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Construction of Multidimensional Deprivation Index of a Small Sample of TB Patient Households in Ranchi District by Using Alkire-Foster Method

Neha Prasad[1]

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Abstract

The generation of official data has its own objective and scope of use. Naturally, official data has limitations when examining phenomenon beyond the scope. During my Ph. D. work, it was found that the official BPL data were not applicable for establishing the correlation between the prevalence of poverty and households of TB patients. But empirical investigation revealed evidence of a high correlation between poverty and TB. To understand this correlation, a customised Multidimensional deprivation index has been constructed. It adopts the analytical framework, namely 'Multidimensional Poverty Index' developed by Alkire and Foster. The construct was useful in attesting to the prevalence of the correlation between poverty and households of TB patients, which the official BPL data could not do. The data were collected from TB patients who visited selected TUs and DOT centres in the Ranchi district. Following Alkire and Foster's approach, nine indicators were used to prepare the customised index. As per customised MDI, a total of 74.8 per cent of households were Multidimensionally deprived, which validated the correlation between poverty and household of TB patients. The article undoubtedly justifies the use of an alternative approach to studying the incidence of poverty.

***Keywords*:**Deprivation Index of Small Group of Population, Methodology of Multidimensional Poverty Index

[1]Research Scholar, University Department of Economics, Ranchi University, Ranchi-834008, Jharkhand ,Email: neha.prasad100@gmail.com
*Corresponding author's email:*neha.prasad100@gmail.com

1.0 Introduction

During field work conducted from July to November 2014at public health units of the Revised National Tuberculosis Control Programme (RNTCP), in Ranchi district of Jharkhand for my Ph.D. assignment at Ranchi University, a crucial discrepancy was noticed. Families of a number of TB patients interviewed were not included in the Below Poverty Line (BPL) list. The patients outwardly were looking poor, and this was confirmed through further discussion with them. A few patients looked outwardly well-to-do, but they possessed the BPL card. Form discussion with them, it was confirmed that they were better off in comparison to others who were apparently poor. The observation and information contradicted the thesis that there is a high correlation between the incidence of tuberculosis (TB) and poverty (see Oxlade & Murray 2012, Nair et al. 1997, and Muniyandi et al. 2007).

Though this question was crucial, I did not invest time to examine it due to the compelling engagement in the time bound Ph. D. work. But I was certain that there were shortcomings in the BPL list. Given the BPL list, the correlation between the incidence of TB and poverty cannot be determined objectively with the TB patients interviewed. This problem captured my academic curiosity, and I searched for an alternative approach. In fact, I had examined some approaches during my Ph. D. work. From among the approaches, Alkire and Foster's (AF) method of Multidimensional Poverty Index (MPI), due to its some advantages over others, was found appropriate to construct a deprivation index to demonstrate the correlation between poverty and the households of TB patients. Its advantages lie in the fact that its use is sample-neutral, flexible in the selection of variables (dimensions and indicators), and more importantly, not bounded by income and expenditure data.

The present article is an attempt aimed to add to the existing literature on the correlation between poverty and households of TB patients.

The study is primarily a preliminary engagement in the construction of a Multidimensional deprivation index (MDI) of the households of TB patients conveniently selected in Ranchi district. This exercise is taken up to fill the gap created due to the inadequacy of BPL data to cover households of TB patients. The study is primarily based on the works included in the volume titled *Multidimensional poverty measurement and analysis,* edited by S. Alkire and five other authors and published in 2015 and data collected by interviewing the TB patients.

1.1 Why AF Method?

A number of methods based on approaches of income, consumption, expenditure, capability, and asset-holdings are used to measure the level of poverty. These methods use data on a fixed set of indicators. When data on fixed sectors of indicators are not available, they lose their applicability. Besides, most of these methods measure one or the other

dimension of poverty, not multiple dimensions of poverty of households. Of these available methods, the Standard of Living Index (SLI) devised by National and Health Survey Family-2 (NFHS-2) (IIPS 1989-99), Kuppuswami socio-economic scale (Wani 2019), Wealth Index (Filmer and Pritchett 2021), BPL Census (2002)'s thirteen criteria (GoI 2009), and Socio-economic Caste Census 2011 (GoI2011)'s criteria are commonly used to study poverty and deprivation. A relatively new approach, called "Multidimensional Poverty Index (MPI)" (also known as the AF method after S. Alkire and J. E. Foster who advanced it in 2007), is also used because of its advantages over others in several ways. The method is easy to apply and examines multiple dimensions of poverty. It is adaptable in different circumstances as per the availability of quality data. It can be applied to small samples too. The most promising advantage of the AF method is that the number of dimensions and indicators can be chosen as per the availability of data without compromising the quality of the index (Alkire et al. 2015). In other words, the number of dimensions and indicators required to use this method are alterable and decomposable. It also gives options to present the findings (share of multidimensionally deprived households) in percentage and scores under each dimension separately and aggregately.

