CHAPTER 8

SUMMARY AND CONCLUSION

This chapter provides a comprehensive summary and conclusion of the integrated study, which focuses on the challenges associated with healthcare access, medication distribution, and out-of-pocket expenditures (OOPE) in India. The study employs a mixed-methods approach, integrating quantitative and qualitative research to explore various dimensions of healthcare financing and delivery. Through the examination of financial burdens related to medicines, the specific challenges of tuberculosis drug therapy, the financial impacts faced by pregnant women, and an evaluation of public drug procurement systems, the study aims to highlight the pressing need for effective policy interventions and improvements in healthcare infrastructure.

8.1 Summary of this Integrated Study

8.1.1 Study 1 - Financial Burden of Medicines

This systematic review synthesizes data from published evidence to evaluate the effectiveness of government policies implemented over the past 20 years that aim to reduce out-of-pocket expenditures (OOPE) related to medications. The review encompasses relevant articles, literature, policy documents, and secondary data, with a specific focus on OOPE within the context of healthcare financing in India.

- **Article Screening Process**
  - ✓ ***Initial Articles Identified:*** 1,597
  - ✓ ***Duplicates Removed:*** 383
  - ✓ ***Ineligibility Flagged:*** 327
  - ✓ ***Remaining Articles for Screening:*** 887

- ✓ ***Exclusions:*** 820 based on titles/abstracts
- ✓ ***Final Assessments Conducted:*** 66 articles assessed; 10 met inclusion criteria

➢ **Overview of Included Studies**

- ✓ ***Publication Years:*** 2006 - 2022
- ✓ ***Primary Data Collection:*** 5 studies gathered data via questionnaires/interviews
- ✓ ***Secondary Data Collection:*** 5 studies used national datasets (e.g., NSSO)
- ✓ ***Study Types:*** 3 cross-sectional studies, 1 prospective observational study
- ✓ ***Sample Populations:*** Ranged from 77 to 420 patients; 600 to 125,000 households

➢ **Key Findings on Out-of-Pocket Expenditures (OOPE)**

- ✓ ***Healthcare Costs:*** All studies reported OOPE, including medicine costs
- ✓ ***Socio-Economic Status:*** 6 studies linked OOPE to socio-economic factors
- ✓ ***Significant OOPE Findings:*** 7 studies reported substantial OOPE, with or without financial catastrophe

➢ **Disease-Specific OOPE Insights**

- ✓ ***Visceral Leishmaniasis (VL):*** Total cost per episode was ₹15,400 (58% of annual household income), with ₹2,334 (15%) spent on medicines
- ✓ ***Diabetes Patients:*** Nearly half paid OOP for medications; patients with lower socio-economic status missed fewer appointments
- ✓ ***Rheumatic Heart Disease (RHD):*** Costs breakdown included 30% for medication, 22% for administration, and 48% for travel

- **Surgical and Non-Surgical OOPE**
  - ✓ ***Rout 2016 Study Findings:***
    - ❖ *Nonsurgical Hospitalization:* Medicines accounted for 20.6% of the overall mean OOPE (Rs 374 out of Rs 1,814)
    - ❖ *Surgery-Related Hospitalization:* Medicines accounted for 12.4% of the overall mean OOPE (Rs 382 out of Rs 3,081)
    - ❖ *Financial Protection*: 45% of households lacked financial protection; 61% resorted to borrowing for expenses
- **Healthcare Inequities and OOPE**
  - ✓ ***Prinja 2012 Study:*** Found higher hospitalization frequency among the affluent, with medicines accounting for a significant portion of public sector OOPE
  - ✓ ***Bose 2018 Study:*** Assessed the effectiveness of policies aimed at achieving Universal Health Coverage
- **Financial Implications of OOPE**
  - ✓ ***Selvaraj 2018 Study:***
    - ❖ Noted that OOP spending on medicines increased from 20.86% to 36.1% between 1993 and 2012
    - ❖ Indicated that 18% of households faced financial catastrophe due to OOP spending
  - ✓ ***La 2022 Study:*** Demonstrated that multimorbidity resulted in a 20.9% increase in medicines OOPE; specific conditions, such as stroke, led to a 131.6% increase, and diabetes resulted in a 91.5% increase in medicines OOPE

- **Subnational Health Accounts and OOPE**
  - ✓ ***Bahuguna 2018 Study:*** Reported that 76.64% of healthcare expenses were covered by households, with 52% of OOPE attributed to medicines
- **Indirect Costs of Vaccine Delivery**
  - ✓ ***Mogasale 2015 Study:*** Identified that 24.6% to 38.0% of total vaccine delivery costs were due to productivity loss, which impacted vaccine uptake despite vaccines being free.

