Original Article

Awareness, knowledge and challenges faced by beneficiaries and non-beneficiaries of Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana with special reference to eyecare in three districts of Uttar Pradesh state: A cross-sectional study

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Abstract

Purpose: The aim was to analyse the knowledge and awareness regarding Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) within the operational districts of two high-volume non-profit eye organisations in Uttar Pradesh. Challenges faced by beneficiaries and non-beneficiaries are also examined. **Methods:** A prospective cross-sectional survey from November 2021 to April 2022 was conducted across operational districts of organisations A and B. Cluster sampling was used to select participants in randomly selected villages with 200 or more households, within 10–15 km of existing vision centres. A semi-structured interview schedule was used to collect data. The means of AB-PMJAY indicators were estimated. Awareness was estimated as a summed score. Multivariate logistic regression was applied to check the effects of the socio-economic and socio-demographic factors on the awareness of AB-PMJAY for both organisations separately and together. **Results:** A total of 1151 participants were interviewed:

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52.9% from the catchment area of organisation A and 47.1% from that of organisation B. From the catchment of organisations A and B, 82.6% and 22.9% participants, respectively, had heard of the scheme, mostly from family and friends. Whereas 43% interviewees from the catchment area of organisation A and 8.5% from that of organisation B had knowledge about at least one topic, only 8.5% and 2.8%, respectively, were knowledgeable about all topics. Village effect was found to be significant for most of the knowledge and awareness indicators in both catchments. Only 37.8% and 20.2% of the catchment from organisations A and B, respectively, were AB-PMJAY cardholders. Of the services availed, 50% were cataract surgery. Almost 40% of the applicants faced some challenges while securing the AB-PMJAY card and 9% while using the AB-PMJAY card. Family income was found to be the only common predictor of knowledge at both locations. **Conclusion:** Varied awareness and limited knowledge in catchment villages put the onus on community eyecare organisations to spread awareness in their catchment, which may increase the uptake and utilisation of the scheme.

Keywords: Ayushman Bharat, Bodhya Eye Consortium, eyecare services, health insurance, Uttar Pradesh

Introduction

Research shows that increase in out-of-pocket expenses for healthcare leads to increased poverty.[1] Catastrophic health expenditure affected over 56 million people globally (2019), pushing them under the $1.90 a day poverty line by household health expenditures,[2] while also affecting over 25% of the population in India (2014).[3] Those in the poorest wealth quintiles have been found to be the most affected.[3]

Community-based health insurance policies that pool funds have been shown to be the way forward to achieve universal health coverage (UHC).[4] India has had many health insurance schemes over the decades – Rashtriya Swasthya Bima Yojana and Universal Health Insurance Scheme for below poverty line families[5]; Employment State Insurance Scheme for those who are employed; Central Government Health Scheme for employees of central government; and Aam Aadmi Bima Yojana for landless rural households. Yet, coverage provided by these schemes has a very low share in health financing across the country.[6]

In 2017, the union government launched the Ayushman Bharat – Pradhan Mantri Jan Arogaya Yojana (AB-PMJAY) to subsume existing health schemes as well as expand their scope.[7] The scheme provides health coverage of ₹5 lakhs per family per year, for secondary and tertiary care in-patient procedures, to over 10.74 crore poor and vulnerable families that form the bottom 40% of Indian population. This is the largest health insurance scheme in the world, targeted towards achieving UHC.[7] Eyecare services are also provisioned under AB-PMJAY.[8] These include speciality ophthalmic procedures as well as cataract surgery packages that provide fair compensation to empanelled hospitals.[8]

Literature pertaining to challenges faced by users under AB-PMJAY is limited and mostly deals with awareness regarding the scheme as well as its implementation and uptake.[9-12] Studies pertaining to challenges in eyecare services and their delivery are scarce. The Bodhya Eye Consortium (BEC), formed in 2018, is a research and knowledge-sharing collaboration between eight high-volume eye organisations. Two non-profit, high-volume institutions from the BEC, who have patients availing services under the AB-PMJAY, have come together to fill this gap in literature, by analysing the knowledge and awareness regarding AB-PMJAY in the community within their operational districts in Uttar Pradesh, a state with relatively low uptake of AB-PMJAY.[13] This study also delves into the challenges faced by the beneficiaries and non-beneficiaries of the scheme in an attempt to explore existing barriers.

