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Understanding and Optimizing PM-JAY: A Case Study of Balasore District, Odisha

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1. Introduction

The Indian health care system is becoming more vulnerable for the poor people due to main four reasons : due to inflation in medical expenses, low expenditure by the government on public health service, due to higher rate of communicable diseases and for the high out of pocket expenditure (Panda B et al.2020). The high out of pocket expenditure on medical expenditure leads to high-interest debt for the middle and lower middle class Indian family and they get into a serious debt trap. This expenditure forces the people to sell their assets and compels them to pull out resources from the basic necessities like food, cloth, shelter, education (Mohanty SK et al. 2013). This situation causes short-term health problems to a long term poverty for the family (Karan AK et al. 2009). When the households are unable to borrow money at the time of seeking high value care, they are forced to compromise with their health which further leads them to poor health outcomes and degrades their work capacity and pushes them further into the trap of poverty (Garg P & Nagpal J 2014). A study conducted across Global South countries, which finds that sudden health shocks are one of the major reasons for impoverishment among peoples of those countries (Jakovljevic et al. 2016). The risk of impoverishment due to health in India is more serious due to existing large-scale poverty in India. In India the poverty rate is around 4.5 – 5%, where rural poverty is equal to 7.2% and urban poverty 4.6%. Expenditures on social expenditure increases form 6.7% of GDP (Gross Domestic Product) in the year 2017-18 to 7.8% in 2023-24. In India state specific economic and social factors play a significant role in the existence of poverty of any region. The rising cases of communicable diseases in India give a boost towards the medical expenditure which tends to increase the out of pocket expenditure of people(Menon J et al. 2022). As per the report of Centre for Economic Data and Analysis, In November 2022, overally Indian households spent nearly INR 120 billion on health and health-care related services. The average rural household spent INR 309 whereas in the case of urban households it was about INR 460. In order to protect poor household form high out of pocket expenditure and catastrophic health expenditure and to treat their health related suffering, health insurance has become life saving drug for the poor people as a good insurance scheme protects people from the financial consequences related to the utilisation of medical care (Aggarwal A 2010; Devadasan N et al. 2012).

The new world is moving towards achieving success through providing best public welfare facilities and organisations like the United Nation Organisation (UNO) and World Health Organisation (WHO) are continuously working for the sustainable growth of the member nations. The United Nations' 17

Sustainable Development Goals (SDGs) aim to achieve decent lives for all on a healthy planet by 2030; in which Good health and well-being and No Poverty are being the major concern for the developing countries India. Towards the achievement of Good Health and Well-being , Universal Health Insurance (UHC) was the major forward step to extent best health care facilities to every poor community of a nation. the factors like country specific structural factors and increased spending on providing UHC are the primary target for achieving UHC (Ranabhat CL et al. 2020). The UHC service coverage index increased from 45 to 68 between the period of 2000 to 2021 and the proportion of the population no covered by essential health services decreased by about 15% in that period (World Health Organisation/Universal Health Coverage 2023). Many countries are moving forwards towards the achievement of UHC in different pathways; in some countries providing UHC was the sole responsibility of central, whereas countries like India are in federal form and multiple UHC schemes were operating across the country.

In India UHC initiatives were started in the year, way before the declaration of Sustainable Development Goals (SDG) 2015. India was moved many step forwards towards the achievement of UHC. In the year 2008 a flagship scheme of UHC named Rashtriya Swasthya Bima Yojana (RSBY) or National Health Insurance Scheme was introduced by the Indian Government as a cashless scheme to cover the all the hospitalisation expenses of the patients of the BPL families. The scheme covered the expenses starting from the admission and surgical procedures upto INR 30,000 yearly for a family of upto five members. Some studies also revealed that the beneficiaries of the RSBY scheme were satisfied with the scheme and wanted to renew the scheme (Rao MG 2012). Some other studies also found that the UHC scheme reducing and keeping treating inpatients and outpatients care. The schemes also criticised for its coverage only extended to BPL families ignoring APL, who are also at vulnerable condition and also under the debt trap due to high out of pocket expenses; the coverage amount is also very low to cover major surgery and does not cover medication expenses. It has also been criticised for its complex administration which leads to high management cost, lack of utilization of the scheme among users and for its narrow focus (Selvarah S et al. 2022). To overcome the failures of RSBY, the Union Government of India launch new scheme of UHC named Ayushman Bharat Pradhan Mantri Jan Dhan Yojana (AB PM-JAY) (Prime Minister's People's Health Scheme) in the year 2018.

