

# Healthcare seeking pathways in Uttar Pradesh and Odisha, India.

## A Report on Chronic and Acute Problems of Adults, Women and Children

National Council of Applied Economic Research  
Nossal Institute for Global Health, The University of Melbourne

October 2021



### **Authors**

*Prabir Kumar Ghosh, Sumit Kane, Sumit Kumar, Shayequa Zeenat Ali, Sagari Sahu, Sree Sanyal, Madhura Chowdhury, Barbara McPake, Ajay Mahal*

### **Field Co-coordinators**

*Firoz Malik, Rajender Mishra, Vijay Kumar Bind*

### **Editor**

*Anupma Mehta*

### **Secretarial Assistant**

*Tara Kumari & Shashi Singh*

### **Technical Support**

*Rakesh Srivastava*

### **Correspondence**

[ajay.mahal@unimelb.edu.au](mailto:ajay.mahal@unimelb.edu.au); [pkgghosh@ncaer.org](mailto:pkgghosh@ncaer.org)  
[sumit.kane@unimelb.edu.au](mailto:sumit.kane@unimelb.edu.au)

### **Recommended Citation**

Prabir Kumar Ghosh, Sumit Kane, Sumit Kumar, Shayequa Zeenat Ali, Sagari Sahu, Sree Sanyal, Madhura Chowdhury, Barbara McPake, Ajay Mahal. Health seeking pathways in Uttar Pradesh and Odisha, India. National Council of Applied Economic Research and Nossal Institute For Global Health, Melbourne. 2021.



## Acknowledgements

The study team thanks the Bill & Melinda Gates Foundation, India for the research grant that made this study possible.

We would like to express our gratitude to the former Director General of NCAER, Dr Shekhar Shah, for supporting this study, and for reposing faith in the team for conducting this study. We thank Prof. Nancy Baxter, the Head Of the School of Population and Global Health, University Of Melbourne for her support to the study. We are also grateful to Dr. Alexo Esperato and Dr. Santhosh Mathew of Bill & Melinda Gates Foundation, India for their steadfast support to the implementation of the study. We would also like to thank Dr Anil Kumar Sharma, Secretary and Operations Director; Dr Shashanka Bhide, Senior Research Councillor/Adviser, and Mr Rabi Panda, Head, Finance, at NCAER, who offered full administrative support for carrying out the study. The team is also grateful to Dr Gurucharan Manna, Ex-Director General, NSS and Sr Adviser at NCAER, Mr Khurshid Anwar Siddiqui, Senior Fellow and Dr Palash Baruah, Senior Research Analyst at NCAER for helping in drafting the research methodology and multiplier estimation. We would not have been able to complete this study without their constant support. The authors acknowledge the contributions of Dr. Michelle Kermode and Dr. John Lee during the early stages of the study.

Our sincere gratitude goes out to our survey partners, the Indian Society for Applied Research & Development, New Delhi, and Bureau of Research on Industry & Economic Fundamentals, New Delhi, who helped us in data collection at the household level. Thanks are also due to Fuzone E Systems Pvt. Ltd, New Delhi, for their assistance in developing the Computer-Assisted Personal Interviews (CAPI) programme for undertaking survey work for the project.

Last but not the least, we express our heartfelt appreciation to the thousands of respondents who participated in the survey, for generously giving us their valuable time, and the patience and willingness with which they shared information, enabling us to complete the study in an efficient and timely manner.

We hope this study would prove to be a rich repository of data and knowledge for state level administrators, aiding them in undertaking programmatic decisions and planning interventions on health issues.

Finally, the team accepts full responsibility for any shortcomings or gaps in the research or data that form the basis for this study.

Project Team  
NCAER, and Nossal Institute For Global Health, University of Melbourne



## Foreword

The renewed focus on routine as well as chronic health conditions calls for a better understanding of treatment pathways to improve healthcare and reduce the overall disease burden. This is particularly true for chronic health conditions, which are becoming increasingly important. Unlike a single acute episode of illness, which usually requires an immediate medical attention, chronic health conditions tend to progress slowly, but the frequency and intensity of the acute episodes increases in the absence of an efficient and timely treatment.