Methodology

Study Design, Period and Setting

This is a prospective cross-sectional survey carried out from November 2021 to April 2022 across operational districts of two eye hospitals A and B. Together, these hospitals provide eyecare services across districts in Uttar Pradesh, through tertiary and secondary hospitals. Majority of the population in these districts is rural or semi-urban.

Inclusion–Exclusion Criteria

Only villages with 200 or more households, within catchment (10–15 km of existing vision centres (VCs)), were included. To avoid bias, those villages which had undergone any direct door-to-door outreach activities from existing facilities within the previous 6 months were excluded as these activities involve intensive awareness generation. Those only visited by community health workers or where outreach camps were held were not excluded. Family heads wherever present or the senior-most active representatives at home were interviewed. Households refusing consent were excluded.

Sample Size and Sampling

A sample size of 400 to estimate a population proportion with a 95% confidence interval of ±5% under assumption of maximum variance was used. A design effect of 1.5 was applied and 600 was targeted for sample size from each participating centre to compensate for loss of accuracy in sampling. Villages were selected randomly, and households were drawn using cluster sampling method.

Data Collection and Management

Data were collected manually through a field survey using semi-structured interviews by a trained resource at each organisation. Data were entered into MS Excel 10. To avoid errors, cross-verification and data validation were performed on a regular basis during data collection period, at the organisational level.

Semi-structured interviews were divided into four sections: socio-demographic profile; sources of information regarding AB-PMJAY; awareness about AB-PMJAY and eye-related services in scheme; and AB-PMJAY cardholder status with scheme utilisation. Furthermore, information on challenges encountered by both scheme beneficiaries and non-beneficiaries was collected. Written informed consent was obtained. A questionnaire was developed in English and then translated into the local language Hindi and pilot tested on 10 participants for language, clarity and length. No changes were needed after pilot testing and data from the pilot were not included in the final analysis.

Analysis

The means of continuous and categorical variables were expressed as population proportions (percentages) together with their 95% confidence intervals. Overall, awareness about the scheme was expressed as a score by summing over their awareness level (1 = aware, 0 = not aware) on different topics, namely, eligibility conditions, services offered, empanelled hospitals and eyecare services covered by the scheme. Multivariate logistic regression was applied to check the effects of socio-economic and socio-demographic factors on awareness of AB-PMJAY. Since the two organisations differ in their geographical catchment area, statistical analysis for each organisation was run separately. R version 4.2.2 was used for statistical analysis.

Ethical Considerations

The study was approved by individual Ethics Committees and/or Institutional Review Boards of the two participating organisations (IRB/2021/Jul/77 and IEC/21-22/48, respectively) and followed tenets set in the Declaration of Helsinki. All identifiable data were anonymised, and no individual data were shared between organisations or disclosed during analysis process.

Results

Socio-demographic Characteristics

A total of 1151 participants were interviewed of which 609 (52.9%) were from the catchment area of organisation A and 542 (47.1%) from that of organisation B. Mean age of interviewees from the catchment area of organisation A was 44.32 ± 13.48 years and they were predominantly male (64.5%), while that from the catchment area of organisation B was 38.16 ± 12.38 years, with a slight female preponderance (58.5%). Majority of the interviewees across the catchments of both organisation A and organisation B were married (94.1% and 80.1%, respectively). Education levels of participants across both institutions' catchments are illustrated in Table 1. Majority of the participants from catchments of both organisations were either illiterate or only educated to primary level (50.7% from organisation A's catchment and 41.7% from organisation B's catchment). All interviewees from the catchment of organisation A were from rural areas, while those from the catchment of organisation B were spread across semi-urban (40.4%), rural (34.9%) and urban (24.7%) areas.

