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Awareness and Utilisation of Health Insurance Schemes Among the Tribal Population: A Cross-Sectional Study in Malda District of West Bengal

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ABSTRACT

Background: Awareness and utilisation of health insurance schemes is essential for protecting tribal populations from catastrophic out-of-pocket (OOP) expenditure on health care. Despite multiple central and state government insurance schemes, evidence on awareness and uptake among tribal communities remains limited. The present study was therefore undertaken to assess the level of awareness, enrolment, utilisation, and perception of health insurance among tribal residents of a village in Malda district, West Bengal.

Materials and Methods: A community-based, observational, descriptive cross-sectional study was conducted between November and December 2023 in Jharpukuria village, Bhabuk Gram Panchayat, Old Malda Block, Malda district. Ninety tribal households were selected through a multistage sampling technique. Data were collected from the head of each household using a pre-tested, semi-structured, interviewer-administered questionnaire. Socio-economic status was classified using the Modified B.G. Prasad Scale (2023). Data were analysed in MS Excel, Epi Info 7, and SPSS version 17. The chi-square test was used for bivariate analysis, with statistical significance set at $p < 0.05$.

Results: Of the 90 respondents, 62.2% were female, 91.1% were Hindu, and 53.3% were illiterate. Although 81.1% had heard of a health insurance scheme (predominantly the Swasthya Sathi scheme of the Government of West Bengal), only 35.6% were aware of its actual purpose and benefits, and 28.9% knew that surgical care could be availed at low or no cost under the scheme. Sixty-three respondents (70%) were enrolled in Swasthya Sathi, but only 5 (7.94%) had actually utilised the scheme in the preceding year. Close associates (63.3%) were the principal source of information. Awareness of the purpose of health insurance was significantly associated with educational status ($p = 0.025$) and socio-economic class ($p = 0.0013$). Perception of health insurance was significantly associated with gender ($p = 0.017$) and household income ($p = 0.0068$). The major barriers identified were inadequate knowledge (78%), lack of trust in the scheme (16%), and denial of the scheme by hospitals (4%).

Conclusion: Although a majority of tribal respondents had heard of the Swasthya Sathi scheme, comprehensive understanding, enrolment-to-utilisation conversion, and trust in the scheme remain low. Strengthening targeted information, education, and communication (IEC) activities, supported by frontline health workers, is essential to improve effective coverage and reduce out-of-pocket expenditure in tribal populations.

Keywords*: Health insurance; Tribal population; Swasthya Sathi; Out-of-pocket expenditure; Awareness; West Bengal.*

INTRODUCTION

The World Health Organization affirms that every individual, irrespective of race, religion, political belief, or economic and social position, has the fundamental right to enjoy the highest attainable standard of health.[1] Aligned with the Sustainable Development Goals, the world is moving towards Universal Health Coverage, which seeks to ensure that every individual has equitable access to comprehensive, high-quality healthcare services without incurring financial hardship.[1,2] India is home to approximately 104 million indigenous people, the largest tribal population in any country.[3] Tribal communities reside in diverse and often difficult geographical terrains, and contend with high rates of illiteracy, harsh living environments, malnutrition, limited access to safe drinking water, and inadequate sanitation. These conditions render the population particularly vulnerable to communicable and non-communicable diseases. [4–7]

Tribal communities lag behind the national average on several key health indicators. Approximately 44% of children under five are stunted, 45% are underweight, and 27% are wasted.[1,4] Nearly 50% of adolescent tribal girls have a body mass index below 18.5, and around 65% of tribal women aged 15–49 years are anaemic.[1,4] Full immunisation coverage is reported at 56%, the infant mortality rate is as high as 44.4 per 1000 live births, and the under-five mortality rate is 57.2 per 1000 live births.[4,6] Tribal populations also bear a disproportionate burden of malaria, accounting for 30% of all cases, more than 60% of Plasmodium falciparum infections, and approximately 50% of malaria-related deaths, despite constituting only 8.6% of the total population.[4]

Several studies have documented that long-standing reliance on herbal medicines, traditional therapies, and superstitions in tribal villages is in part a consequence of poor access to formal healthcare services.[5,7] Accessible, good-quality health care can substantially reduce the burden of disease, disability, and mortality.[8] In India, approximately 80% of healthcare expenditure is borne privately, and out-of-pocket (OOP) payments often deplete personal savings and household assets, compromising the ability of families to meet other basic needs.[7,9]