Besides, the AF method can identify vulnerable households more appropriately than income, consumption, or expenditure-based methods (UN 2017). It is very effective for designing targeted Government programmes as it can pinpoint the level of deprivation of households in several dimensions and indicators precisely (UNDP 2019). Generally, the selection of the most suitable set of indicators that can explain the level of deprivation confronted by households in the most appropriate way is a daunting task (Wagle 2009 and Santos 2019). But the AF method overcomes the challenges because it provides flexibility to alter the number of dimensions and indicators. The biggest criticism against it is that it measures the level of poverty within three dimensions (Alkire and Foster 2011). This criticism, however, loses validity as the method provides flexibility in the selection of dimensions and indicators. There are noticeable variations in the number and types of indicators. We can cite the example of the *NITI Aayog* (GoI 2021) of India, which has used twelve indicators instead of ten under the same three dimensions for measuring the MPI in India.

The AF method, though recently advanced, is applied in the measurement of national level poverty in several countries. Alkire and Seth (2009) have applied the AF method to the data collected during NFHS in India and established that it is capable of mitigating the methodological flaws of the BPL census. Similarly, Naveed and Islam (2010) also applied the AF method to the data collected under Pakistan's poverty census, which showed some computational errors in poverty measurement. The use of data applying the AF method provided better result. So, the authors concluded that the AF method, using the same set of data, is fairly capable of mitigating the computational errors. The governments of Mexico and Columbia have adopted the AF method for the measurement of national poverty. So far, a number of countries (Alkire et al. 2017) have adopted the AF method for measuring the level of poverty**.**

1.2 Methodology

In view of its increasing application, the AF method is selected to construct the poverty index of households of the TB patients, following the approach, steps, etc. from Alkire et al. (2015). The authors across several works have explained in detail the introduction, history, data sources, advantages, limitations, challenges, applications, and world-wide use of the AF method in the measurement of national poverty of countries. All the chapters are written by different groups of writers based on empirical data collected in different countries. Two chapters, Chapter Four by Alkire et al. (2015a) and Chapter Five by Alkire et al. (2015b), are quite helpful in understanding the methodological aspects of MPI. Step-by-step guidance and video tutorials are also available on the website of the "Oxford Poverty Human Development Initiative (OPHI)".

1.2.1 *Area, Population and Sample Size of Study*

The study was carried out in the Ranchi district of Jharkhand. Owing to a TB sanatorium and having the largest number of "Designated Microscopy Centre" (DMC) in Jharkhand, the district has the largest number of TB patients' registration in the state under the "Revised National Tuberculosis Control Programme" (RNTCP). There were seven Tuberculosis Units (TUs), 25 DMCs, and 856 DOT centres under Ranchi RNTCP. The RNTCP (see table 1) has specific units for services: DTO – TU – DMC – Health-Sub-Centre – DOT Centre. A patient might have to visit each unit as per the treatment profile. The probability of meeting a TB patient is high at DOT Centre as the patient has to visit it thrice a week to take the medicines. Interviews were taken at TUs, DMCs, SHCs, and in the hospitals. The four TUs - Sadar and Doranda from the urban area and Mandar and Itki from rural areas with the largest number of TB patients were selected for the primary survey.

Interviews were conducted from July to November 2014, and a total of 130 patients were interviewed during the period. The patients were interviewed as respondents from their respective households.