Table 1: Socio-demographic characteristics of the participants

	Organization A	Organization B
Total number (*n*)	609	542
Mean age (years)	44.32±13.48	38.16±12.38
Females	216 (35.5%)	317 (58.5%)
Illiterate or primary education only	309 (50.7%)	226 (41.7%)
Rural	609 (100%)	189 (34.9%)

Further, 40.1% interviewees had annual incomes below one lakh rupees in organisation A's catchment, while majority of the participants (53.9%) had annual incomes between one and two lakh rupees. Majority of the participants from organisation B's catchment had annual income below one lakh rupees (68.8%); 21.4% had incomes between one and two lakhs. The largest percentage of interviewees across the catchments of both organisations accessed healthcare services at private hospitals (90.2% at A and 97.2% at B).

Awareness and Status

A total of 503 of 609 participants (82.6%) from the catchment of organisation A and 124 of 542 (22.9%) from the catchment of organisation B reported having heard about AB-PMJAY. Of them, 37.8% (190 of 503) had AB-PMJAY card in organisation A's catchment and 20.2% (25 of 124) in organisation B's catchment. Of the remaining, 141 (45.1% of 303) and 24 (24.2% of 99) from the former and the latter, respectively, were still awaiting their AB-PMJAY cards. Only participants from the catchment of organisation A had availed services. Thus, of those having their AB-PMJAY card (only from the catchment of organisation A), 29.5% (56 of 190) reported having already availed services under the scheme, and 52 of these 56 (92.9%) disclosed reasons for their claims: 50.0% (26 of 52) underwent cataract surgery, 11.5% (6 of 52) accessed maternity care, 9.6% (5 of 52) required trauma or emergency care and 9.6% underwent hysterectomies.

Sources of Information

Of those who had heard of the scheme, 503 (100.0%) from the catchment of organisation A and 118 (95.2%) from the catchment of organisation B disclosed their sources of information: 33.8% of organisation A's catchment and 52.5% of organisation B's catchment reported friends and family as their primary sources. Whereas media (24.1%) and frontline health workers (19.3%) were the second and third most reported sources of information in organisation A's catchment, in organisation B's catchment, these were frontline workers (26.3%) and awareness campaigns (11.9%).

Knowledge and Knowledge Score

Interviewees' knowledge regarding different aspects of AB-PMJAY, especially its eyecare provisions, is detailed in

Table 2. The type of eye services was queried only from those who knew that eye services are covered under the scheme.

Some of the interviewees in both the groups had knowledge regarding more than one topic but, at the individual level, among the interviewees, 262 (43.0% of 609) from the catchment of organisation A and 46 (8.5% of 542) from the catchment of organisation B had knowledge about at least one topic – eligibility conditions, services offered, empanelled hospitals and eyecare services covered. The remaining interviewees from the catchment area of both organisations reported having no knowledge about the same topics. Only 8.5% and 2.8%, respectively, from the catchments of organisations A and B had knowledge about all four topics.

Challenges

A total of 125 (37.8%) of 331 organisation A's catchment interviewees and 35 (71.4%) of 49 organisation B's catchment interviewees who had received their AB-PMJAY cards or had applied for that reported having faced difficulties. Fifty-one (31.8%) respondents complained that the process could not be completed in one visit. Other challenges mentioned were as follows: not getting response from the village pradhan or ASHAs (23.8%), no update regarding documents submitted (13.8%), not finding their name in the list (12.5%) and not knowing whom to contact (8.8%). Further, 9.3% (5 of 54) of organisation A's catchment interviewees reported facing difficulties while using the AB-PMJAY card: refusal for care in cases of surgery for stones, miscarriage, child delivery, ultrasonography test and treatment for cancer. Almost 55 of 56 (98.2%) organisation A's catchment participants who had accessed services under the scheme had met Arogya Mitra (AM) and 43 of 53 participants (81.1%) confirmed that services were explained to them by AM. Only 41.8% (23 of 55) participants were familiar with the process of knowing the balance after availing services.