The lack of research in this area in a country like India has also necessitated studies that can provide deeper insights for identifying appropriate pathways for treating both chronic and acute conditions. To fill this gap, the Nossal Institute for Global Health, Melbourne School Of Population & Global Health at the University of Melbourne, Australia, and the National Council of Applied Economic Research (NCAER) undertook a research project that covered - (i) the number of treatment providers consulted during the episodes of illness and sequencing of providers; (ii) the time lag between the current flare-up of a chronic condition and the visit by the patient to a healthcare professional; (iii) the type of healthcare sought and exit from the treatment; (iv) the key socio-economic, demographic, and potential system drivers of healthcare-seeking pathways, (v) out-of-pocket expenditures incurred by households; and, (vi) factors affecting the choice of healthcare facilities.

The study was focused on three chronic and acute conditions: 1) chronic respiratory condition in adults; 2) gynaecological problems among women; and (iii) acute respiratory infection in children. Two states of the country with relatively low levels of development of their healthcare systems (Odisha and Uttar Pradesh), and two other states with relatively higher levels of healthcare systems (Maharashtra and Tamil Nadu), were selected to explore the differences in health-seeking behaviour pathways between more and less developed health systems at the State level.

Though this report focuses only on the first category of states - Odisha and Uttar Pradesh that have relatively less developed health care systems. The study finds that - (i) about 87 per cent of the adults suffering from chronic respiratory disorders sought treatment and a majority of them (79 per cent) made just one visit to a healthcare provider; (ii) one-fifth of the patients recovered from the current episode of illness; (iii) the out-of-pocket spending on treatment was higher in Uttar Pradesh compared to Odisha, because patients in Uttar Pradesh relied more on private healthcare facilities, whereas in Odisha patients revealed a higher preference for public facilities.

A little more than half of women suffering from chronic gynaecological ailments sought treatment from a healthcare provider and 10.6 per cent of them reported recovery from the current episode of illness; (ii) on an average women took close to 3

weeks (20 days) to access a health care provider after the recent flare-up in the health condition though the time lag was lower in Odisha (16 days) than in Uttar Pradesh (22 days); and (iii) though a majority of the patients visited private healthcare facilities, but there was a higher preference for public facilities in Odisha.

As regards acute respiratory infections among children the study finds that: (i) majority of children (95 per cent) received treatment and 64 per cent of them recovered from the current episode of illness; (ii) the delay in seeking treatment was only 2.1 days and it was smaller for the girl child as compared to a male child; and, (iii) the proportion of children receiving care from private health care providers was very high in the two districts of Uttar Pradesh as compared to those in Odisha.

The second part of the study delineating findings from the other two states with better developed health care systems - Maharashtra and Tamil Nadu, will follow as soon as Covid-19 pandemic induced restrictions are relaxed and conditions for conducting field surveys become normal.

I would like to commend the diligence and dedication of NCAER and the Nossal Institute for Global Health teams in bringing out this report under extremely difficult field conditions and challenges posed by the COVID-19 pandemic. The completion of the second part of this study, and the comparative analysis that will follow, will help researchers, policymakers, and development administrators in better understanding the treatment pathways to improve healthcare and reduce the overall disease burden among both the adults as well as children in the country.

Poonam Gupta  
Director-General

National Council of Applied Economic Research, New Delhi

October 2021



## Foreword

This report arises from a study conducted by the National Council of Applied Economic Research and the Nossal Institute for Global Health at the University of Melbourne, Australia. It sought to explore the treatment seeking behaviour of people living in Odisha and Uttar Pradesh in order to understand more about financial protection and access to appropriate services for people with one of three conditions: adults with chronic respiratory conditions; adult women with common chronic gynaecological complaints; and children with acute respiratory conditions.