Concept and Framework:

In India, Odisha is one of the states with a population of about 46.66 million and it is about 3.47% of Indian population. For being the 11th most populated state of India, according to the 2023 Multidimensional Poverty Index (MPI) progress review, odisha ranks 8th among all the states in India in terms of poverty and having 14.96% poverty rate at national level. Near about 38% of its population belongs to Scheduled Caste, Scheduled Tribe and other vulnerable sections of the society. Odisha also suffers from frequent cyclones which also destroy the crops and push the people towards the poverty line. The state also suffers from a higher disease burden of both communicable and non-communicable diseases (Hota AK et al. 2016). These factors contribute towards the financial vulnerability of the people of Odisha.

After the declaration of the PM-JAY health insurance scheme in the year 2018, there are some long existing conflicts between the Union Government and State Government of Odisha and after long negotiation between the parties; Odisha kept outside the purview of PM-JAY. These differences make odisha people suffer from the vulnerable out of pocket medical expenditure. After this, the Government

of Odisha declared its own Flagship Health Insurance Scheme named " Biju Swasthya Kalyan Yojana (BSKY)" on 15th August 2018 by combining all the existing state schemes. The state government was aiming to provide Universal Health Coverage and towards providing special importance to financially vulnerable families of Odisha. BSKY was successfully run by the BJD Govt. in odisha but in the year 2024 when BJP Govt. came to power in odisha. After three month they initially changed the name of BSKY scheme to Gopabandhu Swastya Kalyan Yojana and on the month of April the Govt.of Odisha sign MoU with National Health Authority (NHA) under the Ministry of Health and Family Welfare for implementation of PM-JAY yojana in odisha. With this, Odisha became the 34th state to implement PM-JAY(ETV Bharat). The coverage amount is limited to INR 5,00,000 per family and additionally INR 5,00,000 for the women member of the family after exhaustion of initial limit. At state government health care facilities all medical expenditure will be borne by government including Drugs, Diagnostics, Dialysis, Cancer Chemotherapy, OT, ICU, Blood bank etc; in case of empanelled hospitals the PM-JAY smart card holder or ration card holder can avail cashless treatment including medical expenditure of Registration, Consultation, Medical-test, Pathologies, Treatment, IPD etc. upto the coverage limit of INR 5,00,000.[1]

Statistics of PM-JAY Scheme (From 23rd Sepmtember 2018 to 18th June 2025)[2]

Sl no.	Particulars	Figures(Amount/ No. of cases)
1	Total Expenses at Empanelled Hospitals	INR. 7537.21 Cr.
2	Total admission at Empanelled Hospitals	35,51,985
3	Cataract Surgery Claims	5,82,462
4	Dialysis Claims	3,89,853
5	Organ Tissue Transplant Claims	319
6	Cardio Thoracic Vascular Surgery Claims	11,019
7	Oncology Claims	2,12,775
8	Obstetrics Genecology Claims	3,16,829

Previously many studies were done on the health insurance schemes of both India and Odisha and in those studies the major problem arises is the effective utilization of these health insurance schemes and besides providing affordable and risk free health coverage the major hurdle is the lack of awareness among the people (Panda B 2018). The present study is to find out the certain important facts which lead to acknowledge the awareness level of people and effective utilization of PM-JAY in Odisha.

2. **Research Methodology**:

Study Design, Data Collection

The objective of the study is to find out the utilisation of PM-JAY and its awareness. The study is based on primary data. For the collection of data Balasore district of odisha is selected as it is one of the

[1] https://PM-JAY.odisha.gov.in/PM-JAY/contentPage/aboutPM-JAY
[2] PM-JAY Portal-https://PM-JAY.odisha.gov.in/PM-JAY/home

developed districts of Odisha. As the developed district is odisha it recorded high medical expenditure; therefore Balasore was selected. Balasore is the north-eastern coastal district of Odisha; Balasore is named as "Missile City of Odisha" due to the presence of DRDO. It is spread over an area of 3634 sq kms and has a population of 23,17,419 as per census 2011. Multiple random sampling methods are used to select three representative sample villages. Out of 12 blocks of the district, Soro block was selected by following the chit lottery method. Soro has 22 gram-panchayats out of which Madhusudanpur, Sabira, Nadigan were selected. Out of 8 villages of Madhusudanpur Raghunathpur was selected, Out of 5 villages of Sabira Bhatapada was selected and out of 7 villages of Nadigan Guhaldihi was selected. Fifty households from each village making a total of 150 sample households were selected randomly. The data was collected by conducting direct personal interviews using pre-structured schedules between May and June of 2024.