8.1.2 Study 2 - TB Drug Therapy Challenges

This segment of the study utilized a mixed-methods approach, combining both quantitative and qualitative techniques to investigate healthcare service utilization among individuals living with tuberculosis (TB) in the Agra district of Uttar Pradesh, India. The quantitative aspect involved the distribution of structured questionnaires to both patients with TB and healthcare providers, aiming to collect data on service utilization patterns, access to medications, and related costs. The qualitative aspect included in-depth interviews with patients and healthcare professionals, providing valuable insights into the experiences and challenges encountered in accessing TB treatment.

- **Quantitative Findings - Sample Characteristics**
  - ✓ ***Participants:*** 2,244 individuals; 61% accessed services in the private healthcare sector.
  - ✓ ***Demographics:*** No significant differences in residence area, age, or sex; significant differences in education, occupation, and income between sectors.

- **Healthcare Service Utilization**
  - ✓ ***Hospital Usage:*** 50.4% utilized community health centers; 45.6% utilized tertiary care hospitals.
  - ✓ ***Active TB Stage:*** 74.2% in the public sector and 81.7% in the private sector had pulmonary infections.
  - ✓ ***Family Screening:*** 79% in the public sector vs. 25% in the private sector.
  - ✓ ***Preventive Treatments:*** 71% in the public sector received treatment vs. 10% in the private sector.
- **Out-of-Pocket Expenditures (OOPE) and Health Policy Benefits**
  - ✓ ***Consultation Costs:*** Public hospitals have no consultation charges, while private hospitals charge all patients.
  - ✓ ***Medicine Availability:*** 98% in public hospitals vs. 48% in private hospitals.
  - ✓ ***Affordability:*** 91% of private patients are unable to afford medicines; 30% spend over 2000 INR monthly.
  - ✓ ***Government Aid:*** 92% of public sector patients receive 500 INR monthly for nutrition, compared to only 21% of private sector patients.
- **Qualitative Findings - Respondent Characteristics**
  - ✓ ***Participants:*** 49 respondents, primarily consisting of doctors, health officers, patients, and patient relatives, aged 20–62.
  - ✓ ***Roles:*** Key informants provided insights on service utilization and OOPE.

- **Factors Influencing Service Utilization and OOPE**
  - ✓ ***Perceived Contributing Factors (Mean ± SD):***
    - ❖ Delayed diagnosis and treatment adherence (3.76 ± 1.15)
    - ❖ Low disposable income (3.71 ± 1.18)
    - ❖ Lack of health insurance (3.69 ± 1.33)
    - ❖ Insufficient government incentives (3.61 ± 1.16)
- **Impaired Public Service Utilization**
  - ✓ ***Key Informant Responses:***
    - ❖ Long waits, centralization of TB services, and poor hospital infrastructure.
    - ❖ Misconceptions about low service quality in public health facilities impact utilization.
- **Self-Strategies for Reducing OOPE**
  - ✓ ***Suggested Strategies:***
    - ❖ Awareness programs through health workers, media, and community leaders.
    - ❖ Availability of branded medicines in public hospitals.
    - ❖ Ensuring timely direct benefit transfers for patients.
  - ✓ ***Policy Recommendations:***
    - ❖ Hiring more health professionals.
    - ❖ Decentralizing TB treatment services.

- ❖ Extending free medicine schemes to private hospitals.
- ❖ Enhancing public insurance to include private treatment.
- ❖ Increasing travel allowance for all individuals living with TB (currently applicable for MDR TB cases only).
- ❖ Full implementation of existing policies.

8.1.3 Study 3 - Financial Considerations in Pregnancy Outcomes

This component of the study examined the financial burdens experienced by women during pregnancy and childbirth through a combination of cross-sectional surveys and in-depth interviews. Surveys were administered to pregnant women in both urban and rural areas, collecting data on socioeconomic status, healthcare utilization, and out-of-pocket expenditures (OOPE) related to prenatal and postnatal care. Additionally, a subset of participants took part in semi-structured interviews to delve into their personal experiences regarding financial pressures during pregnancy, the affordability of services, and their perceptions of the quality of care received.