The study aimed to fill two specific gaps in the current understandings of health seeking behaviour in India. While national and state level surveys have previously been analysed with a view to understanding differences in health seeking behaviour between states and exposure to economic and financial risks associated with seeking health care, there have not previously been attempts to control for condition in so doing. There are good reasons for this, as existing national surveys are unable to identify those with a given condition who have not been diagnosed and are not well set up for identifying even those who have been diagnosed, by specific condition. National surveys are also not designed to be able to look at expenditure related to a whole episode of illness. They focus on a time period for total household health expenditure which might be related to multiple members and multiple conditions and/or expenditure on the last occasion of seeking health care which may have been only one of several episodes related to the condition in question. This study evaluated expenditures over as many providers as were used for the last 'flare up' of the condition, or the episode of the acute condition.

The choice of the three conditions arose from a specific interest in the growing importance of chronic conditions in the Indian epidemiological profile and the need for a comparative perspective on health seeking behaviour relative to health seeking behaviour for an acute condition. The data collected reveal that health seeking is more comprehensive and immediate for children with acute respiratory conditions than for adults with a chronic condition. Women suffering from gynaecological complaints are most likely to self-treat and delay the longest before seeking care. Children with acute respiratory conditions are most likely to receive care in the private sector, and the highest proportion of out-of-pocket expenditure on their condition is in the private sector. Women with gynaecological complaints are most likely to attend the public sector, while the private sector still accounts for 70% of their expenditure.

Chronic conditions are also a threat to the economic wellbeing of sufferers' households. For the two chronic conditions that were targeted by this study alone, prevalence (as a proportion of all household members) was about 2% for chronic respiratory conditions and 3.5% among women for chronic gynaecological complaints.

Estimates based on WHO's SAGE survey (Arokiaswamy et al. 2017) project the prevalence of six chronic conditions in the Indian population aged 50 years and above to range from about 10% for asthma to about 40% for those with hypertension. Although conditions are not distributed evenly across the population and multiple conditions concentrate in an unfortunate few, data suggest that most, if not almost all households that include an older adult face the dilemmas associated with accessing appropriate care for a chronic illness.

For the chronic conditions, the survey reports the experience of the 'last flare up' with respect to both numbers of visits to health care providers and out of pocket expenditure. Compared to the evidence from a volume of literature suggesting that people visit multiple health providers before discontinuing health care seeking for an episode of illness, the care seeking journeys documented by this study are relatively short with the most common experience (for 39% of the respondents) a visit to only one provider, 29% visiting two providers: 18% visiting three and only 0.4% of respondents visiting 4. 13% did not access health care at all. These short journeys are almost certainly an artefact of the focus on the 'last flare up' only, as most of those interviewed had long suffered from the condition concerned and would not have been seeking out a diagnosis or an acceptable treatment course for the first time. Nevertheless, even in this context, out-of-pocket health expenditure was far from trivial, but rather judged 'catastrophic' (or accounting for more than 10% of the household's total expenditure) in 7.1% of episodes of women's gynaecological complaints and 8.2% of episodes of adult chronic illness. In the larger context of the prevalence of the full range of chronic illnesses in households, and the total expenditure on those illnesses from onset to end of life, the capacity for health-related out-of-pocket expenditures to impoverish a large proportion of households over a generation would appear to present a major macro-economic and poverty reduction challenge that is only growing over time.

The study reports from a survey of the first two States of a four State research project, with the second phase having been delayed by the advent of the COVID-19 pandemic. Extending the study to two States renowned for their health system strengths, Tamil Nadu and Maharashtra, we will be able to explore the extent to which those strengths translate into better protection from the health and economic challenges associated with chronic illness revealed by Phase 1. We anticipate significant policy insights into the aspects of health system strengthening that can promote poverty reduction and equitable economic growth.

