Out-of-Pocket Expenditure and Treatment Outcomes Among Rural Beneficiaries of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana in Banda District, Uttar Pradesh: A Cross-Sectional Study

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Abstract

Background: Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) was launched to improve access to healthcare and provide financial risk protection to economically vulnerable populations in India. However, evidence regarding beneficiary satisfaction and financial protection in underserved regions such as Bundelkhand remains limited. The objectives of the study are to evaluate hospital utilization, benefit coverage, and treatment outcomes among Ayushman Bharat Yojana beneficiaries, and to assess the financial protection provided by AB-PMJAY by measuring the out-of-pocket expenditure incurred by beneficiaries during the healthcare services received. **Materials and Methods:** A hospital-based cross-sectional study was conducted from January to December 2024 among 300 AB-PMJAY beneficiaries admitted to selected government and empanelled private hospitals in Banda district. Data were collected through face-to-face interviews using a pre-tested semi-structured questionnaire. Information on healthcare experiences, scheme awareness, service utilization, hospitalization-related problems, satisfaction, and out-of-pocket expenditure (OOPE) was analysed using descriptive statistics. **Results:** Among 300 beneficiaries, 73.3% were admitted to government hospitals and 36.7% received treatment in medicine departments. Most patients had gradually progressive illnesses (52.3%) and hospital stays of less than 7 days (76.0%). Awareness of AB-PMJAY was reported by 72.0%. Coverage was highest for surgical items (93.0%). Overall, 78.0% improved or were cured, while 63.0% incurred no OOPE. **Conclusion:** AB-PMJAY improved healthcare access and financial protection, with favourable outcomes in 78.0% and no out-of-pocket expenditure in 63.0%. However, persistent awareness gaps and residual expenses highlight the need for better coverage.

Key words: Ayushman Bharat, PM-JAY, out-of-pocket expenditure, Universal Health Coverage

Introduction

Health insurance in India began with the Employees' State Insurance Scheme (1948), followed by the Central Government Health Scheme in 1954 and the first standardized Mediclaim policy introduced by the General Insurance Corporation of India in 1986.[1] Despite several government and private initiatives, out-of-pocket expenditure (OOPE) has remained a major source of healthcare financing in India and an important barrier to financial risk protection. The latest National Health Accounts estimates for 2021-22 reported that OOPE accounted for 39.4% of total health expenditure, although this represented a decline over time as government health expenditure increased.[2] Recent evidence also indicates that OOPE can continue among beneficiaries of publicly financed health insurance because of non-covered medicines, diagnostics, and other implementation-related gaps. A 2023 evaluation of PM-JAY found a relative reduction of 13% in OOPE and 21% in catastrophic health expenditure, while a 2024 systematic review reported mixed financial protection and persistent beneficiary spending on medicines and diagnostic tests.[3-5] These concerns are particularly relevant in rural and socioeconomically disadvantaged populations, where access to appropriate healthcare may be constrained by geographic and financial barriers. Earlier schemes such as Rashtriya Swasthya Bima Yojana faced challenges including low enrolment, reimbursement caps, and exclusion of outpatient care.[6] To strengthen financial risk protection and advance Universal Health Coverage (UHC), the Government of India launched Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) in 2018.[7] The scheme targets economically vulnerable families identified through SECC 2011 data and provides annual cashless coverage of up to Rs. 5 lakh for secondary and tertiary hospitalization at empanelled public and private hospitals across India, with portability and no restriction on family size or age.[8]

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY) was created to improve access to hospital care and provide financial protection to economically disadvantaged

households. However, evidence suggests that insurance coverage does not necessarily eliminate OOPE, and the magnitude and causes of residual expenditure may vary by type of facility and beneficiary characteristics. Recent national and state-level studies have highlighted continued OOPE and mixed financial protection among PM-JAY beneficiaries.[3-5] There is limited district-level evidence from rural areas of the Bundelkhand region, particularly Banda district, regarding the extent of OOPE, treatment outcomes, and gaps in benefit coverage among beneficiaries. Assessing these outcomes in the rural population of Banda can therefore provide locally relevant evidence on the effectiveness of AB-PMJAY in reducing financial burden and supporting hospitalization outcomes, while identifying implementation gaps that can be addressed by programme managers and healthcare providers.