Table 1: Ranchi District RNTCP Profile, 2013

No	TB Unit	Total Population (in lakh)	DMC	DOT* Center	ACDR** of Patients	Average Registered Patients
1	Sadar	672449	2	NA	83	147.42
2	Kanke	270309	3	NA	70	NA
3	Doranda	659962	3	NA	67	120.42
4	Mandar	448192	4	NA	100	112.25
5	Bundu	318901	3	NA	90	78.67
6	Itki	377042	5	NA	135	83.42
7	Angara	356133	5	NA	111	196.25
Total	**Ranchi DTC**	**3102988**	**25**	**856**	**91**	**118.20**

***Source*:** Annual Report of RNTCP 2014
**ACDR – Annual Case Detection Rate*
*** The number of DOT Centres keeps on changing as per availability of patients*

1.2.2 *Ethical Concerns*

To conduct interviews with the TB patients registered under Ranchi RNTCP, written permission was obtained from the Ranchi District Tuberculosis Officer (DTO). Every patient was verbally informed in advance about the objectives of the study. The interviews were conducted only after receiving their consent. Only seven out of 130respondents refused to be interviewed due to time constraints. Due to incomplete data, these seven samples were dropped.

1.3 MPI: Analytical Framework

The "Multidimensional Poverty Index" (MPI) was developed jointly by the "United Nations Development Programme" (UNDP) and Oxford University. It is also known as the "Alkire and Foster" (AF) method, as developed by Sabina Alkire and James Foster (2007). The AF's MPI method is constructed using two approaches: capability approach and asset approach. Methods like income and expenditure are excluded from this construct.

Three dimensions of the socio-economic profile of population -**Health**, **Education,** and **Living Standard,** are used in it to measure the deprivation level of households. The indicators selected under health are **nutritional status** and **child mortality rate**. Under education, two indicators – **years of schooling** and **enrolment status of children** are included. Under the living standard dimension, a total of six indicators - **cooking fuel**, **sanitation**, **drinking water**, **electricity**, **type of floor,** and **assets holding** are included.

The formula for MPI is: MPI = H×A
H= Incidence of Poverty
A = Intensity of Poverty; where,

Incidence (H): the proportion of the population who are Multidimensional poor. It is sometimes called the "poverty rate" or "headcount ratio".
Intensity (A): the average percentage of indicators in which poor people are deprived of three dimensions of poverty- health, education, and standard of living.

A household might be deprived in multiple dimensions and indicators. The MPI counts different types of deprivation that a household experiences under three dimensions: health, education, and living standard. The level of deprivation can be calculated aggregately or for each dimension separately. All three dimensions and ten indicators can be assigned either equal or different weights as per their respective contributions. It is possible to assign weights to indicators: 1) within one dimension, 2) across dimensions, and 3) across areas. The household is considered multidimensionally poor if the weighted

sum of its deprivations is greater than or equal to a poverty cut-off. The poverty cut-off can be predefined or calculated after the screening of initial outcomes.

1.3.1 *Major Steps of AF Method*

Step I: Selection of unit of analysis
Step II: Selection of dimensions
Step III: Selection of indicators
Step IV: Validation of indicators
Step V: Conversion of selected indicators into binary variables
Step VI: Assignment of weights
Step VII: Set-up of aggregate cut-offs
Step VIII: Calculation of percentage of deprived households

As the AF method has the flexibility to choose the number and types of indicators as per the availability of quality data, some minor changes were made to the list of indicators based on the quality of available data. The selection of an appropriate set of explanatory indicators is the most critical task (Santos2019). In the AF method, there is scope of substituting or including new indicators after a critical assessment of the quality of data and the explanatory power of indicators using relevant statistical tools of analysis. There is a need to be specific at each step, and there must be a valid rationale behind the selection of each indicator. The whole procedure, with a complete description and rationale behind the adoption and deviation from the described steps followed in the original method, is explained below:

Step I: Unit of Analysis:The household is the unit of analysis, and information from all members, including the TB patient, was collected.

Step II: Selection of Dimensions: Beside three dimensions, other dimensions of socio-economic profile of the population, for example – social security, gender empowerment, equity and etc., also influence determinants of poverty at the household level (Alkire 2007). The inclusion of only three dimensions is one of the biggest drawbacks of the AF's MPI; and the UNDP and OPHI have been working to increase the number of dimensions in future to overcome the limitation. But in this study, the three available dimensions as suggested by AF have been examined.

Step III: Selection of Indicators: Alkire and Frost used 10 indicators as mentioned in section 1.3. In this study, nine indicators have been selected as is presented in table 1. From the indicators suggested by the authors, three have been dropped. In place of the indicators suggested under the health dimension, illness-induced borrowings and case of mortality due to TB have been selected as substitutes. Similarly, under the education dimension, illiteracy of TB patient substitutes the original indicator of years of schooling. The choice of indicators was guided by socio-economic indicators used in NFHS's SLI, BPL census 2002, and SECC 2011.