Eyecare Services

From the catchment area of organisation A 45.5% (277 of 609) and from the catchment area of organisation B 51.7% (280 of 542) interviewees reported having experienced at least one eye problem in the past 3 years. Majority of interviewees at organisation A's catchment reported suffering from blurred vision (63.2%) or cataract (15.2%) and those at organisation B's catchment reported suffering from pain in eyes (38.2%), having itching (15.7%) and having pterygium (10.0%).

Table 2: Knowledge reported regarding AB-PMJAY and eyecare services, across the two organisations

Knowledge Criteria	Organisation A		Organisation B	
	n	Frequency (%)	*n*	Frequency (%)
Eligibility conditions	503	201 (40.0)	124	34 (27.4)
Services offered	503	134 (26.6)	124	28 (22.6)
Empaneled hospitals	503	142 (28.2)	124	32 (25.8)
Eyecare services covered	503	108 (21.5)	124	26 (21.0)
Free eye check-ups	108	91 (84.3)	26	7 (26.9)
Free cataract surgery	108	91 (84.3)	26	11 (42.3)
Free spectacles	108	28 (25.9)	26	4 (15.4)
Free specialty eye surgery (glaucoma/pterygium/retina)	108	35 (32.4)	26	5 (19.2)

Awareness of AB-PMJAY

Within organisation A's catchment, those who had primary school education had a 2.2 times higher odds of having heard about AB-PMJAY as compared to those who were illiterate ($P < 0.05$). Within organisation B's catchment, however, no significant difference was found between these categories. Further, having an annual income between one and two lakh rupees increased the odds of hearing about the scheme by 1.5 times more than those with annual income less than one lakh rupees in the catchment area of organisation A and 2.5 times in the catchment area of organisation B ($P < 0.05$). Organisational catchment-wise and combined results are displayed in Table 3.

Possession of AB-PMJAY Cards

Those who were older in age had significantly higher probability of being AB-PMJAY cardholders ($P < 0.05$), within the catchment area of organisation A, whereas within that of organisation B, age was found not be a significant covariate. Moreover, those who had been educated to high school level had 0.46 times less odds of being AB-PMJAY cardholders, as compared to those who were illiterate ($P < 0.05$), within the catchment area of organisation A. Contrarily, within the catchment area of organisation B, those having received high school education had significantly higher odds of having cards by 5.3 times ($P < 0.05$). Further, residents in urban areas from the catchment area of organisation B had significantly higher odds by 17.9 times of having an AB card, as compared to those resident in rural areas ($P < 0.05$), whereas this comparison was not applicable for the catchment area of organisation A as all participants were from villages. Lastly, female gender was not a significant predictor of having an AB card within the catchment area of organisation A, although women had a near-significant relationship with having an AB card within the catchment area of organisation B – 2.9 times higher odds. Organisational catchment-wise and combined results are displayed in Table 4.

Knowledge regarding AB-PMJAY

Participants from the catchment of organisation A who were older in age had significantly higher probability of having a knowledge score of at least 1 ($P < 0.05$). But, age played no significant role as a predictor of organisation B's catchment area. Similarly, those who had received primary school education had 2.4 times higher odds of having a knowledge score of at least 1 within the catchment of organisation A ($P < 0.05$), as compared to those who were illiterate, and having completed higher secondary education increased the probability of having a knowledge score of 1 by 3 times ($P < 0.05$), as compared to those who were illiterate. Education was found to be an insignificant predictor within the catchment of organisation B. When

Table 3: Factors which have associations with awareness about AB-PMJAY across the two organisations individually and when combined – results from regression analysis