Barbara Mc Pake  
Director

Nossal Institute For Global Health, The University Of Melbourne

October 2021

# Contents

<i>Acknowledgements</i> .....	iii
<i>Foreword</i> .....	v
<i>Foreword</i> .....	vii
<i>List of Tables</i> .....	xiii
<i>List of Figures</i> .....	xx
<i>Executive Summary</i> .....	xxiii
<b>Chapter 1</b> .....	1
<b>Review of Healthcare Pathways in South Asia</b> .....	1
1.1. <b>Introduction</b> .....	1
1.2. <b>Findings from the Literature in South Asia</b> .....	5
1.3. <b>Gender and Healthcare Seeking</b> .....	5
1.4. <b>Residence (Rural versus Urban), Economic Status and Healthcare-seeking</b> .....	6
1.5. <b>Treatment Pathways</b> .....	7
1.6. <b>Plan for this Report</b> .....	8
<b>Chapter 2</b> .....	9
<b>Survey Methodology and Data Collection</b> .....	9
2.1. <b>Introduction</b> .....	9
2.2. <b>Sampling Design</b> .....	10
2.3. <b>Sample Weights</b> .....	13
2.4. <b>Reliability of Estimates</b> .....	14
2.5. <b>Survey tools; data collection and quality assurance</b> .....	15
2.5.1. <b>Development of study tools</b> .....	15
<b>Chapter 3</b> .....	27
<b>Prevalence of ARI, Chronic Respiratory Conditions and Common Gynaecological Conditions: Findings from the Listing Survey</b> .....	27
3.1. <b>Introduction</b> .....	27
3.2. <b>Acute Respiratory Infections among Children</b> .....	28
3.3. <b>Chronic Respiratory Conditions among Adults</b> .....	33
3.4. <b>Common Gynaecological Conditions</b> .....	36
3.5. <b>Socio-economic Correlates of ARI, Chronic Respiratory Conditions and Gynaecological Conditions: Findings from Multivariate Analyses</b> .....	39
<b>Chapter 4</b> .....	43
<b>Chronic Respiratory Condition: Healthcare Use Pathways, Out-of-Pocket Spending and Service Quality</b> .....	43
4.1. <b>Sampling and Household Characteristics</b> .....	44
4.1.1. <b>Survey Respondents</b> .....	46
4.2. <b>Housing and Individual Characteristics</b> .....	46
4.2.1. <b>Housing Characteristics</b> .....	47
4.2.2. <b>Profile of the Person with Chronic Respiratory Condition</b> .....	50
4.3. <b>Healthcare Pathways</b> .....	51
4.3.1. <b>Number of Visits and Distribution of Patients</b> .....	52
4.3.2. <b>Length of Time Spent with Chronic Respiratory Condition</b> .....	55
4.3.3. <b>Reasons for Not Seeking Treatment</b> .....	56
4.3.4. <b>Consultation Status after Flare-up</b> .....	57
4.3.5. <b>Type of Service Provider at First Consultation</b> .....	59
4.3.6. <b>Number of Providers Consulted</b> .....	59
4.3.7. <b>Sequencing of Providers</b> .....	61
4.3.8. <b>Time Lag in Seeking Treatment after a Recent Flare-up</b> .....	61
4.3.9. <b>Exiting from the Treatment</b> .....	64
4.3.10. <b>Key Findings from Health-seeking Pathway Analysis</b> .....	66
4.4. <b>Out-of-pocket Spending</b> .....	67