Step IV: Validation of Indicators:This is the most crucial step. Two tests – the rate

of response (not less than 30 per cent) and rank correlation test (ranged between 0.1– 0.9) were applied to find the explanatory power of indicators. The rate of response on a few indicators was not within the desired range and a few indicators of the total selected could not qualify the correlation test; hence, except the nine other indicators were dropped from the list. As per Frontier (2015), if indicators which cluster too many entities around a particular measure, or which give results perverse to common sense must be dropped. Therefore, any indicator with a response rate less than 30 per cent or with a rate of uniform response of more than 90 per cent was dropped. Several indicators were dropped after applying the first level of screening on the rate of response. Secondly, a correlation test was applied. All nine indicators selected have correlation coefficients between 0.10 and 0.90. As in Naveed and Islam (2010), instead of Spearman's rank correlation, Kandall's Tau correlation was applied. The final list of explanatory indicators was not based on a predefined formula; rather, it was derived as per their explanatory power. After applying the tests, a total of nine indicators were finalised. The list of finally selected indicators is given in table 2.

Table 2: Indicators Selected

Dimension	**List of Explanatory Indicators**		
	In Original MPI	**In This Study**	**Explanation**
Health	**nutritional status**	illness-induced borrowings	The collection of data on nutritional status is resource-consuming if not related to objectives directly
	child mortality rate	case of mortality due to TB	it was dropped as no death occurred at all
Education	**years of schooling**	illiteracy of TB patient	data only for education profile of patient was collected
	enrolment status of children	drop-out of school-going aged children to take care the patients	only the poor household indulged the children in care-taking of patients
Living Standard	**cooking fuel**	cooking fuel	
	sanitation	sanitation	
	drinking water	drinking water	
	electricity	electricity	
	type of floor	type of house	
	assets holding	dropped	the rate of response was almost the same for each type of asset
		separate kitchen	new indicator was added

***Source*:** Computed from field data

The power of the index depends on the inclusion of all explanatory indicators as well as the quality of primary data on explanatory indicators. The quality of primary data and the explanatory power of indicators in relative terms determine its inclusion in the index; both depend on several aspects that cannot be anticipated before the primary survey. In general, the deprivation level of the population is measured in comparative terms. This is because the explanatory power of all socio-economic indicators is not uniform for all areas, population groups, and time periods (Smith et al. 2003).

***Step V: Conversion of Selected Indicators into Binary Variables*:** One of the most severe criticisms of the BPL census 2002 was that it assigned cardinal scores to the nominal data, which led to a larger number of inclusion and exclusion errors in the BPL list of GoI, Alkire & Seth (2009) and Mehrotra and Mander (2009). To overcome this demerit, all the indicators were converted into binary variables (0, 1) as suggested by Dreze and Khera (2010). If a household is considered deprived in an indicator; it is assigned the value one otherwise zero.

Cooking Fuel: A household using traditional modes of cooking fuel – firewood, coal, and cow-dung – was considered deprived, and the value "1" is assigned.

1. *Separate Kitchen:*A household without a separate room for the kitchen was considered deprived.
2. *Source of Drinking Water*: A household using unsafe sources of drinking water: well, river, or pond was considered deprived.
3. *Electricity*: A household without an electricity connection was considered deprived.
4. *Type of House*: An uncemented structure of living house (walls, floor, and roof) was considered a case of deprivation.
5. *Toilet Facility*: A household without a toilet facility within its premise was considered deprived.
6. *Education of Patient:*A household with an illiterate patient was considered deprived.
7. *Enrolment of Children of School-going Age*: If any child of school going age (6-14) years) in a household was not attaining school for any reason, the household was considered deprived.
8. *Illness-induced Borrowings:*If the household had to borrow to bear the costs of treatment, it was considered deprived.

***Step VI: Assigning Weights*:** In the original AF method, equal weightage was assigned to each dimension, and each indicator under each variable was assigned differential weights as per their contribution. As the sample size of this study was small, equal weight was assigned to each indicator instead of each dimension. Smith et al. (2003) recommended that in small samples, equal weight should be assigned to each indicator; otherwise, it might be misleading. Since equal weights are assigned, they are not specified

for each indicator.