Outcome Covariates	Organisation A		Organisation B		Organisations A and B	
	OR (Confidence Interval)	*P*	OR (Confidence Interval)	*P*	OR (Confidence Interval)	*P*
Intercept	0.93 (0.21–5.67)	0.931	0.23 (0.08–0.65)	0.005**	0.52 (0.24–1.11)	0.091*
Age	1.01 (0.99–1.03)	0.251	1 (0.98–1.02)	0.841	1.01 (1–1.02)	0.13
Female	1.21 (0.75–1.97)	0.429	0.91 (0.56–1.48)	0.713	0.74 (0.54–1)	0.051*
Marital status (unmarried)	1		1		1	
Married	1.16 (0.21–4.57)	0.846	0.97 (0.55–1.76)	0.918	1.56 (0.89–2.76)	0.122
Separated/or	0.47 (0.07–2.51)	0.383			0.72 (0.28–1.8)	0.479
Residence Rural	1		1		1	
Semi-urban	NA		1.15 (0.67–1.96)	0.601	0.21 (0.14–0.31)	0.000**
Urban	NA		0.83 (0.37–1.79)	0.647	0.94 (0.43–1.97)	0.873
Education Illiterate	1		1		1	
Primary	2.23 (1.25–4.1)	0.006**	NA		1.18 (0.79–1.78)	0.42
Middle upper primary	1.17 (0.59–2.35)	0.657	NA		1.17 (0.74–1.85)	0.508
High school	1.65 (0.67–4.57)	0.287	1.13 (0.58–2.14)	0.714	1.01 (0.6–1.69)	0.979
Higher secondary	5.74 (0.64–758.57)	0.138	1.89 (0.72–4.95)	0.193	1.54 (0.74–3.3)	0.251
Graduate above	0.35 (0–4.55)	0.464	0.64 (0.24–1.73)	0.383	0.92 (0.41–2.04)	0.84
Annual income <1 lakh	1		1		1	
1–2 lakhs	1.5 (0.95–2.37)	0.079*	2.55 (1.47–4.43)	0.001**	3.66 (2.69–5.02)	0.000**
2–3 lakhs	1.96 (0.47–18.19)	0.401	2.07 (0.91–4.87)	0.083*	1.9 (0.95–4.01)	0.071*
Above 4 lakhs	0.02 (0–4.39)	0.121	NA		0.12 (0.01–19)	0.302

*Close to significance. **Significant at 95% confidence level

Table 4: Factors which have associations with possession of AB-PMJAY card across the two organisations individually and when combined – results from regression analysis

Outcome Covariates	Organisation A		Organisation B		Organisations A and B	
	OR (Confidence Interval)	*P*	OR (Confidence Interval)	*P*	OR (Confidence Interval)	*P*
Intercept	0.19 (0.03–0.77)	0.019**	0.02 (0–0.35)	0.007**	0.13 (0.03–0.41)	0.000**
Age	1.02 (1–1.03)	0.019**	1.03 (0.97–1.1)	0.295	1.02 (1–1.03)	0.012**
Female	1.17 (0.78–1.76)	0.437	2.91(0.87–11.8)	0.083*	1.17 (0.81–1.7)	0.407
Married	1.71 (0.47–9.18)	0.44	0.68 (0.16–3.32)	0.61	1.95 (0.71–6.61)	0.204
Separated/or	1.66 (0.29–12.01)	0.578			2.17 (0.5–10.24)	0.303
Semi-urban			2.2 (0.48–11.33)	0.309	0.32 (0.14–0.66)	0.001**
Urban			17.95 (2.87–152.95)	0.001**	22.18 (5.45–109.87)	0.000**
Primary	0.71 (0.4–1.24)	0.227			0.82 (0.48–1.38)	0.448
Middle upper primary	1.44 (0.83–2.53)	0.198			1.26 (0.75–2.14)	0.388
High school	0.46 (0.23–0.88)	0.019**	5.35 (1.13–29.54)	0.034**	0.61 (0.33–1.11)	0.107
Higher secondary	1.94 (0.81–4.67)	0.137	0.26 (0.03–1.73)	0.166	1.38 (0.62–3.02)	0.429
Graduate above	0.89 (0.37–2.16)	0.793	0.22 (0–3.56)	0.31	0.89 (0.39–2.03)	0.779
1–2 lakhs	0.98 (0.65–1.46)	0.903	0.56 (0.1–2.7)	0.478	1.1 (0.76–1.61)	0.614
2–3 lakhs	1.3 (0.62–2.71)	0.486	3.35 (0.64–20.93)	0.154	1.45 (0.74–2.78)	0.274
Above 4 lakhs	0.24 (0–5.19)	0.368			0.25 (0–5.26)	0.375