4.4.1. Cost of Treatment.....	67
4.4.2. Catastrophic Health Expenditure Estimates.....	70
4.4.3. Financing Strategies.....	73
4.4.4. Salient Findings of Analysis of OOP Spending.....	74
4.5. Factors Influencing Provider Choice.....	75
4.5.1. Evaluation of Health Care Service.....	75
4.5.2. Factors Determining the Choice of Health Facilities.....	76
4.5.3. Salient Findings from Analysis of Quality of Health Care Facilities.....	77
APPENDICES.....	78
Chapter 5.....	93
Gynecological Problems of Women:.....	93
Healthcare Use Pathways, Out-of-pocket Spending and Service Quality.....	93
5.1. Sampling and Household Characteristics.....	93
5.2. Housing and Individual Characteristics.....	95
5.2.1. Housing Characteristics.....	96
5.2.2. Profile of Women with Gynaecological Problems.....	100
5.3. Healthcare Pathways.....	100
5.3.1. Number of Visits and Distribution of Patients.....	101
5.3.2. Length of Time Spent with Gynaecological Problems.....	104
5.3.3. Reasons for Not Seeking Treatment.....	105
5.3.4. Consultation Status after Flare-up.....	106
5.3.5. Type of Service Provider at the First Consultation.....	108
5.3.6. Number of Providers Consulted.....	109
5.3.7. Sequencing of Providers.....	110
5.3.8. Time Lag in Seeking Treatment after a Recent Flare-up.....	111
5.3.9. Exiting from Treatment.....	114
5.3.10 Key Findings from Health-seeking Pathway Analysis.....	117
5.4. Out-of-pocket Spending.....	118
5.4.1. Cost of Treatment.....	119
5.4.2. Catastrophic Health Expenditure Estimates.....	122
5.4.3. Financing Strategies.....	124
5.4.4. Salient Findings from Analysis of OOP Spending.....	125
5.5. Factors Influencing Provider Choice.....	126
5.5.1. Evaluation of Health Care Service.....	127
5.5.2. Factors Determining the Choice of Health Facilities.....	128
5.5.3. Salient Findings from Analysis of the Quality of Health Care Facilities.....	129
APPENDICES.....	130
Chapter 6.....	145
Acute Respiratory Infection among Children:.....	145
Healthcare Use Pathways, Out of Pocket Spending, and Service Quality.....	145
6.1. Sampling and Household Characteristics.....	146
6.1.1. Survey Respondents.....	147
6.2. Housing and Individual Characteristics.....	148
6.2.1. Housing Characteristics.....	148
6.3. Health Care-seeking Pathways.....	152
6.3.1. Number of Visits and Distribution of Patients.....	153
6.3.2. Reasons for Not Seeking Treatment.....	156
6.3.3. Time Lag in Seeking Treatment after a Recent Flare-up:.....	157
6.3.4. Consultation Status after the Flare-up.....	160
6.3.5. Type of Service Provider at the First Consultation.....	162
6.3.6. Number of Health Care Providers Consulted.....	163
6.3.7. Sequencing of Providers.....	164
6.3.8. Exiting from Treatment.....	165
6.3.9. Key Findings from Health-seeking Pathway Analysis.....	167
6.4. Out-of-pocket Spending.....	167
6.4.1. Cost of Treatment.....	168
6.4.2. Catastrophic Health Expenditure Estimates.....	171
6.4.3. Financial Strategies.....	172

<b>6.5. Factors Influencing the Choice of Health Care Provider</b> .....	175
<b>6.5.1. Opinion on the Quality of Health Care Facilities</b> .....	175
<b>6.5.2. Evaluation of Health Care Service</b> .....	176
<b>6.5.3. Factors Determining the Choice of Health Facilities</b> .....	176
<b>6.5.4. Key Factors Determining the Choice of Health Care Providers</b> .....	177
<b>APPENDICES</b> .....	178
<b>References</b> .....	189
<b>Abbreviations</b> .....	200