To address financial barriers to health care, both the central and state governments have introduced various health insurance schemes. The Government of West Bengal launched the Swasthya Sathi scheme in December 2016. The Government of India introduced the Rashtriya Swasthya Bima Yojana (RSBY) in April 2008 for families below the poverty line, and in 2018 launched the Ayushman Bharat–Pradhan Mantri Jan Arogya Yojana (AB-PMJAY).[11,12] According to the National Family Health Survey (NFHS-5), the proportion of households with at least one usual member covered by a health insurance or financing scheme was 42.4% in rural India, 31% in rural West Bengal, and approximately 29% in Malda district.[10]

Despite these efforts, several studies indicate that the health-seeking behaviour of tribal populations remains suboptimal and the burden of morbidity and mortality continues to be substantial. Information on the awareness and utilisation of government and private health insurance schemes among tribal communities, particularly in eastern India, is limited.[15,17] Against this background, the present study was undertaken with the following objectives.

Objectives

1. To describe the socio-demographic profile of the studied tribal population.
2. To assess the level of awareness and understanding of health insurance schemes among the tribal community.
3. To identify the factors influencing the utilisation of health insurance schemes, including cultural beliefs, accessibility, affordability, perceived benefits, and barriers to access.

MATERIALS AND METHODS

Study area and population

The study was conducted in Jharpukuria village under Bhabuk Gram Panchayat, sub-centre of Old Malda Block, in Malda district of West Bengal. The study population comprised adults aged 18 years and above residing in the village.

Study design

This was a community-based, observational, descriptive cross-sectional study conducted between November and December 2023.

Inclusion and exclusion criteria

Households belonging to the scheduled tribe community, as identified from the sub-centre records, with at least one adult member present at home during the visit, were included. Households in which members reported acute illness or were uncooperative, and those that remained locked even after two consecutive visits, were excluded.

Sample size

The sample size was calculated using the formula $n = Z^2PQ/L^2$, based on NFHS-5 data showing that the proportion of households with any usual member covered under a health insurance or financing scheme in rural West Bengal was 31% ($P = 0.31$, $Q = 0.69$).[21] With a 95% confidence level ($Z = 1.96$) and a relative error (L) of 10%, the required sample size was approximately 82. After adjusting for a 10% non-response rate, the final sample size was set at 90 tribal households.

Sampling technique

A multistage sampling technique was used:

Stage 1: Among the four developmental blocks in Malda district with a substantial tribal population (Gazole, Bamongola, Old Malda, and Habibpur), Old Malda Block was selected by simple random sampling.[22]

Stage 2: From the 31 villages in Bhabuk Gram Panchayat, the five villages with the highest tribal population were purposively selected.

Stage 3: From these five villages, Jharpukuria was randomly selected as the study site. With the assistance of the Auxiliary Nurse Midwife (ANM) of Jharpukuria sub-centre, the Anganwadi worker, and the Accredited Social Health Activist (ASHA), a complete line-list of tribal households in the village was prepared.

Stage 4: The first household was selected randomly from the line-list, and subsequent adjacent households were visited consecutively until the desired sample size was achieved. An ASHA worker accompanied the investigator to each household to facilitate trust-building and to overcome language barriers.

Data collection

Data on socio-demographic characteristics, awareness of health insurance schemes, enrolment, utilisation, and perception were collected using a pre-tested, semi-structured, interviewer-administered questionnaire. Socio-economic status was classified using the Modified B.G. Prasad Scale (2023). The questionnaire was developed after a thorough review of the relevant literature and pilot-tested in a neighbouring village approximately 25 km from the study site; ambiguous items were revised or removed prior to the main study. The questionnaire was administered to the head of the household; if the head was unavailable after two visits, the next eldest available adult member was interviewed on the third visit. Written informed consent was obtained from each participant after explaining the objectives and implications of the study; those who declined to participate were excluded. Data collection was completed over a period of three weeks within the study duration.

Data analysis

Data were entered and analysed using MS Excel, Epi Info 7, and SPSS version 17. Categorical variables were summarised as frequencies and percentages. The chi-square test was used to assess associations between selected socio-demographic variables and awareness, utilisation, and perception of health insurance. A p-value < 0.05 was considered statistically significant.