*Close to significance. **Significant at 95% confidence level

compared to having an annual income under one lakh rupees, having an annual income between two and three lakh rupees increased the odds of having a knowledge score of at least 1, in the catchment of organisation A by 3.1 times ($P < 0.05$) and in the catchment of organisation B by 8.5 times ($P < 0.05$). Location of residence was not a predictor in organisation A's catchment as all participants were from rural areas. For organisation B's catchment, participants who were resident in urban areas had 3.4 times significantly ($P < 0.05$) higher odds of having a knowledge score of at least 1. Gender was not found to be a significant predictor at the catchment area of both organisational locations. Organisational catchment-wise and combined results of regression analysis are displayed in Table 5. The same factors were significant predictors for having a knowledge score of 4 as for participants having knowledge score of at least 1 for the catchment areas of organisations A and B individually, as well as the two combined.

The results of a multivariate regression model including village as a random effect, keeping the other independent covariates unchanged, are shown in Table 6. The village effect was found to be significant for most of the knowledge and awareness

Table 5: Factors which have associations with having a knowledge score of at least 1 across the two organisations individually and when combined – results from regression analysis

Outcome Covariates	Organisation A		Organisation B		Organisations A and B	
	OR (Confidence Interval)	*P*	OR (Confidence Interval)	*P*	OR (Confidence Interval)	*P*
Intercept	0.1 (0.03–0.36)	0.000**	0.08 (0.02–0.34)	0.001**	0.07 (0.03–0.15)	0.000**
Age	1.02 (1.01–1.04)	0.001**	1.01 (0.98–1.04)	0.533	1.02 (1.01–1.04)	0.000**
Female	1.17 (0.8–1.71)	0.431	1 (0.49–2.02)	0.989	0.96 (0.7–1.33)	0.813
Married	0.91 (0.29–2.96)	0.864	0.7 (0.33–1.58)	0.378	1.09 (0.58–2.16)	0.794
Separated/or	0.6 (0.13–2.74)	0.507			0.81 (0.27–2.3)	0.69
Semi-urban			0.6 (0.25–1.38)	0.234	0.13 (0.07–0.24)	0.000**
Urban			3.41 (1.16–10.25)	0.026**	5.21 (1.96–13.49)	0.001**
Primary	2.41 (1.44–4.04)	0.001**			1.94 (1.23–3.07)	0.005**
Middle upper primary	1.14 (0.69–1.88)	0.619			1.28 (0.82–2.01)	0.273
High school	0.92 (0.51–1.65)	0.770	1.6 (0.63–3.77)	0.31	0.83 (0.5–1.36)	0.465
Higher secondary	2.99 (1.24–7.62)	0.014**	2.53 (0.77–8.34)	0.124	2.57 (1.31–5.08)	0.006**
Graduate above	0.86 (0.32–2.19)	0.754	0.8 (0.24–2.63)	0.707	0.9 (0.45–1.82)	0.771
1–2 lakhs	1.32 (0.91–1.91)	0.139	0.55 (0.16–1.47)	0.247	1.87 (1.36–2.56)	0.000**
2–3 lakhs	3.1 (1.36–7.84)	0.006**	8.5 (2.5–33.33)	0.001**	3.48 (1.82–6.96)	0.000**
Above 4 lakhs	0.2 (0.01–31.16)	0.408			0.22 (0.01–34.3)	0.435

*Close to significance. **Significant at 95% confidence level

indicators in both organisations. Table 6 also shows the list of significant variables for each outcome indicator in the model that includes village as a random effect.