Despite its ambition, AB-PMJAY faces challenges such as unequal healthcare access, incomplete awareness, and persistent OOPE even among enrolled beneficiaries. Rural populations in Banda district may be particularly vulnerable because of limited healthcare infrastructure, geographic barriers, and socioeconomic constraints. Therefore, there is a need to assess the real-world experience of rural AB-PMJAY beneficiaries in terms of hospital utilization, benefit coverage, treatment outcomes, and residual OOPE. The present study was undertaken to generate district-specific evidence that can help identify gaps and guide improvements in scheme implementation and financial protection.

Aim

To assess hospital utilization, benefit coverage, treatment outcomes, and out-of-pocket expenditure among rural beneficiaries of the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) in Banda district, Uttar Pradesh.

Objectives

To comprehensively assess hospital utilization, benefit coverage, treatment outcomes, and financial protection, including out-of-pocket expenditure, among rural beneficiaries of the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) in Banda district, Uttar Pradesh.

Materials and Method

The study is carried out in Banda district of Bundelkhand region of Uttar Pradesh, India. This district mainly includes rural areas and faces several socio-economic challenges, including limited access to healthcare services and high healthcare expenses paid directly by families. These factors made Banda an appropriate setting for assessing the satisfaction of beneficiaries enrolled under the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY).

The study was conducted in Banda district of the Bundelkhand region of Uttar Pradesh, India, with a predominantly rural population and substantial socioeconomic and healthcare-access challenges. These conditions made Banda an appropriate setting for assessing the utilization, benefit coverage, treatment outcomes, and financial protection experienced by rural beneficiaries enrolled under AB-PMJAY.

Data were collected from government and private hospitals empanelled under AB-PMJAY, namely Rani Durgavati Medical College, District Hospital Banda, Kamla Hospital Atarra, and MM Hospital Baberu. A hospital-based cross-sectional study design was used to assess beneficiaries' experiences with the scheme. The study population comprised rural residents of Banda district who had received inpatient treatment under AB-PMJAY during the data-collection period. Participants were selected using population-proportionate sampling according to the type of hospital attended.

Inclusion criteria: Beneficiaries aged 18 years or older who were permanent residents of rural areas of Banda district, were enrolled under AB-PMJAY, had received inpatient treatment at a selected empanelled hospital, and provided written informed consent were eligible for participation. For beneficiaries younger than 18 years, the accompanying parent or legal guardian was considered eligible to provide the required information.

Exclusion criteria: Beneficiaries or attendants who were unwilling to participate, those who were not residents of rural Banda district, those admitted without using AB-PMJAY benefits, and repeat admissions of the same beneficiary during the study period were excluded.

During each hospital visit, investigators obtained a list of AB-PMJAY beneficiaries who were expected to be discharged within the next 24 hours. Face-to-face interviews were conducted at the bedside after obtaining written informed consent. If a patient was unable to participate, a close family attendant was interviewed instead. Data were collected using a pre-tested semi-structured questionnaire covering socio-demographic characteristics, awareness and utilization of AB-PMJAY services, healthcare expenditure, and perceptions of the scheme's impact on the family's health and financial security. Data were first recorded manually and then entered into Microsoft Excel. Descriptive analyses were performed, and the results were interpreted according to the study objectives.

Ethical Approval & Informed Consent: Written informed consent was obtained from all participants before data collection. Ethical approval was obtained from the Institutional Ethics Committee of Rani Durgawati Medical College, Banda (IEC/RDMC/Cert/19). Confidentiality of participants was strictly maintained, and participation was voluntary with the right to withdraw at any time without consequences.