- ➢ **Quantitative Findings - Participant Characteristics**
  - ✓ ***Sample Size:*** 428 participants; diverse representation by geographical area, age, education, income, employment, marital status, and reproductive history.
  - ✓ ***Demographics:***
    - ❖ Age range: 18 to 40 years
    - ❖ Varied levels of education and income
    - ❖ Employment status included a variety of occupational roles

- **Out-of-Pocket Expenditures (OOPE) and Healthcare Support**
  - ✓ ***OOPE Patterns:***
    - ❖ Negligible expenses for home deliveries compared to public/private deliveries.
    - ❖ Limited healthcare utilization for home deliveries posed risks to mothers and newborns.
  - ✓ ***Government Programs:***
    - ❖ Notable gains from ASHA; varied receipt of Janani Suraksha Yojana (JSY) benefits.
    - ❖ Expenditures often sourced from salaries and savings (60% in the public sector, 87% in the private sector).
- **Financial and Healthcare Utilization Variables**
  - ✓ ***Healthcare Utilization:***
    - ❖ Delivery Locations: 67 home deliveries, 164 private hospital deliveries, 194 public hospital deliveries.
    - ❖ No significant differences in marital status and occupation (self) for healthcare choice; significant factors included residence, age, education, family income, and healthcare visits.
  - ✓ ***Expenditures:***
    - ❖ Public hospitals: No charges for consultations; private hospitals charge participants variably (e.g., ₹500 to ₹10,000+ for services).
    - ❖ Major financial burdens associated with private hospital deliveries, including outpatient department (OPD) visits and laboratory tests.

- **Qualitative Findings - Perceived Factors**
  - ✓ ***Key Factors Influencing OOPE (Mean ± SD):***
    - ❖ "Inadequate government maternity care leads to reliance on private services" – 3.88 (1.18)
    - ❖ "Rising costs of prenatal and postnatal care create financial strain" – 3.76 (1.16)
    - ❖ "Limited availability of essential medicines in government hospitals leads to additional costs" – 3.70 (1.28)
    - ❖ "Low disposable income exacerbates financial impact" – 3.64 (1.41)
- **Qualitative Insights from Interviews**
  - ✓ ***Factors Contributing to Service Utilization Issues:***
    - ❖ Long wait times and inadequate infrastructure in government hospitals.
    - ❖ Misconceptions about the quality of services.
  - ✓ ***Strategies for Improvement:***
    - ❖ Enhancing infrastructure and staffing in public facilities.
    - ❖ Providing financial counselling for navigating medical expenses and available subsidies.
- **Suggestions for Government/Policymakers**
  - ✓ ***Funding Increase:*** More funding for maternal healthcare in public hospitals to ensure free access to essential services and medications.
  - ✓ ***Regulations:*** Implement policies to control prices of prenatal and postnatal services in private hospitals.

- ✓ ***Targeted Subsidies:*** Introduce government subsidies specifically for pregnancy-related healthcare costs to alleviate financial burdens, including medicine costs.

8.1.4 Study 4 - Public Drug Procurement Performance

This study aimed to evaluate public drug procurement processes across seven Indian states by utilizing 22 key performance indicators (KPIs). The selected states were chosen to ensure geographic diversity and to represent varying levels of access to healthcare resources. A comprehensive set of 22 KPIs was developed, categorized into efficiency, cost-effectiveness, and quality performance indicators, each representing essential aspects of public drug procurement. Data collection involved distributing structured questionnaires to key personnel within medical corporations to obtain information on drug procurement and associated processes. To address gaps in information and limitations of open-source data, semi-structured telephonic interviews were conducted with the executive leadership teams of drug procurement cells in the selected states. The scoring framework included three principal metrics: efficiency, cost-effectiveness, and quality, each assigned a weight that reflected its relative importance in evaluating procurement practices.

- ➢ **Sample States for the Study (2021-2022)**
  - ✓ ***States Analyzed:*** Tamil Nadu, Andhra Pradesh, Rajasthan, Chhattisgarh, Uttar Pradesh, Odisha, Kerala.
  - ✓ ***Key Metrics:***
    - ❖ *Population:* Ranged from 25.54 million (Chhattisgarh) to 199.81 million (Uttar Pradesh).
    - ❖ *Total Health Budget:* Highest in Uttar Pradesh (263,280 million INR); lowest in Chhattisgarh (76,220 million INR).

- ❖ *Per Capita Health Budget:* Highest in Kerala (3,622.15 INR); lowest in Uttar Pradesh (1,317.65 INR).

- **Public Drug Procurement - KPIs Evaluation**

  - ✓ ***Efficiency Performance Indicators:***

    - ❖ *Top scoring states:* Tamil Nadu & Andhra Pradesh (scores of 29.0 out of 30).

    - ❖ Lower scores in Odisha and Chhattisgarh (20.0–21.0).

  - ✓ ***Cost-Effectiveness Indicators:***

    - ❖ Kerala (28.70) and Tamil Nadu (27.30) showed strong performance.

