rural area; while less than Rs. 36,000 in urban area. KRBAVSY provides monthly Rs. 500 as free medical aid. This scheme is in operation since early 70s for SC and since 1991 in SEBC and EBC. However, there are no data available on utilization of KRBAVSY by RNTCP program and impact of the same on the program indicators.

Aims & Objectives

Primary objective

- Evaluation of utilization and effectiveness of Financial incentives given under Free Medical Aids scheme on RNTCP in Gujarat.

Other objectives

- To measure the enrolment-eligible ratio of Free Medical Aids scheme of RNTCP registered TB patients.
- To assess the effect of Free Medical Aids scheme on TB outcome.
- To identify the present issues for implementation of Free Medical Aids scheme under RNTCP and possible solutions for the same.

Material & Methods

Study Type: To fulfil the objectives of the study, retrospective cohort study design was undertaken.

Study Area: The present study was done in Gandhinagar district of Gujarat, India.

Study Population: Tuberculosis patient registered under RNTCP in Gandhinagar district of Gujarat of the year 2014-15 forms the study population.

Sample size: From TB Register, all patients registered under RNTCP in Gandhinagar district in the year 2014-15 were considered as a cohort. And this cohort was inquired and analysed.

Method of data collection: List of all RNTCP registered TB patients for the year of 2014-15 and TB Register for the year of 2014-15 were procured from office of District TB cell, Gandhinagar. All patients registered under RNTCP in Gandhinagar district in the year 2014-15 were contacted by telephone. Patients not having telephone number on record, their DOT provider were contacted. The basic information like caste and total income were inquired and their eligibility for Mafat Tabibi Sahay was evaluated. Questions regarding getting benefit of the scheme were asked to all eligible patients. In addition to this, eligible patients were also inquired regarding reasons for not getting benefit. Treatment outcome and related definitions used in the study were as per standard RNTCP guidelines.

Ethical Considerations: Permission of respective departments of Government and Institutional Ethical Committee of GMERS Medical College, Gandhinagar was obtained to conduct the study.

Informed verbal consent in local language was taken on telephone before enrolling them in the study. In case of minors patients, informed verbal consent of one their parents was taken. Participants those not willing to give consent were excluded. Confidentiality of all data at all levels was maintained strictly.

Results

There were total 1860 patients registered under RNTCP from 1st April 2014 to 31st March 2015 in Gandhinagar, Gujarat. This formed the study cohort for present study. Baseline and demographic parameters of the patients are shown in (Table 1). Highest number of patients. Around 46% of patients were from age group of 21 to 40 years. Around 16% patients were of age less than 20 years. The cohort of TB patient show that 65.5% patients were male and 34.5% were female. There were total 1321 (71%) patients of Category I and 539 (29%) patients of Category II in study cohort.

Out of total 1860 patients, total 1125 patients were having contact details (mobile number) on record. For the patients, whose mobile numbers were not available (735), their DOTS providers were contacted to trace them. Additional 305 patients were traced through DOTS providers. So, during the study, total 1430 patients (77%) contacted telephonically to review their eligibility for the scheme and to confirm whether eligible patients got the benefit of the scheme or not.

Out of total 1430 patients inquired, 896 (62.7%) patients were found eligible for the scheme. 394 (27.6%) patients were not eligible for the scheme. Status of total 140 (9.8%) patients were not known as their complete information were not available. Out of total 896 patients only 87 (9.7%) patients confirmed that they had got the benefit of scheme.

(Table 2) shows that out of total 87 patients got benefit of the scheme, 85 (97.7%) patients were having successful treatment outcome. Out of total 809 patients who were eligible for the scheme but did not get the benefit, 728 (90%) patients were having successful treatment outcome and 81 (10%) patients were having unsuccessful treatment outcome.

(Table 3) proves that there was not any statistically significant difference in TB Category of eligible patients who got benefit of scheme. There was a statistically significant difference between Treatment Outcome of TB patients eligible getting benefit of scheme or not (p -Value < 0.05). Eligible patients who got benefit were more than four times more common among patients having a successful outcome of treatment. [Odd's Ratio - 4.724 (1.354 - 29.08)].

(Table 4) represent comparison of treatment outcome between patients who got benefit of the scheme and who did not get benefit of the scheme which also includes all patients those not eligible for the scheme. Eligible patients who got benefit were more than four times more common among patients having a successful outcome of treatment. [Odd's Ratio - 4.724 (1.354 - 29.08)]. Patients who got benefit of the scheme are 4.8 times more common among patients having a successful treatment outcome. [Odd's Ratio: 4.881 (1.413 - 29.87)] Table shows comparison of Treatment outcome between patients got

benefit of the scheme and were not eligible for the scheme. Patients got benefit of the scheme are 5.1 times more common among patients having a successful treatment outcome. [Odd's Ratio: 5.195 (1.452 - 32.46)]

(Table 5) depicted significant difference in outcome of treatment in patients who got benefit of the scheme in compare to patients who did not get benefit and patients who were not eligible for the scheme.