Ethical considerations

The study was approved by the Institutional Ethics Committee of Malda Medical College. Written informed consent was obtained from all participants. Confidentiality of participant information was maintained throughout the study.

RESULTS

A total of 90 tribal households were surveyed. Of the respondents (heads of households), 56 (62.22%) were female and 34 (37.78%) were male. The majority were Hindu (91.11%), 53.33% were illiterate, 77.78% were married, and 73.33% were currently employed. According to the Modified B.G. Prasad scale, 37.08% of households belonged to the upper middle class. The detailed socio-demographic profile is presented in Table 1.

Table 1. Baseline socio-demographic characteristics of the respondents (n = 90)

Variable	Frequency (n)	Percentage (%)
Gender		
Female	56	62.22
Male	34	37.78
Religion		
Hindu	82	91.11
Christian	8	8.89
Educational level		
Illiterate (no formal education)	48	53.33
Literate	42	46.67
Marital status		
Married	70	77.78

Variable	Frequency (n)	Percentage (%)
Widow/Widower	15	16.67
Unmarried	4	4.44
Deserted	1	1.11
Occupation		
Currently employed	66	73.33
Currently unemployed/not working	24	26.67
Socio-economic class (Modified B.G. Prasad scale, 2023)		
Upper class	14	15.73
Upper middle class	33	37.08
Middle class	25	28.09
Lower middle class	18	19.10
Usual source of health care		
Traditional medicine / quack	50	55.56
Health personnel of PHC / BPHC	31	34.44
Private doctor (registered AYUSH)	8	8.89
Private doctor (modern medicine)	1	1.11
Out-of-pocket expenditure on health care in the past year (Rs.)		
Up to 1,000	16	17.78
1,001–5,000	49	54.44
5,001–10,000	21	23.33
10,001–25,000	3	3.33
25,001–50,000	1	1.11
Obtained any health insurance card		
Yes	57	63.33
No	33	36.67

Awareness and enrolment

Of the 90 respondents, 73 (81.11%) had heard of at least one health insurance scheme, predominantly the Swasthya Sathi scheme of the Government of West Bengal. However, only 32 (35.6%) of all respondents were aware of its actual purpose and benefits, and only 26 (28.89%) knew that surgical care could be availed at no or low cost under the scheme. Sixty-three respondents (70%) were registered in Swasthya Sathi. Close associates (friends and family) were the principal source of information for 57 (63.33%) respondents, followed by village announcements/miking for 27 (30%), and television/newspapers collectively for 6 (6.67%) respondents. Details of awareness, enrolment, and utilisation are presented in Table 2.

Table 2. Awareness, enrolment, and utilisation of health insurance among the respondents (n = 90)

Variable	Frequency (n)	Percentage (%)
Heard of any health insurance scheme		
Yes	73	81.11

Variable	Frequency (n)	Percentage (%)
No	17	18.89
Knowledge of the purpose and benefits of health insurance		
Knows	32	35.56
Does not know	58	64.44
Knew that surgery could be availed at low/no cost under health insurance		
Yes	26	28.89
No	64	71.11
Registration with any health insurance scheme		
Yes (Swasthya Sathi)	63	70.00
None	27	30.00
Source of information about health insurance		
Close associates (friends/family)	57	63.33
Village announcement / miking	27	30.00
Television and newspapers	6	6.67
Utilisation of health insurance in the past one year (among registered, n = 63)		
Not yet utilised	58	92.06
Utilised once	5	7.94

Factors associated with awareness of health insurance

Educational status (p = 0.025) and socio-economic class (p = 0.0013) showed a statistically significant association with knowledge of the purpose of health insurance. Gender (p = 0.62) and occupation (p = 0.21) were not significantly associated. The findings are summarised in Table 3.