Discussion

A higher percentage of participants from the catchment of organisation A were aware of AB-PMJAY than those at the catchment of organisation B, with the proportion of those having scheme cards, or having applied for same, following the same trends across organisations. Organisation B's catchment area had no existing beneficiaries. Of those aware of the scheme, most participants reported friends and family as their primary sources of information; 57% of interviewees for organisation A's catchment and more than 90% from organisation B's catchment had no knowledge about the details of the scheme. Difficulty in receiving scheme cards was a common challenge faced across the two organisations. Approximately half of all participants interviewed had experienced eye problems. At organisation A's catchment, blurred vision was the main reason patients had accessed eyecare services through AB-PMJAY.

Our study reports two different figures for awareness, 82.6% and 22.9%. Another community-based study from Chennai reports 77.3% awareness among the study population,[14] whereas a study from Jammu and Kashmir reports 28.15% awareneas.[15] Pan-Indian research from six states shows that 61.5% of study participants were aware of the scheme, though a larger proportion of females were found to be in the unaware group.[16] Research from Bihar reports awareness to be 68.6% in community.[17] Approximate age profile of participants in all four research endeavours was also the same; however, age was found not to be a factor significantly associated with awareness regarding scheme in our study, and female sex was only found to be near significant (*P* value = 0.051) when participants across the catchment areas of organisations A and B were combined. Moreover, no literature reports district-wide differences within same state. As per our study, differences may be present in awareness across districts as well as in the same state.

Very few of the participants who were aware about the scheme, from the catchments of both organisations in our study, had the scheme card or had applied for the same (under 40% for both organisations). A study from Mysuru also reported a low proportion of AB-PMJAY cardholders (33%[18]), although the study from Bihar reported 58% eligible participants as having cards.[17]

A study from Chennai reports 47.24% service utilisation among covered families,[14] the study from Mysuru reports 78.95%,[19] the study from Bihar reports 1.3% utilisation[18] and a study from Karnataka reports 78.8% service utilisation among those eligible.[19] Only AB-PMJAY cardholders from organisation A's catchment in our study had availed any services, with 29.5% service utilisation. These results are significantly lower than those from south India and can be attributed to differences in study region and sampling methodology. The study from Karnataka is a hospital-based analysis of COVID-19 patients, therefore attributed to overestimation of coverage due to their pre-established health-seeking behaviour.[14,17-20]

Among those who utilised care through AB-PMJAY, majority availed surgical services such as cataract (50%). This trend in types of services utilised is the same for Chennai and Mysuru studies as well.[14,20] These results are explained by the fact that most surgical procedures across India are performed as in-patient services, and AB-PMJAY focuses bulk of its funding towards the same.[7,21]

Similar to results in our study, studies from pan-India and Bihar find friends and family to be the primary sources of information about AB-PMJAY.[14,17] Analogously, ASHAs and/or frontline workers were found to be the second most reported sources of information across previous literature,[14,17] as well as for

Table 6: Results of mixed model multivariate logistic regression with village as a random effect