Statistical Analysis

Descriptive analysis was carried out using percentage, averages, standard deviation, tables and graphs. PM-JAY awareness of the households was recorded in a discrete binary response format and binomial logistic regression model is used to identify its determining factors.

$$Yi = log(\frac{P}{1-P}) = \sum_{i=1}^{10} \blacksquare \beta i Xi + ui$$

Yi = Awareness on PM-JAY

Yi = 1, If aware

= 0; otherwise

Xi = Selected Independent Variables; Variables i = 1……10

Ui = Idiosyncratic Error Term

Multi-Collinearity test was carried out using Variance Inflation Factor (VIF) to test for linear auto-correlations among the independent variables.

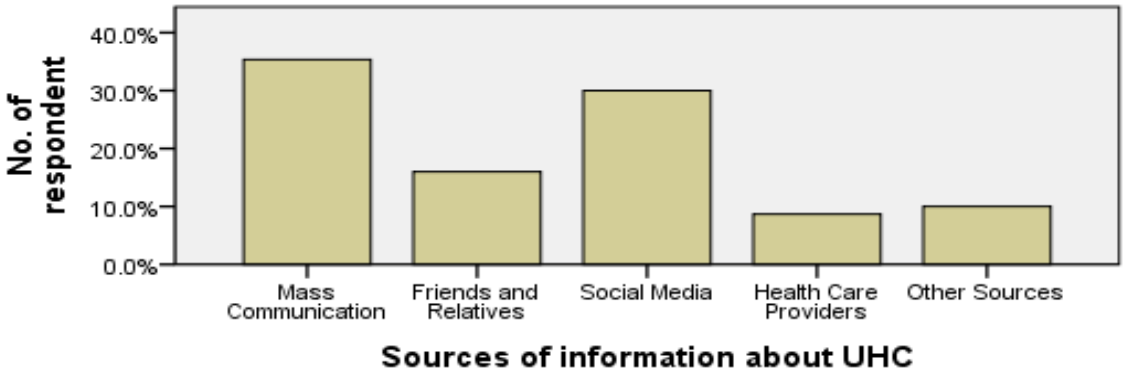
3. Results

PM-JAY Awareness among Households

Table 1 displays the list of respondents under the PM-JAY scheme taken for the research. Out of the total sample of 150 respondents 49, 51, 50 are from Raghunathpur, Bhatapada, Guhaldihi village respectively; maximum respondents are from OBC (28%); whereas lowest from ST (20.7%). Raghunathpur village has a more significant proportion of OBC and General Caste respondents, while Bhatapada and Guhaldihi have a stronger presence of SC and ST groups. This may imply that Raghunathpur is relatively more privileged or economically developed, while the other two villages are more diverse and socially disadvantaged.

Table 1 : Caste of the respondent of different villages[3]

Village of the respondent	Caste of the respondent				Total
	General	OBC	SC	ST	
Raghunathpur	16	18	10	5	49
Bhatapada	9	14	15	13	51
Guhaldihi	13	10	14	13	50
Total	38	42	39	31	**150**



The Bar-graph represents the sources of information about the Universal Health Insurance (UHC) scheme. Mass communication and social media are the dominant sources of information about UHC, each used by about 35% of the respondents.Friends and relatives form a smaller but notable channel for information dissemination.Healthcare providers have a surprisingly low percentage, which might suggest either lack of engagement in UHC communication or other barriers to accessing this information through professionals.