Table 3. Association between socio-demographic factors and knowledge of the purpose of health insurance (n = 90)

Variable	Don't know n (%)	Know n (%)	Total	χ^2 value	p value
Educational qualification					
Illiterate	36 (75.0)	12 (25.0)	48	5.00	**0.025**
Literate	22 (52.4)	20 (47.6)	42		
Gender					
Female	35 (62.5)	21 (37.5)	56	0.24	0.62
Male	23 (67.6)	11 (32.4)	34		
Socio-economic status					
Lower & middle class	35 (81.4)	8 (18.6)	43	10.30	**0.0013**
Upper & upper middle class	23 (48.9)	24 (51.1)	47		
Occupation					
Employed	45 (68.2)	21 (31.8)	66	1.50	0.21
Unemployed	13 (54.2)	11 (45.8)	24		

Health-seeking behaviour and utilisation

With regard to general health-seeking behaviour, 50 (55.56%) households preferred quack practitioners and traditional medicines, 31 (34.44%) attended the nearest Health and Wellness Centre or primary health centre, and 9 (10%) consulted private allopathic or homoeopathic practitioners. Out-of-pocket expenditure on health care in the preceding year was up to Rs. 5,000 in 65 (72.2%) households and exceeded Rs. 5,000 in 25 (27.8%) households, the latter chiefly due to private hospitalisation for surgery and treatment of complex illnesses.

Among the 27 households that had not registered for any scheme, 21 (23.3%) declined to disclose the reason and 6 (6.7%) reported being unaware of when and how to register. Of the 63 registered households, only 5 (7.94%) had actually utilised the scheme in the preceding year — 13 respondents (across all enrolled households) reported having ever used the scheme for major or minor surgery and 3 (3.3%) for medical treatment. None of the variables examined (education, $p = 0.52$; occupation, $p = 0.31$; gender, $p = 0.50$; monthly income, $p = 0.28$) were significantly associated with utilisation of health insurance.

Perception of health insurance

Among the 90 households, 22 (24.4%) had a favourable perception of health insurance and considered it useful for health-seeking, 12 (13.3%) reported insufficient information to form a clear judgement, and 56 (62.2%) had no perception or idea about health insurance and its benefits. On bivariate analysis, gender ($p = 0.017$) and monthly household income ($p = 0.0068$) were significantly associated with perception, while educational qualification approached statistical significance ($p = 0.066$). Occupation ($p = 0.30$) and religion ($p = 0.37$) were not significantly associated. The findings are presented in Table 4.

Table 4. Association between socio-demographic determinants and perception of health insurance (n = 90)

Variable	Good perception n (%)	Lacks information n (%)	Total	χ^2 value	p value
Educational qualification					
Illiterate	8 (16.7)	40 (83.3)	48	3.30	0.066
Literate	14 (33.3)	28 (66.7)	42		
Gender					
Female	9 (16.1)	47 (83.9)	56	5.60	**0.017**
Male	13 (38.2)	21 (61.8)	34		
Socio-economic class					
Lower & middle class	5 (11.6)	38 (88.4)	43	7.30	**0.0068**
Upper & upper middle class	17 (36.2)	30 (63.8)	47		
Occupation					
Employed	18 (27.3)	48 (72.7)	66	1.07	0.30
Unemployed	4 (16.7)	20 (83.3)	24		
Religion					
Hindu	19 (23.2)	63 (76.8)	82	0.80	0.37
Christian	3 (37.5)	5 (62.5)	8		

Barriers to awareness, utilisation, and perception

Lack of adequate knowledge was the most common barrier, reported by 70 (77.8%) households. Other barriers included lack of trust in scheme benefits (14 households, 15.6%), denial of the scheme by hospitals (4 households, 4.4%), and poor financial condition limiting capacity for any out-of-pocket co-payment (2 households, 2.2%).

DISCUSSION

In the present era of epidemiological transition, out-of-pocket expenditure on health care is a major source of financial hardship for poor and marginalised populations.[16] Health insurance is therefore increasingly viewed as an essential mechanism for achieving financial protection and improving access to health services.[18] This community-based study assessed the level of understanding, enrolment, utilisation, and perception of health insurance among an indigenous community in rural West Bengal.

The majority of respondents in this study were female (62.2%), largely because the head of the household — typically male — was often unavailable even after two visits, in which case the next eldest available adult member (commonly a woman) was interviewed. The majority belonged to the 35–45-year age group (50%), and 91% were Hindu, while 47% were literate. Over 90% of participants reported making out-of-pocket payments for health care, reflecting their residence in remote regions with limited availability and uptake of formal services.[20]

Eighty-one percent of respondents reported having heard of health insurance, a figure comparable to the urban-area study by Raja et al.[13] and the study by Bawa et al.,[23] but markedly higher than the 35.3% reported by Madhukumar et al. among 331 households surveyed in rural Bangalore.[8] The difference may reflect the wider reach of state-led marketing of the Swasthya Sathi scheme in West Bengal. However, awareness was largely limited to the existence of the scheme and its monetary benefits — only 35.6% of respondents knew its actual purpose and beneficiaries. Considerable effort is therefore required to translate name-recognition into substantive understanding of scheme entitlements, irrespective of socio-economic status.