Organisation A		
Variables	**Odds ratio**	***P***
Outcome: heard about Ayushman Bharat		
Village (as random effect)	1.90	0.00
Other significant fixed-effect variables		
Primary education	2.29	0.01
Outcome: have Ayushman Bharat card		
Village (as random effect)	1.32	0.19
Other significant fixed-effect variables		
Age	1.02	0.01
High school education	0.44	0.02
Outcome: knowledge score at least 1		
Village (as random effect)	1.42	0.04
Other significant fixed-effect variables		
Age	1.02	0.01
Primary education	2.36	0.00
Higher secondary education	3.23	0.01
Annual household income 2–3 lakhs or more	3.23	0.01
Outcome: knowledge score 4		
Village (as random effect)	1.84	0.06
Other significant fixed-effect variables		
High school education	4.06	0.02
Annual household income 2–3 lakhs or more	3.73	0.00
Outcome: have availed the service		
Village (as random effect)	3.68	0.00
Other significant fixed-effect variables		
Organisation B		
Outcome: heard about Ayushman Bharat		
Village (as random effect)	1.44	0.04
Other significant fixed-effect variables		
Annual household income 1–2 lakhs or more	2.18	0.02
Outcome: have Ayushman Bharat card		
Village (as random effect)	1.00	1.00
Other significant fixed-effect variables		
Urban	42.72	0.00
Outcome: knowledge score at least 1		
Village (as random effect)	3.06	0.00
Other significant fixed-effect variables		
Annual household income 2–3 lakhs or more	5.31	0.02
Outcome: knowledge Score 4		
Village (as random effect)	1.00	1.00
Other significant fixed-effect variables		
Urban	18.43	0.01
Annual household income 2–3 lakhs or more	12.17	0.05

participants from the catchment of organisation A in our study. However, from Gujarat, receiving a letter from the government was quoted as the main source of information, whereas, in Madhya Pradesh, visits to the nearest service centre fulfilled that need.[22] Thus, awareness campaigns targeted at community at large through these mediums are recommended as overall knowledge about the scheme was poor in our study.

Our study reveals a geographical influence on various knowledge and awareness indicators. However, we observe that the significance of the variables changes under the two models with and without the village effect. This implies that geographical impact is associated with varying socio-demographic and socio-economic characteristics of the villages. The effects of the socio-demographic and socio-economic profiles are better understood by the model without the village effect as they may have been masked by the village effect. However, inter-village differences may also exist due to other reasons as well, such as engagement of the frontline health workers, access to healthcare and connectivity.

Eligibility conditions for AB-PMJAY were the most well-known aspect of the scheme, whereas eyecare services covered were the least known. In two studies from rural Uttar Pradesh, knowledge regarding scheme and its aspects was found to be extremely poor,[23,24] with similar results being reported from Jammu and Kashmir as well.[15] However, in prior studies from across India, knowledge about factors such as coverage, hospitalisation expenses, eligibility criteria and scheme cards was reported to be higher.[16,17]

Existing literature primarily focuses on challenges faced in access to care using AB-PMJAY.[21,22,25] In our study, almost 40% of those who had applied for the AB-PMJAY card felt some challenges. The process needs to be streamlined such that multiple visits to the centres can be avoided and the village heads and ASHAs are well oriented.

One of the limitations of our study is that only villages within the catchment areas of the existing primary eyecare centres were selected randomly and this may have led to overestimation of awareness; however, we excluded villages having undergone any door-to-door program. Further, as we used cluster sampling technique for a representative sample, it may have included some interviewees not eligible for the scheme, thus affecting awareness levels. Another limitation is that our study did not probe issues like connectivity, availability of frontline health workers and access to healthcare, which might have contributed to the varying level of knowledge and awareness about the Ayushman Bharat scheme and the uptake.

A seminal strength of our analysis is that it uses data from two organisations, across different districts in a state, to study awareness, knowledge and challenges – a first of its kind from the country, especially from an eyecare perspective.

Conclusion

In this study, we found that awareness regarding the scheme was varied in the villages within the same state and, even among those who had heard of the scheme, knowledge and utilisation were found to be limited. Cataract being the most common surgical procedure availed, onus should be on community eyecare organisations, with established outreach teams, to make people aware of the details to enable increased uptake. This would benefit the catchment population and may have a positive impact on sustainability of these organisations which offer surgeries free of cost to patients.

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Key message

Varied awareness and limited knowledge in catchment villages put the onus on community eyecare organisations to spread information to increase the uptake and utilisation of AB-PMJAY. Challenges faced by beneficiaries need to be addressed. Increased uptake would benefit the catchment population and may have a positive impact on the sustainability of community eyecare organisations offering free surgeries.

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Conflicts of interest

There are no conflicts of interest.

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