Step VII: Set-up of an Aggregate Cut-off of Poverty:As in the original AF's MPI, deprivation under one-third of the indicators is set as the poverty line in this study. A household that is deprived in at least three indicators is considered multidimensionally deprived.

***Step VIII: Calculation of Percentage of Deprived Households*:** The last few steps of AF's MPI were skipped, and instead of the headcount ratio, the percentage of households in each indicator and the percentage of households that are multidimensionally deprived are calculated.

1.4 Findings and Analysis

As per the customised MDI, a total of 74.80 per cent of sampled households with a TB patient were multidimensionally deprived, which validates the proposition that there is a high correlation between poverty and TB. The detailed analysis of MDI shows that the rate of multidimensionally deprived households is higher among rural areas and the Scheduled Tribe (ST) community. The trend of the prevalence of poverty in TB households across social categories and residential areas found from MDI analysis corresponds to the trend established in official BPL data of Jharkhand. The findings are presented in tables below:

Table 3: Incidence of Multidimensional Deprivation of Households (in %) with a TB Patient

Multidimensional Non-Poor	Multidimensional Poor	Total
25.20	74.80	100

***Source*:** Computed from field data

The table 3 shows the incidence of deprivation while the table 4 shows the intensity of deprivation.

Table 4: Intensity of Multidimensional Deprivation of Households (in %) with a TB Patient

Deprivation in number of indicators	Households (%)
No deprivation in any indicator	8.94
One	8.13
Two	8.13
Three	8.94
Four	13.01

Five	14.63
Six	21.14
Seven	10.57
Eight	4.88
Nine	1.63

Source: Computed from field data

Less than 10 per cent of households are found to have no deprivation at all. The intensity of multidimensional deprivations is about 60 per cent among households with only four to seven indicators, which means that along with incidence, the intensity of multidimensional deprivation was also high among sampled households. A total of 1.6 per cent of households is deprived in all nine indicators.

Table 5: Types of Deprivations of Households (%) with a TB Patient by Residential Area

No.	Explanatory Indicators	Urban	Rural	Gap in Rural-Urban MDI	Total
1	Cooking Fuel	34.88	98.44	63.56	**74.8**
2	Separate Kitchen	34.88	56.25	21.37	**48.78**
3	Source of Drinking Water	18.60	59.38	40.78	**44.72**
4	Toilet Facility	25.58	81.25	55.67	**61.79**
5	Electricity	9.30	34.38	25.08	**23.58**
6	Type of House	41.86	79.69	37.83	**64.23**
7	Enrolment of School Going Aged Children	16.28	20.31	4.03	**17.07**
8	Education of Patient	23.26	56.25	32.99	**44.72**
9	Illness-induced Borrowings	13.95	45.31	31.36	**32.52**
10	Possession of BPL Card*	13.95	39.06	25.11	**29.27**

Source: Computed from field data
**This indicator is not the part of deprivation index; it is included for the comparison purpose.*

Incidence of rural and urban deprivations and the percentage gap, as depicted in table 5, shows an erratic trend. In case of cooking fuel, the rural deprivation is the highest (98.44%) and urban deprivation is second highest (34.88%), thereby marking a gap of 63.56 percentage points which is the highest gap between rural and urban deprivations. Deprivation in cooking fuel means that people use traditional types of fuel. The smallest gap is 4.03 percentage points between rural and urban deprivations in enrolment of school going aged children and the corresponding incidences are 20.31% and 16.28 % respectively. The second lowest gap (21.37 percentage point) is in terms of separate kitchen. The reason for the difference, though not studied, is a general understanding that in urban areas, kitchens are a part of most houses except in some houses built on owner-occupied land. But the incidence of rural incidence is 56.25 % and urban deprivation is 34.88%.Why the incidence of deprivation is significant, in addition to the kitchen-attached

houses, in urban areas, may be explained with reference to the migration of poor class people who might not have space for a separate kitchen. This gives rise to another research problem to investigate. The point is that a lack of space could be the reason for deprivation due to "no separate kitchen".

Similarly, the higher incidence of total deprivation in terms of an indicator does not mean that rural or urban incidence is higher; it can be higher in both residential areas. This is true in the case of cooking fuel. It should be made clear that the percentage point gap is not an appropriate measure of the direction of differences, but it suggests that both incidences of deprivations can be higher, lower, or one higher and the other lower. This irregularity is also indicative of multiple points of deprivation across the selected indicators.