Results

Government hospitals were the primary providers of care, accounting for nearly three-fourths (73.3%) of admissions. The

medicine department reported the highest utilization (36.7%), followed by surgery (17.7%) and orthopaedics (15.7%). More than half of the patients (52.3%) had gradually progressive illnesses, and most admissions (76.0%) lasted less than one week. Although 72.0% of participants were aware of ABY before admission, over one-quarter (28.0%) had no prior awareness of the scheme (Table 1).

Table 1. Hospital Utilization and Clinical Characteristics of Beneficiaries (N=300)

Variable	Category	n (%)
Type of Hospital	Government	220 (73.3)
	Private	80 (26.7)
Department of Admission	Medicine	112 (36.7)
	Surgery	53 (17.7)
	Orthopaedics	47 (15.7)
	Paediatrics	37 (12.3)
	Obstetrics & Gynaecology	32 (10.7)
	Ophthalmology	10 (3.3)
	ENT	9 (3.0)
Disease Progression	Acute/ Rapidly progressive	143 (47.7)
	Insidious/ Gradually progressive	157 (52.3)
Length of Hospital Stay	1–7 days	228 (76.0)
	8–14 days	52 (17.3)
	15–20 days	20 (6.7)
Awareness of ABY	Aware and used previously	115 (38.3)
	Aware but never used	101 (33.7)
	Unaware before admission	84 (28.0)

Benefit coverage under ABY was high, particularly for surgical items (93.0%), hospital stay (88.0%), and investigations (85.0%). Medicine coverage was comparatively lower (75.0%). Approximately 15% of beneficiaries reported difficulties accessing information or experienced delays in treatment initiation, while 10% encountered problems related to admission formalities. Preference for private facilities was the most commonly cited reason for choosing a healthcare facility (35.3%) (Table 2).

Table 2. Benefit Coverage and Problems Faced During Hospitalization (N=300)

Variable	Benefits Covered/Faced	n (%)
Benefits Covered	Investigations	255 (85.0)
	Medicines	225 (75.0)
	Surgical items	279 (93.0)
	Hospital stay & others	264 (88.0)
Problems Faced During Admission	Accessing help/ information	46 (15.3)
	Formalities/ documentation	30 (10.0)
	Delay in treatment initiation	45 (15.0)
Reason for Facility Selection	Preferred private facility	106 (35.3)
	Lack of awareness of private services under ABY	54 (18.0)
	Referred/refused due to expenses in private sector	45 (15.0)
	Positive previous experience with government hospitals	31 (10.3)
	Other reasons	64 (21.3)

Most beneficiaries reported favourable treatment outcomes, with 47.7% showing improvement and 30.3% achieving complete cure-only 9.7% experienced deterioration in their condition. Financial protection under ABY was substantial, as 63.0% of beneficiaries incurred no out-of-pocket expenditure during hospitalization. However, approximately one-fourth of participants (28.9%) still reported spending more than Rs.1000, indicating residual financial burden despite scheme coverage (Table 3).

Table 3. Treatment Outcomes and Out-of-Pocket Expenditure among Beneficiaries (N=300)

Variable	Category	n (%)
Treatment Outcome	Improved	143 (47.7)
	Cured	91 (30.3)
	No difference	37 (12.3)
	Deteriorated	29 (9.7)
Total Out-of-Pocket Expenditure	₹0	189 (63.0)
	₹1-1000	24 (8.0)
	₹1001–2500	43 (14.3)
	₹2501–4000	16 (5.3)
	>₹4000	28 (9.3)

Discussion

Government hospitals accounted for the majority of admissions (73.3%), indicating greater dependence on public healthcare facilities among AB-PMJAY beneficiaries. Similar findings were reported by Dewan D et al. (2016)[9] and Karan A et al. (2017)[10], who observed higher utilization of government hospitals among rural and economically disadvantaged populations. Medicine was the most commonly utilized department (36.7%), followed by surgery and orthopaedics, reflecting the substantial burden of medical illnesses among beneficiaries. More than half of the participants (52.3%) had gradually progressive diseases, comparable to findings by