    - ❖ Uttar Pradesh scored lowest (20.30), indicating significant room for improvement.

  - ✓ ***Quality Performance Indicators:***

    - ❖ All top states achieved scores of 29.16, highlighting effective drug availability and adherence to quality standards.

- **Total Scores and Rankings**

  - ✓ ***Top Performers:***

    - ❖ Tamil Nadu: 85.46

    - ❖ Kerala: 84.86

  - ✓ ***Moderate Performers:*** Andhra Pradesh (78.46), Rajasthan (77.96), Chhattisgarh (72.26).

- ✓ ***Lowest Scores:*** Odisha (69.59) and Uttar Pradesh (67.46), indicating a critical need for policy reform.

- ➢ **Insights from the Procurement Evaluation**

  - ✓ ***Efficiency Insights:***

    - ❖ States with centralized procurement frameworks (Tamil Nadu, Kerala) exhibit higher efficiency and better access to medicines.

  - ✓ ***Cost-Effectiveness:***

    - ❖ Improved budget allocations and management strategies were observed in top-performing states.

    - ❖ Lower scores in Uttar Pradesh highlight inefficiencies in expenditure and procurement practices.

  - ✓ ***Quality Parameters Importance:***

    - ❖ States implementing stringent quality control measures reduced procurement inefficiencies and significantly improved health outcomes.

- ➢ **Geographic and Economic Factors**

  - ✓ ***Impact of Geography:***

    - ❖ States like Tamil Nadu and Kerala utilize advanced e-tender systems, reflecting better scores in efficiency.

  - ✓ ***Budget Allocations:***

    - ❖ Strong correlation between health budget allocations and performance metrics; Tamil Nadu yielded higher results with less population pressure compared to Uttar Pradesh.

- **Concluding Findings**

  - ✓ ***Benchmark Models:*** Tamil Nadu and Kerala serve as effective benchmarks for public drug procurement models.
  - ✓ ***Need for Improvement:*** States like Odisha and Uttar Pradesh require targeted strategies and reforms to enhance drug accessibility and reliability.
  - ✓ ***Impact on Policymaking:*** Findings underscore the necessity for policymakers to evaluate budgetary strategies meticulously to optimize healthcare service delivery.

8.2 Conclusion of this Integrated Study

Despite existing policies aimed at reducing healthcare costs, out-of-pocket expenditures for medicines remain a significant financial burden, particularly for poorer households, highlighting the necessity for increased government health spending. In Agra, the limited availability and high costs of tuberculosis (TB) medications in the private sector underscore the urgent need for enhanced public healthcare infrastructure and better integration with private providers to improve access to essential treatments. Additionally, maternal health expenses, including medicine costs, present substantial financial hardships, necessitating policy measures to alleviate these burdens and ensure equitable access to essential drugs. An evaluation of public drug procurement across seven states identified Tamil Nadu and Kerala as effective models, while emphasizing the need for reform in other regions to enhance drug quality and accessibility for all populations.

Moreover, leveraging data-driven AI tools in rural healthcare settings offers significant potential for enhancing decision-making and improving health outcomes. By utilizing data analytics to optimize resource allocation and engage communities, the efficiency and responsiveness of healthcare delivery can be improved in rural settings. Addressing social

determinants of health such as poverty, education, and housing is also crucial in reducing healthcare inequities. Targeted policy interventions, including universal health coverage, integrated social services, and accessible nutrition programs, can help marginalized populations overcome systemic barriers and foster long-term health improvements.

8.3 Addressing Social Determinants of Health to Reduce Healthcare Inequities

- **Universal Health Coverage:** Expanding access to health insurance will ensure that marginalized populations receive necessary healthcare services without financial strain.
- **Integrated Social Services:** Linking healthcare with social support programs can help low-income families overcome barriers related to poverty.
- **Affordable Housing Initiatives:** Promoting access to safe and affordable housing is critical for improving health outcomes and stability within communities.
- **Public-Private Partnerships in Housing and Health Services:** Fostering collaborations between public and private sectors to improve housing conditions linked to health services.
- **Educational Access and Health Literacy:** Investing in education and health literacy can empower individuals to make informed health choices, promoting preventive care and improving long-term health.
- **Conditional Cash Transfers:** Initiating conditional cash transfer programs that link financial support to healthcare utilization to incentivize preventive care among low-income families.