The most eye-catching finding is that the households residing in rural areas have a higher rate of deprivation in all nine indicators. Besides, the extent of deprivation across the indicators shows wide variation. While the lowest incidence of rural deprivation is 20.31% in the enrolment of school-aged children, it is highest in cooking fuel (98.44%). The range is 78.13 percentage points. The lowest incidence of urban deprivation is in electricity (9.3%), while the highest one is in the type of house 41.86%. The range is 32.56 percentage points. In other words, the distribution of the incidence of deprivations is more skewed in rural areas than in urban areas. Additionally, the extent of multidimensional deprivation in an indicator varies between the two areas, as can be seen from table 3.

The variation is also evident in table 6. Aggregate multidimensional deprivation is higher in rural households (80.43%) than in urban ones (19.57%).

Table 6: Multidimensional Deprivation of Households (%) by Residential Area

Place of Residence	**MultidimensionalNon-Poor**	**Multidimensional Poor**
Urban	80.65	19.57
Rural	19.35	80.43
Total	100	100

Source: Computed from field data

The trend corresponds to the incidence observed in BPL statistics. Official BPL data estimates that 45.90% of poor people live in rural areas and31.30% in urban areas of Jharkhand during the year 2011-12 (GoI 2014). Thus, incidence of rural and urban poverty, as shown in table 4, is much higher than that in the BPL data. Similarly, it is also evident that the aggregate percentage of households (74.80 % in table 1) as per multidimensional poverty is much higher than the official poverty rate in Jharkhand (42.40 % in GoI 2014). Thus, the construction of MDI was worth of labour,and it was able to prove that the majority of households, though not included in the BPL card, were deprived of basic amenities.

As it transpires from table 7, the incidence of poverty (69.57%), i.e., multidimensional deprivation, in ST households is highest, followed by OBCs (15.22%) and Muslims (7.61%). A scrutiny of the BPL population by social categories also depicts the same trend for ST households, as the incidence in the community stands at 50.9 %. (Panagariya and Mukhim2014).

Table 7: Multidimensional Deprivation of Households (%) by Social Categories

Ethnic Group	Multidimensional Non-Poor	Multidimensional Poor
ST	22.58	69.57
SC	6.45	4.35
GENERAL	35.48	1.09
OBC	12.9	15.22
CRISTIAN	12.9	2.17
MUSLIM	9.68	7.61
Total	100	100

Source: Computed from field data

Table 8: Discrepancy in Deprived Households in Official BPL list as compared with MDI

Official BPL/MDI	Multidimensional Non-Poor	Multidimensional Poor	Total
Official BPL Household	20.97	79.03	100
Official non-BPL Household	29.51	70.49	100
MDI	25.20	74.80	100

Source: Computed from field data

As per Jalan and Murgai (2007), the BPL score misclassifies nearly half of the poor as non-poor, and conversely, 49 per cent of those identified as BPL poor are actually non-poor. In this study, 20.97 per cent of households that have a BPL card were multidimensionally non-poor, and 70.49 percentage multidimensional poor households failed to be identified as officially BPL household (table 8).

1.5 Conclusion

The trend of applying AF's method of MPI for the measurement of national level poverty has been increasing at the global level. This article is one of its kinds, as it has applied the MPI method to a small sample. It is also possible to apply it without indulging deep in the methodological complications of aggregation and assigning weight to indicators. The aggregation of indicators and the assignment of appropriate weights are critical for larger samples. As the AF method is flexible, several steps were amended or skipped as per the

available data and circumstances. Instead of headcount score, the percentage of household in each indicator and aggregate multiple deprived were calculated.

It is worth mentioning here that the objectives of the concurrent study were not to measure the level of deprivation of the samples, but to examine the correlation between poverty and households of the TB patients. Neither the sample was large nor selected randomly; therefore, the finding might not be generalized to understand the correlation between poverty and TB patient households of the whole district. The study selected households with a TB patient who were registered under RNTCP (public health unit) for their treatment and inquired about their BPL status so that the probability of their being poor was high. But in this study, only 29.27 per cent samples had an official BPL Card, and utilization of a public healthcare unit was not enough to consider them from poor households. The construction of customized deprivation index verified that majority (74.8 %) of households were from lower socio-economic quintile. Despite being economically deprived, around 70.49 per cent of households that were multiple deprived did not have the official BPL card or identity as poor.

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