Table 2 and 3 gives analysis of awareness about various factors of insurance across different demographic categories and reveals some notable trends. In general, awareness levels are high across most groups, with the general category and those with higher education consistently showing the highest awareness in almost all aspects, particularly for insurance**,** health insurance, and coverage amount. For example, those with higher education demonstrate the highest awareness of extra coverage for females (71.15%) and empanelled hospitals (71.15%), highlighting their more comprehensive understanding of insurance benefits. On the other hand, respondents with no formal education consistently show lower awareness across all factors. For instance, their awareness of the benefits of insurance is significantly lower at 54.55%**,** and the p-value **(**0.010**)** for awareness of empanelled hospitals indicates a statistically significant difference from other groups. This suggests that educational background plays a crucial role in understanding and awareness of insurance-related topics. In terms of occupational categories, awareness levels are fairly consistent, with salaried and self-employed individuals showing slightly better awareness than those in other categories, such as businessmen. Awareness of health insurance and eligibility criteria

[3] Source : Primary Data

is relatively high across all groups, but specific topics like extra coverage for females and empanelled hospitals show greater variation depending on education level and employment status.

Overall, the findings suggest that educational attainment has the strongest correlation with awareness of various aspects of insurance. While awareness is high among most groups, targeted efforts to improve understanding, particularly among less educated populations, could enhance access to and benefits from insurance programs.

Table 2: Pre-hospitalisation awareness of the respondents about the PM-JAY[4]

Categories	**insurance**		**Health insurance**		**Benefits of insurance**		**Eligibility criteria**	
	%	***p-value***	***%***	***p-value***	***%***	***p-value***	***%***	***p-value***
Caste								
General	92.11	.316	81.58	.813	76.32	.983	73.68	.955
Obc	80.95		76.19		73.81		73.81	
Sc	92.31		84.62		76.92		76.92	
St	90.32		80.65		77.42		70.97	
Educational Level								
No formal education	72.73	.287	72.73	.591	54.55	.379	63.64	.874
Primary education	88.10		83.33		76.19		73.81	
Secondary education	93.33		75.56		77.78		75.56	
Higher education	88.46		84.62		78.85		75.00	
Occupation								
Not working	92.59	.730	81.48	.490	70.37	.820	74.07	.961
Salaried	89.36		78.72		74.47		76.60	
Self employed	89.13		76.09		78.26		71.74	
Business man	83.33		90.00		80.00		73.33	

[4] Source : Primary Data

Table 3 : Pre-hospitalisation awareness of the respondents about the PM-JAY[5]

Categories	**Coverage Amount**		**Extra Coverage for Women**		**Empanelled Hospitals**	
	%	***p-value***	***%***	***p-value***	***%***	***p-value***
Caste						
General	68.42	.955	57.89	.774	55.26	.962
Obc	71.43		61.90		57.14	
Sc	71.79		56.41		51.28	
St	61.29		58.06		54.84	
Educational Level						
No formal education	72.73	.490	54.55	.126	45.45	.010
Primary education	76.19		47.62		54.76	
Secondary education	68.89		55.56		37.78	
Higher education	61.54		71.15		71.15	
Occupation						
Not working	62.96	.400	59.26	.942	51.85	.323
Salaried	63.83		57.45		57.45	
Self employed	78.26		56.52		45.65	
Business man	66.67		63.33		66.67	

The data highlights disparities in access to healthcare services—namely procedures, biometric verification, and free medicines and tests—across different demographic categories, including caste, education level, and occupation. Among caste groups, Scheduled Tribes (ST) show the highest percentage of access across all categories, with 74.19% for procedures, 64.52% for biometric verification, and 80.65% for free medicines and tests. Conversely, Other Backward Classes (OBC) report the lowest access to procedures (59.52%) and biometric verification (59.52%), though their access to free medicines and tests is notably high at 85.71%. Caste-related p-values, however, suggest no statistically significant differences across the groups. Education level also influences healthcare access. Individuals with no formal education have relatively high access to procedures (72.73%) and free medicines (72.73%), but significantly lower biometric verification participation (45.45%), with a statistically significant p-value (0.034) indicating real differences. Higher-educated individuals exhibit greater access to procedures (75.00%), though their biometric verification rate is lower (48.08%). Occupational differences are particularly stark. Businessmen report the highest access to procedures (80.00%) and free medicines (93.33%), while unemployed individuals show the lowest access to procedures (48.15%), though their

[5] Source : Primary Data

biometric verification rate (77.78%) is the highest among all groups. A statistically significant p-value (0.029) indicates a notable difference in procedure access across occupations.