- **Nutrition and Food Security Programs:** Ensuring access to nutritious food through targeted programs can combat health disparities associated with poor dietary habits.
- **Targeted Nutritional Support:** Integrating nutritional support programs for vulnerable populations with maternal and child healthcare services.
- **Transportation Services:** Providing transportation assistance will enhance access to healthcare for those in rural and underserved areas.
- **Infrastructure and Accessibility Improvements:** Investing in rural infrastructure to bolster access to healthcare facilities and enhance service utilization.
- **Community Health Workers:** Training and deploying community health workers can bridge gaps in healthcare access, enhancing health education, disease prevention, and navigation of healthcare systems.
- **Data Collection and Monitoring:** Developing robust data systems to track the social determinants of health will enable targeted interventions and inform policy decisions.

8.4 Strategic Recommendations

- **Increasing Public Health Investment:** Boosting funds to reduce out-of-pocket expenditures on medicines, focusing on vulnerable populations.
- **Strengthening Public Drug Procurement:** Adopting best practices from Tamil Nadu and Kerala to centralize procurement and enforce quality controls.
- **Enhancing Public-Private Sector Coordination:** Improving collaboration to address disparities in medication availability and affordability, particularly for TB and maternal healthcare.

- **Expanding Health Insurance:** Broadening coverage to include essential medications, alleviating financial barriers for patients.
- **Promoting Awareness and Education:** Implementing campaigns to reduce stigma and encourage treatment in public sector hospitals for people living with TB.
- **Developing Targeted Maternal Health Policies:** Introducing subsidies and comprehensive programs to mitigate financial burdens related to pregnancy-related medicines.
- **Addressing Socioeconomic Disparities:** Tailoring policies to ensure equitable access to essential medicines across diverse socioeconomic and geographic groups.
- **Leveraging AI for Enhanced Rural Healthcare:** Integrating data-driven AI tools in rural healthcare can optimize decision-making and allocate resources effectively, ultimately improving patient outcomes.

8.5 Mechanisms for Implementing Policy Recommendations

- **Public-Private Partnerships (PPPs):** Forming partnerships to improve healthcare infrastructure and mobilizing resources in underserved areas.
- **Technology Transfer Initiatives:** Collaborating with research institutions to adopt technologies like telemedicine in rural healthcare.
- **Targeted Financial Incentives:** Offering incentives for healthcare providers operating in low-income areas to boost workforce availability.
- **Capacity Building for Community Health Workers:** Developing training programs for community health workers to enhance their skills in health education, disease prevention, and navigation of healthcare systems.
- **Monitoring and Evaluation Framework:** Establishing a comprehensive system for

tracking the effectiveness of implemented policies and interventions.

- **Stakeholder Engagement and Advocacy:** Involving local communities, healthcare providers, and policymakers in discussions about health needs and solutions.

8.6 Future Scope of the Integrated Study

The future scope of this integrated study highlights the importance of continuous research and assessment to understand the intricate relationships among health policy, healthcare expenses, and patient outcomes. By further exploring these aspects, this study can significantly contribute to the improvement of public health systems in India and beyond.

- **Longitudinal Studies:** Future research can focus on conducting long-term studies to assess the impact of implemented policy changes on out-of-pocket expenditures and healthcare access over time. This will provide insights into the sustainability of reforms and ongoing challenges.

- **Broader Geographic Analysis:** The study may be expanded to include a more extensive range of states or regions within India, or even comparisons with other countries, to develop a comprehensive understanding of healthcare financing and procurement practices.

- **Health Equity Focus:** Future investigations can explore disparities in healthcare access and expenditures among various demographic groups, particularly marginalized communities, to ensure more equitable health policies and practices.

- **Integration of Qualitative Research:** Further qualitative research can be conducted to explore patient experiences and perceptions in more depth, providing a richer understanding of the barriers they face in accessing healthcare.

- **Policy Impact Evaluation:** Developing frameworks for evaluating the effectiveness of specific government policies aimed at reducing healthcare costs and improving service delivery is essential for using robust performance indicators.
- **Technological Advancements:** Future studies may examine the role of technology in enhancing healthcare access and reducing costs, such as telemedicine, mobile health applications, and electronic procurement systems.
- **Public-Private Partnerships:** Investigating the potential for public-private partnerships to improve drug procurement processes and healthcare delivery should be a focus of future research, assessing models from various regions and sectors.
- **Economic Analysis:** A detailed economic analysis of the impacts of high out-of-pocket expenditures on household finances and the broader economy, including productivity losses and socioeconomic outcomes, can be performed in future studies.
- **Patient Empowerment and Education:** Exploring strategies for empowering patients through education about healthcare financing and their rights will help improve health literacy, enabling them to navigate the healthcare system more effectively.
- **Evaluation of Drug Quality and Safety:** Future research should investigate the implications of drug procurement practices on the quality and safety of medications available to the public, ensuring that policies prioritize patient safety alongside cost-effectiveness.