In our sample, awareness was higher among female respondents (60%), but the difference was not statistically significant; this contrasts with the findings of Madhukumar et al.[8] and Raja et al.,[13] in which awareness was higher among males. The discrepancy is most likely explained by the over-representation of female respondents in our sample due to absence of male heads at the time of survey. Educational status and household income were significantly associated with awareness, in keeping with previous reports by Madhukumar et al.,[8] Reshmi et al.,[18] and Yellaiah,[24] suggesting that education and socio-economic status play a pivotal role in shaping awareness of health insurance schemes, as also observed by Joseph et al.[25]

Close associates (friends and family) were the most important source of information (63.3%), similar to the findings of Hedge et al.,[26] followed by village-level announcements (30%) and television/newspapers (6.7%). This pattern differs from the study by Bawa et al.,[23] in which television (26.5%) and newspapers (21.2%) played leading roles, but is similar to the findings of Madhukumar et al.[8] and Reshmi et al.[18] These differences highlight the importance of context-appropriate channels for IEC activities. Although 81% of respondents had heard of the Swasthya Sathi scheme, awareness of any other public or private health insurance scheme was minimal.

Despite an enrolment rate of 70%, out-of-pocket expenditure of up to Rs. 5,000 was reported by 72.2% of households and above Rs. 5,000 by 27.8% in the preceding year. This is broadly consistent with Garg and Karan, who reported that out-of-pocket expenditure accounted for approximately 5% of total household expenditure, with a higher share in rural areas.[27] Among the 30% of households not enrolled, 23% declined to disclose their reasons (often citing inter-political beliefs) and 7% were unaware of the registration process. Enrolment was higher among upper-middle-class households (57%) than lower-middle-class households (43%), among the employed (73%) than the unemployed (27%), and notably higher among Christian (87.5%) than Hindu (68.2%) households. These differences likely reflect better access to information, higher awareness, and clearer understanding of registration procedures among more advantaged groups.

Overall utilisation of the scheme was strikingly low: of the 63 enrolled households, only 5 (7.94%) had utilised it in the preceding year. This may be explained by limited knowledge of how to claim benefits, as well as by the absence of conditions covered under the scheme during that period. Perception of health insurance was significantly influenced by gender ($p = 0.017$) and household income ($p = 0.0068$), and was borderline associated with educational status ($p = 0.066$). A favourable perception was more common among literate respondents (63%), males (59%), and those from the upper middle class (77%), reflecting better understanding of the scheme's purpose and effectiveness. The substantial proportion of households reporting inadequate information underlines the need for comprehensive IEC, counselling, and support so that scheduled tribe (ST) populations can be effectively covered.

CONCLUSION

This study provides insight into the awareness, enrolment, utilisation, and perception of health insurance among tribal villagers in Malda district. Although health insurance is not a new concept and information is increasingly disseminated through friends, family, and other media, current awareness has not translated into adequate enrolment, understanding of benefits, or utilisation. Only 35.6% of respondents understood the actual purpose of health insurance, and only 7.94% of those enrolled had utilised the Swasthya Sathi scheme in the preceding year, despite continuing high out-of-pocket expenditure. Lack of knowledge (78%) and lack of trust in the scheme (16%) emerged as the principal concerns. The

findings underscore the urgent need to strengthen the dissemination of context-appropriate, comprehensive information on health insurance schemes among tribal populations, with particular involvement of frontline workers (ASHAs, ANMs, and Anganwadi workers). Doing so could substantially reduce financial hardship arising from illness and injury and contribute to a healthier, more productive tribal population.

Limitations

The study was conducted in a single tribal village under one Gram Panchayat in Malda district; the findings may therefore not be generalisable to all tribal populations. The relatively short duration limited the depth of analysis, and several potential confounders could not be fully addressed. Male respondents were under-represented because many were daily-wage migrant workers and were absent from the district during data collection.

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