Overall, caste, education, and occupation affect healthcare access in different ways, with some groups benefiting more than others in terms of receiving procedures, undergoing biometric verification, and obtaining free medicines and tests.

Table 4 : On-going hospitalisation awareness of the respondents about PM-JAY[6]

Categories	**Procedure**		**Biometric Verification**		**Free Medicines and tests**	
	%	***p-value***	***%***	***p-value***	***%***	***p-value***
Caste						
General	68.42	.591	60.53	.977	73.58	.611
Obc	59.52		59.52		85.71	
Sc	69.23		61.54		79.49	
St	74.19		64.52		80.65	
Educational Level						
No formal education	72.73	.452	45.45	.034	72.73	.903
Primary education	61.90		71.43		80.65	
Secondary education	62.22		71.11		82.22	
Higher education	75.00		48.08		78.85	
Occupation						
Not working	48.15	.029	77.78	.285	77.78	.145
Salaried	61.70		57.45		80.85	
Self employed	76.09		58.70		71.74	
Business man	80.00		56.67		93.33	

The current study assesses three healthcare-related benefits—post-hospitalization five-day expenses, traveling allowance up to ₹2000, and card retrieval—across different caste, educational, and occupational groups. Among castes, OBC and ST individuals report higher access to post-hospitalization expenses, while the General caste reports the highest access to traveling allowances (34.21%) but shows no significant difference in card retrieval across groups. Educational attainment reveals that individuals with higher education have the best access to post-hospitalization expenses, though those with no formal education face significant barriers to traveling allowances. However, they show high success rates in card retrieval (81.82%). Occupationally, businessmen enjoy the most benefits from post-hospitalization expenses, though they receive less in traveling allowances, while salaried workers have good access across

[6] Source : Primary Data

all categories. Overall, while there are some variations in access across these groups, most p-values suggest that these differences are not statistically significant.

Table 5: Post-hospitalisation awareness of the respondent about PM-JAY[7]

Categories	Post Hospitalisation five days expences		Travelling allowances upto 2000		To get back the card	
	%	*p-value*	*%*	*p-value*	*%*	*p-value*
Caste						
General	13.16	.807	34.21	.088	73.68	.587
Obc	21.43		21.43		61.90	
Sc	17.95		17.95		74.36	
St	19.35		9.68		67.74	
Educational Level						
No formal education	9.09	.764	0.00	.070	81.82	.161
Primary education	19.05		33.33		61.90	
Secondary education	15.56		17.78		80.00	
Higher education	21.15		19.23		63.46	
Occupation						
Not working	7.41	.170	22.22	.152	59.26	.418
Salaried	17.02		23.40		74.47	
Self employed	17.39		28.26		73.91	
Business man	30.00		6.67		63.33	

OOP analysis

The data reveals that smaller families (1-2 members) are more likely to have lower out-of-pocket (OOP) healthcare expenses, with 43% spending between ₹10,000 and ₹30,000, and 28% reporting no expenses at all. Medium-sized families (3-5 members) show a shift toward higher costs, with 35% spending between ₹30,000 and ₹50,000, and 22% exceeding ₹50,000. In contrast, large families (more than 5 members) face the heaviest financial burden, with 38% incurring expenses above ₹50,000 and none reporting expenses below ₹10,000. In summary, as family size increases, the likelihood of higher OOP healthcare costs rises, with larger families facing significantly higher expenses than smaller households.

[7] Source : Primary Data

Table 6: Amount of OOP expenditure with respect to family size of the respondents[8]

Family size of the respondent	Amount of OOP Expenditure					Total
	Below 10,000	***10,000 – 30,000***	***30,000 - 50,000***	***Above 50,000***	***Nil***	
1 – 2	1	31	16	4	20	72
3 – 5	1	11	17	11	9	49
Above 5	0	9	7	11	2	29
Total	2	51	40	26	31	150

Table 7 summarizes the health status of 150 patients. A significant majority, 76% (114 patients), experienced an improvement in their health, indicating positive outcomes for most individuals. A smaller proportion, 19.3% (29 patients), showed partial improvement, while 4.7% (7 patients) did not see any improvement at all. Overall, the data highlights that the majority of patients responded favorably to treatment, with only a few showing little to no progress.