Nandi S et al. (2012)[11] and Ghosh S et al. (2014)[12], who reported a high prevalence of chronic illnesses among insured beneficiaries. Most participants (76.0%) stayed in hospital for less than one week, suggesting that AB-PMJAY largely supports short-term inpatient care. Similar observations were reported by Hooda SK et al. (2017)[13] and Saxena D & Sharma J (2018)[14]. Although 72.0% of beneficiaries were aware of the scheme before admission, 28.0% remained unaware, indicating the need for improved awareness activities. Comparable findings were reported by Sriee VPGV & Maiya GP (2021)[15] and Venkatesh U et al. (2019).[16]

Benefit coverage under AB-PMJAY was high, particularly for surgical items (93.0%), hospital stay (88.0%), and investigations (85.0%). However, medicine coverage was comparatively lower (75.0%), consistent with reports by Hooda SK et al. (2017)[13] and Karan A et al. (2017)[10], who identified medicine expenses as a common gap in insurance coverage. A minority of beneficiaries reported difficulties in accessing information (15.3%), delays in treatment initiation (15.0%), and documentation-related problems (10.0%). Similar barriers were reported by Nandi S et al. (2012)[11] and Dewan D et al. (2016)[9]. Preference for private facilities was the most common reason for facility selection (35.3%), while 18.0% lacked awareness regarding private services under the scheme. Comparable findings were reported by Pareek et al. (2018)[17] and Khetrapal & Acharya (2019).[18]

Most beneficiaries reported positive treatment outcomes, with 47.7% showing improvement and 30.3% achieving complete cure. Only 9.7% experienced deterioration. These findings are similar to those reported by Pareek et al. (2018)[17], Angell et al. (2019)[19], and Khetrapal & Acharya (2019)[18], who also documented favorable outcomes among PM-JAY beneficiaries. Financial protection under AB-PMJAY was substantial, as 63.0% of participants incurred no out-of-pocket expenditure.

The present study found that 63.0% of beneficiaries incurred no OOPE during hospitalization, while 37.0% incurred some expenditure; 29.0% spent more than Rs. 1000. This indicates substantial financial protection, but also demonstrates that insurance coverage did not completely eliminate residual expenditure. These findings are consistent with recent evidence showing mixed financial protection under PM-JAY. Parmar et al. reported a relative reduction of 13% in OOPE and 21% in catastrophic health expenditure among PM-JAY-eligible populations, while a systematic review found continued spending on medicines and diagnostic tests and other implementation-related gaps.[3,4] The latest National Health Accounts estimates further show that OOPE remained 39.4% of total health expenditure in India in 2021-22, underscoring the continuing importance of financial risk protection.[2] More recent evidence from Haryana also found substantially lower direct medical expenditure among PM-JAY beneficiaries than among non-beneficiaries, although residual costs varied by hospital type and other factors.[20] In the present study, the relatively lower coverage of medicines (75.0%) compared with surgical items (93.0%), hospital stay (88.0%), and investigations (85.0%) may partly explain the persistence of OOPE.

Conclusion

The study indicates that AB-PMJAY provided substantial financial protection and supported hospitalization among rural beneficiaries in Banda district. Government hospitals accounted for 73.3% of admissions, 78.0% of beneficiaries reported improvement or cure, and 63.0% incurred no OOPE. However, 37.0% still incurred some expenditure and 29.0% spent more than Rs. 1000, while 28.0% were unaware of the scheme before admission. Based on these findings, the programme should strengthen village- and hospital-level awareness activities, improve counselling regarding covered benefits, ensure timely availability of medicines and investigations included in the package, and reduce delays related to admission and treatment initiation.

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