## List of Tables

<b>Table 2.1: Level of Development in the Selected States</b>	10
<b>Table 2.2: Sampling Details</b>	13
<b>Table 2.3: Prevalence Rate (%) of Different Conditions: Weighted and Un-weighted</b>	14
<b>Table 2.4: Estimates of Standard Errors</b>	14
<b>Table 2.5: Household Listing Questionnaire</b>	17
<b>Table 2.6: Adult, Women, and Child Questionnaires</b>	17
<b>Table 3.1: Respondent Characteristics and Recall Periods by Condition</b>	28
<b>Table 3.2: Category-wise Risk Factors of Childhood Pneumonia</b>	29
<b>Table 3.3: 30-day Prevalence Rate of ARI by Place of Residence (%)</b>	29
<b>Table 3.4: 14-day Prevalence Rate of ARI by Place of Residence, Social Groups, and Religious Groups (%)</b>	30
<b>Table 3.5: Seasonal Variations in the 30-day Prevalence Rate of ARI</b>	31
<b>Table 3.6: 30-day Prevalence Rate of ARI by Socio-religious Status and Household Size</b>	32
<b>Table 3.7: 30-day Prevalence Rate of ARI by Income Group</b>	32
<b>Table 3.8: Prevalence of Chronic Respiratory Conditions in the Adult population by Place of residence (%)</b>	34
<b>Table 3.9: Prevalence of Chronic Respiratory Conditions in the Adult Population by Socio-religious Status and Household Size (%)</b>	35
<b>Table 3.10: Prevalence of Chronic Respiratory Conditions among the Adult Population by Income Quintiles (%)</b>	36
<b>Table 3.11: Prevalence of Common Gynaecological Conditions by Place of Residence (%)</b>	37
<b>Table 3.13: Prevalence of Common Gynaecological Conditions by Income</b>	39
<b>Table 3.14: Socio-economic, Demographic and Locational Correlates of ARI, Chronic Respiratory Conditions among Adults and Common Gynecological Conditions: Results from a Multivariate Analysis</b>	40
<b>Appendix Table 3.1: MPCI, Average HH Income, Number of Households, Household Size, Average Number of Children and Prevalence of ARI among Children</b>	41
<b>Table 4.1: District-wise Number of Selected Households by District and Place of Residence</b>	45
<b>Table 4.2: Distribution of Selected Households by Socio-economic Characteristics across Districts</b>	46
<b>Table 4.3: Proportion of Households Having Three Basic Facilities by Districts and Place of Residence</b>	49
<b>Table 4.4: Profile of Ill Persons by Socio-economic Characteristics across Districts (% Distribution)</b>	51
<b>Table 4.5: Proportion of Adult Patients Not Seeking Treatment</b>	57



<b>Table 4.6: Average Number of Health Care Providers Consulted during the Last One Year for Treatment by Socio-economic and Demographic Attributes (Numbers)</b>	61
<b>Table 4.7: Proportion of Patients Recovered by Number of Visits and Districts</b>	65
<b>Table 4.8: Status (Exiting/Repeating Visit to the Same Healthcare Provider/Switching Healthcare Provider) of Patients after the First and/or Subsequent Visits to the Health Care Provider by Districts (%)</b>	65
<b>Table 4.9: Average OOP Expenditure and Its Share in the Total Household Expenditure by District</b>	68
<b>Table 4.10: Share of Treatment Cost as a Percentage of the Total Cost by Different Visits</b>	68
<b>Table 4.11: Distribution of Treatment Expenses by the Type of Provider and Districts</b>	70
<b>Table 4.12: Share of Households Spending More Than 10 per cent of the Total Expenses on Treatment by Districts</b>	72
<b>Table 4.13: Percentage of Households Spent on Treatment as a Percentage of the Total Household Non-food Expenditure by First visit and All Four Visits</b>	72
<b>Table 4.14: Financing Strategies to Meet Treatment Costs by District (% households)</b>	73
<b>Table 4.15: Type of Health Insurance Coverage by Districts and Per Capita Expenditure Quartile (% Households)</b>	74
<b>Table 4.16: Respondent Ratings of Public and Private Providers by District (% Households)</b>	76
<b>Appendix 4.1: Status of Treatment after Fourth Visit-All Sample (1889)</b>	78
<b>Appendix 4.2: Average Duration of Chronic Respiratory Conditions (in Years)</b>	78
<b>Appendix 4.3: Proportion of Adult Patients Not Seeking Treatment after a Flare-up during the Last One Year by Socio-economic and Demographic Attributes (%)</b>	79
<b>Appendix 4.4: Proportion of Adult Population with a Flare-up That Sought Treatment during the Last One Year by Socio-economic and Demographic Attributes (%)</b>	80
<b>Appendix 4.5: Proportion of Patients Who Received First Treatment by Type of Healthcare Service Provider during the Last One Year by Socio-economic and Demographic Attributes (%)</b>	81
<b>Appendix 4.6: Proportion Of Patients Who Visited Number of Health Care Providers for Treatment after a Flare-up during the Last One Year by Socio-economic and Demographic Attributes (%)</b>	82
<b>Appendix 4.8: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Last One Year Who Sought Treatment by Socio-economic and Demographic Attributes (%)</b>	84
<b>Appendix 4.9: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Socio-economic and Demographic Attributes (in Days)</b>	85
<b>Appendix 4.10: Proportion of Patients Who Recovered after Different Number of Visits to Health Care Providers for Treatment during the Last One Year by Socio-economic and Demographic Attributes (%)</b>	86