Table 7: Patients Current Health Conditions[9]

Patients's current health status	Frequency	Percent
Improvement	114	76.0
No Improvement	7	4.7
Partial Improvement	29	19.3

The result highlights that across all caste categories, most respondents received benefits in the 10,000 - 20,000 or above 20,000 ranges. ST respondents stand out, with the majority (19) receiving benefits over 20,000, while General and SC respondents had a more even distribution under 10,000 - 20,000 and above 20,000 categories. A notable portion of OBC and SC respondents were unsure about the amount of benefit they received. Overall, the "Above 20,000" category saw the highest number of beneficiaries (64), indicating that many across all groups received higher amounts of benefits.

Table 8: Amount of benefit received under PM-JAY under various social groups[10]

Caste of the respondent	Amount of benefit received				Total
	Below 10,000	***10,000 – 20,000***	***Above 20,000***	***Unknown***	
General	4	18	14	2	38
OBC	2	16	18	6	42
SC	5	14	13	7	39

[8] Source : Primary Data
[9] Source : Primary Data
[10] Source : Primary Data

ST	0	7	19	5	31
Total	11	55	64	20	**150**

Table 9 shows that most respondents visit the hospital annually (35.3%) or occasionally (20.7%), with fewer visiting monthly (18.7%) or weekly (16%)**,** suggesting varying levels of healthcare needs. A small group (9.3%) never visits the hospital. Regarding UHC benefits**,** 32.7% of respondents relied on both savings and borrowing, while 29.3% used savings alone**,** and 17.3% relied on borrowing. However, 20.7% received no benefit**,** indicating coverage gaps. For out-of-pocket (OOP) expenses, the main reason for additional costs was insufficient coverage (31.3%), followed by tests and medicines (19.3%)**,** and hospital insistence on payment (13.3%). However, 20.7% incurred no OOP expenses, reflecting full coverage for a portion of respondents. In summary, while UHC provides some financial relief, many respondents still face OOP costs, particularly due to insufficient coverage, and many rely on savings or borrowing to manage healthcare expenses.

Table 9: Utilisation chart of PM-JAY scheme[11]

Health Card Utilisation	**Frequency**	**Percentage**
Frequency of visit to hospital		
Weekly	24	16.0
Monthly	28	18.7
Annually	53	35.3
Occasionally	31	20.7
Never Visit	14	9.3
Amount received as benefit under UHC		
Nil	31	20.7
Savings	44	29.3
Borrowing	26	17.3
Both	49	32.7
Reasons for OOP		
Insufficient coverage amount	47	31.3
Hospital insist to pay	20	13.3
For tests and medicines	29	19.3
Any other reasons	23	15.3
No OOP	31	20.7

4. Discussion

The lack of awareness about the scheme is the major factor for the implementation of UHC in India (Pathania G et al. 2012). The current study also reveals that even if the awareness about the scheme was high it gradually decreased with the pre, during and post hospitalisation awareness about the PM-JAY scheme like the procedures, post hospitalisation expenses and travelling allowances. As per the study of PM-JAY, it was found that the high OOP expenditure and less benefit occurs due to lack of knowledge

[11] Source : Primary Data

about the scheme, benefits and services provided about the PM-JAY (Nandraj S et al. 2015, Goswami KI et al. 2013). The actual benefit of the scheme can only be realised by increasing awareness about the scheme to the people who are under the PM-JAY scheme. After analysing the literatures it was found that the educational level of plays an important role on the awareness about the schemes, higher the educational level, higher the awareness about the scheme and lower the OOP expenditure and vise-versa (Nandi S et al. 2012, Pandit N et al. 2012). The current study also highlights that the educational level of respondents affect the benefits and OOP expenditure of the scheme. The study finds that Mass Communication and Social Media plays the most significant role for spreading awareness about the Universal Health Insurance scheme and also about PM-JAY and these are the main sources of information about the PM-JAY. The high OOP expenditure incurred for the family having more family members which means the coverage amount was insufficient for families having more family members. Scheme utilisation of the scheme is low in case of socially backward classes like SC and ST; this low utilization is due to the lack of awareness about the scheme (Shrisharath et al. 2022). The major cause of OOP expenditure is because of insufficient coverage amount and followed by tests and medicines; and both savings and borrowings are the main sources for financing OOP expenditure which creates hindrance in protecting the poor from the trap of financial burden due to medical expenditure.