(Table 6) depict the reasons for not getting benefit according to patients. It was observed that around 29% of patients not got benefit due to they were not having proper document required for the scheme. Around 19% of patients were not having proper information regarding scheme. Around 25% of patients not got benefit because they had not filled the form.

Discussion

The present study was done among total 1860 patients registered under RNTCP from 1st April 2014 to 31st March 2015 in Gandhinagar, Gujarat to check the utilization and effectiveness of 'Kumar Raajratna Bhimrao Ambedkar Vaidakiya Sahay Yojana (KRBAVSY)' popularly known as Free Medical Aids scheme.

It was observed that around 46% of patients from age group of 21 to 40 years. Around 16% patients were of age less than 20 years. This finding suggested that Tuberculosis was mainly affect people during their maximum productivity. More interactions to outside world and more chances of getting infections could be the reason. Thus, Tuberculosis is ultimately affecting directly on economy of individual and of country. The cohort of TB patient show that 65.5% patients were male and 34.5% were female. This may be due to more outdoor activities of male and due to that more opportunity of getting infections.

Out of total 1430 patients inquired telephonically, 896 (62.7%) patients were found eligible for the scheme. 394 (27.6%) patients were not eligible for the scheme. Eligible patients who got benefit were four times more common among patients having a successful outcome of treatment. Patients eligible for the scheme but not getting the benefit were at risk of having unsuccessful outcome of TB treatment. Thus, outcome indicator of patients eligible for scheme was directly related to status of getting benefit. This finding proves that it is vital to channelize our effort to extend the coverage of scheme.

Patients who got benefit of the scheme are 4.8 times more common among patients having a successful treatment outcome. Many studies, nationally and internationally, also documented the same findings. Ciobanu A. et al shows that the main effect of patient incentives was observed in the reduction in loss to follow-up among TB patients. In addition, incentives reduced treatment failure rates moderately and death rates minimally, and this may also have been related to improved treatment adherence among patients. Among those who actually received

incentives, treatment success rates were around 95%. (9) Another study done in west Bengal, India also shows that incentive in terms of nutritional support is associated with greater treatment success.(10)

Income certificate and bank account are 2 major thing required to get benefit of scheme. Patients found difficulties in getting both of the things. These was the major reason for not getting benefit of the scheme. Around 19% of patients were not having proper information regarding scheme. This requires a strong awareness campaign for the scheme. Many times patients were aware of the scheme but didn't fill form. This also shows ignorance from the patients end. This area also needs proper attention. This can also be corrected by proper awareness campaign. Around 16% of patients had filled form but had not received benefit. Many times information and document provided by patients were not proper or complete and these patients left without getting benefit. Many times discrepancy in name of patients in their different documents occur. This may also be the reason for not getting benefit. This all issues need to address and require proper attention. Grass hood level workers like ASHA and TBHV should trained and give proper guidance and help to all patients to fill the form properly.

Conclusion

The TB patients who got benefit of Free Medical Aids (KRBAVSY) scheme had significantly better successful treatment outcome in comparison to the TB patients who did not get benefit. Also, TB patients who were eligible for the KRBAVSY scheme, but did not get the benefit were at risk of having more unsuccessful outcome of TB treatment compared to those eligible TB patients who got the benefit of the KRBAVSY.

Most common reason for not getting benefit under the KRBAVSY was non availability of proper documents required for the scheme, which was the main hurdle in increasing enrolment and utilization of the scheme. Other common reasons were - patients not having proper information regarding scheme, they had not filled the form, filled form but had not received benefit.

Recommendation

To improve enrolment and utilization of scheme, it is necessary to increase the awareness of scheme by proper IEC regarding benefits and eligibility criteria of the scheme at relevant places.

Limitation of the study

Because of time constrain, most of the patients interview were conducted telephonically. Non availability or wrongly mentioned telephone numbers in the records minimized our sample of telephonic interview. Telephonic interview also implies recall bias for this part of the study. There was no method to cross verify their income or caste and whether they have received benefit or not on

telephone. These were limitations during the telephonic interview.

Authors Contribution

All authors have contributed equally.