Family size is another critical factor affecting healthcare expenditure, with larger families facing considerably higher out-of-pocket (OOP) expenses. As family size increases, so do the financial burdens associated with healthcare, with large families (5+ members) disproportionately facing OOP costs above ₹50,000. This indicates that larger households may require additional financial support to offset healthcare costs.

Finally, health outcomes demonstrate positive results, with 76% of patients reporting an improvement, which reflects effective treatment and UHC support. Nonetheless, gaps remain, as 4.7% of respondents reported no improvement, and 20.7% of respondents did not receive any benefit from UHC, indicating areas where UHC coverage may need to be expanded or adjusted to meet the needs of specific groups.

5. Conclusion

The findings of this study highlight the complex interplay of caste, education, occupation, and family size in influencing the awareness, access, and utilization of healthcare benefits under the Biju Swasthya Kalyan Yojana (PM-JAY) and Universal Health Coverage (UHC) programs. The data indicate that while awareness of health insurance is relatively high overall, significant disparities exist among demographic groups. Higher educational attainment is a major determinant of awareness, with respondents possessing secondary or higher education demonstrating a better understanding of the benefits of health insurance, eligibility criteria, and specifics such as additional coverage for women and the empaneled hospitals. This suggests that education not only enhances comprehension of insurance features but also empowers individuals to access more comprehensive healthcare benefits. The impact of caste on awareness and access reveals a layered reality. The General and OBC groups exhibit relatively high awareness of PM-JAY benefits, whereas SC and ST groups report lower awareness and more limited access. Interestingly, despite lower awareness levels, ST respondents reported relatively high access to key services, including procedures, biometric verification, and free medicines. This could indicate that ST communities, though

less aware, are effectively utilizing available services when aware. On the other hand, OBC groups reported the lowest access to biometric verification services, underscoring potential administrative or logistical barriers faced by this group. Bridging these awareness and access gaps for SC, ST, and OBC groups is critical, as it would not only promote health equity but also ensure a wider reach of PM-JAY benefits.

Occupational differences also play a notable role in influencing access and utilization patterns. Salaried and self-employed individuals consistently show higher awareness and access, suggesting that employment stability or income security might correlate with greater health literacy and proactive health management. In contrast, the unemployed and those engaged in business face more significant access challenges. Business owners, despite having the highest access to post-hospitalization services, report the lowest rate of traveling allowance claims, possibly indicating a preference for localized care. For unemployed individuals, low access to procedures but high rates of biometric verification may suggest logistical or economic constraints, impacting their utilization of available healthcare services. Family size correlates strongly with out-of-pocket (OOP) healthcare expenditures, with larger households bearing a considerably heavier financial burden. The data show that families with more than five members disproportionately incur high OOP costs, with no reported expenses below ₹10,000 and 38% facing costs above ₹50,000. This burden is amplified in rural settings where income levels may be lower, suggesting that large families require focused financial support or expanded coverage options to reduce their healthcare expenses. Finally, while 76% of respondents report improvements in their health status, which reflects the positive impact of UHC and PM-JAY on health outcomes, 20.7% of respondents report no benefit received, pointing to potential coverage gaps. Furthermore, the data reveal that OOP expenses remain a challenge, with 31.3% of respondents citing insufficient coverage amounts as a major reason for additional costs. This indicates that, while UHC provides a baseline of financial support, a significant portion of beneficiaries still encounter coverage shortfalls that necessitate reliance on personal savings or borrowing.

In conclusion, this study suggests that education, caste, occupation, and family size significantly impact the effectiveness of health insurance utilization. Addressing these disparities through targeted interventions—such as enhanced outreach for less-educated groups, administrative simplification for biometric verification, and additional financial support for larger families—could help bridge gaps in UHC and PM-JAY coverage. Engaging healthcare providers more actively in promoting insurance awareness and tailoring benefits to meet the unique needs of marginalized groups may enhance healthcare accessibility, reduce financial barriers, and improve health outcomes for all rural residents. Implementing these strategies would support a more equitable health insurance model and strengthen the UHC and PM-JAY initiatives in achieving inclusive healthcare access.

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