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Tables

TABLE 1 DEMOGRAPHIC PROFILE OF STUDY COHORT (N=1860)

| Variables | No. (%) |
|-----------------------|-------------|
| Age in years | |
| 0-10 | 61 (3.3) |
| 11-20 | 238 (12.8) |
| 21-30 | 463 (24.9) |
| 31-40 | 392 (21.1) |
| 41-50 | 344 (18.5) |
| 51-60 | 213 (11.5) |
| 61-70 | 112 (6.0) |
| >70 | 37 (2.0) |
| Gender | |
| Male | 1219 (65.5) |
| Female | 641 (34.5) |
| Category | |
| Category I | 1321 (71.0) |
| Category II | 539 (29.0) |
| Classification | |
| Pulmonary | 1521 (81.8) |
| Extra Pulmonary | 339 (18.2) |

TABLE 2 FINAL TREATMENT OUTCOME WISE DISTRIBUTION OF ELIGIBLE PATIENT

| Outcome | Eligible patients | | Eligible patients |
|---------------------|-------------------|---------------------|-------------------|
| | Got Benefit (%) | Not Got Benefit (%) | |
| Successful | 85 (97.7) | 728 (90.0) | 813 (90.7) |
| Cured | 56 (64.4) | 456 (56.4) | 512 (57.1) |
| Treatment Completed | 29 (33.3) | 272 (33.6) | 301 (33.6) |
| Unsuccessful | 2 (2.3) | 81 (10.0) | 83 (9.3) |
| Defaulted | 0 | 27 (3.3) | 27 (3.0) |

| | | | |
|--------------------|----------|-----------|-----------|
| Failure | 1 (1.1) | 1 (0.1) | 2 (0.2) |
| Switched to Cat-IV | 0 | 5(0.6) | 5 (0.6) |
| Transferred Out | 0 | 1 (0.1) | 1 (0.1) |
| Died | 1 (1.1) | 47 (5.8) | 48 (5.4) |
| Total | 87 (100) | 809 (100) | 896 (100) |

TABLE 3 STATISTICAL ANALYSIS OF FINAL TREATMENT OUTCOME WISE DISTRIBUTION OF ELIGIBLE PATIENT

| Variable | Eligible patients | | p-Value | OR (CI) |
|--------------------------|-------------------|-----------------|----------|------------------------|
| | Got Benefit | Not Got benefit | | |
| Category | | | | |
| Category I | 60 | 580 | 0.2943 | 0.8775 (0.546 - 1.435) |
| Category II | 27 | 229 | | |
| Classification | | | | |
| Extra Pulmonary | 13 | 136 | 0.3381 | 0.8695 (0.452 - 1.579) |
| Pulmonary | 74 | 673 | | |
| Treatment Outcome | | | | |
| Successful | 85 | 728 | 0.004702 | 4.724 (1.354 - 29.08) |
| Unsuccessful | 2 | 81 | | |

TABLE 4 STATISTICAL ANALYSIS OF FINAL TREATMENT OUTCOME WISE DISTRIBUTION OF ALL PATIENTS

| Treatment Outcome | Eligible Patient Got benefit | Eligible Patient not Got benefit | p-Value | OR (CI) |
|-------------------|------------------------------|----------------------------------|----------|--------------------------|
| Successful | 85 | 728 | 0.004702 | 4.724 (1.354 - 29.08) |
| Unsuccessful | 2 | 81 | | |
| Total | 87 | 809 | | |
| Treatment Outcome | Got benefit | Not got benefit | p-Value | OR (CI) |
| Successful | 85 | 1079 | 0.003434 | 4.881 (1.413 - 29.87) |
| Unsuccessful | 2 | 124 | | |
| Total | 87 | 1203 | | |
| Treatment Outcome | Got benefit | Non Eligible | p-Value | OR (CI) |
| Successful | 85 | 351 | 0.003277 | 5.195 (1.452 - 32.46) |
| Unsuccessful | 2 | 43 | | |
| Total | 87 | 394 | | |

TABLE 5 ANALYSIS OF FINAL TREATMENT OUTCOME WISE DISTRIBUTION OF ALL PATIENTS WHO GOT BENEFIT, NOT GOT BENEFIT OF THE SCHEME AND NON ELIGIBLE PATIENTS

| Treatment Outcome | Got benefit | Eligible not got benefit | Non Eligible | p-Value |
|-------------------|-------------|--------------------------|--------------|---------|
| Successful | 85 | 728 | 351 | 0.046 |
| Unsuccessful | 2 | 81 | 43 | |
| Total | 87 | 809 | 394 | |

TABLE 6 REASONS FOR NOT GETTING BENEFIT (N=809) (MULTIPLE RESPONSES)

| Reason | Number | Percentage |
|--|--------|------------|
| Not having document | 236 | 29.2 |
| Having information But form not filled | 205 | 25.3 |
| Not Having proper Information | 160 | 19.8 |
| Form filled but Not received benefit | 133 | 16.4 |
| Died | 46 | 5.7 |
| Left treatment | 14 | 1.7 |
| Migrated | 7 | 0.9 |
| No reason | 3 | 0.4 |
| Not interested in benefits | 5 | 0.6 |
| Total | 809 | 100.0 |