<b>Appendix 4.11: Proportion of Patients Exiting and Switching the Treatment after Visiting the Health Care Provider by Socio-economic and Demographic Attributes (%)</b>	87
<b>Appendix 4.12: Average Cost of Treatment of All the Four Visits (in Rs.) by Socio-economic and Demographic Attributes (%)</b>	88
<b>Appendix 4.13: Percentage of Households That Reported Spending More Than 10% on Treatment as a Percentage of the Total Household Expenditure by Socio-economic and Demographic Attributes</b>	89
<b>Appendix 4.14: Percentage of Households Spent on Treatment as a Percentage of the Total Household Non-food Expenditure - by Socio-economic and Demographic Attributes</b>	90
<b>Appendix 4.15: Key Deciding Factors for Choosing Health Care Providers (in %) by District</b>	91
<b>Table 5.1: District-wise Number of Selected Households by District and Place of Residence</b>	94
<b>Table 5.2: Distribution of Selected Households By Socio-economic Characteristics across Districts</b>	95
<b>Table 5.3: Proportion of Households Having Three Basic Facilities by Districts and Place of Residence</b>	99
<b>Table 5.4: Profile of Ill Persons by Socio-economic Characteristics across Districts (% Distribution)</b>	100
<b>Table 5.5: Proportion of Women Not Seeking Treatment after a Flare-up during the Preceding One Year by Districts (%)</b>	106
<b>Table 5.6: Average Number of Health Care Providers Consulted during the Preceding Last One Year for Treatment by Socio-economic and Demographic Attributes (Numbers)</b>	110
<b>Table 5.7: Proportion of Patients Who Recovered by the Number of Visits and District</b>	115
<b>Table 5.8: Status (Exiting/Repeating Visit to the Same Healthcare Provider/Switching Healthcare Provider) of Patients after the First and/or Subsequent Visit to the Health Care Provider by Districts (%)</b>	116
<b>Table 5.9: Average OOP Expenditure and Its Share in the Total Household Expenditure by District</b>	119
<b>Table 5.10: Share of Treatment Cost as Percentage of Total Cost by Different Visits</b>	120
<b>Table 5.11: Distribution of Treatment Expenses by the Type of Provider and District</b>	122
<b>Table 5.12: Share of Households Spending More Than 10% of the Total Expenses on Treatment by Districts</b>	123
<b>Table 5.13: Percentage of Households Spent on Treatment as a Percentage of the Total Household Non-food Expenditure by First visit and All Four Visits</b>	123
<b>Table 5.14: Financing Strategies to Meet Treatment Costs (% Households) by District</b>	124
<b>Table 5.15: Type of Health Insurance Coverage by Districts and Per Capita Expenditure Quartile (% Households)</b>	125
<b>Table 5.16: Respondent Ratings of Public and Private Providers by District (% Households)</b>	128

<b>Appendix 5.1: Status of Treatment after the Fourth Visits-All sample (1,738)</b>	130
<b>Appendix 5.2: Average Duration of Common Gynaecological Conditions (in Years)</b>	130
<b>Appendix 5.3: Proportion of Women Not Seeking Treatment after a Flare-up during the Preceding One Year by Socio-economic and Demographic Attributes (%)</b>	131
<b>Appendix 5.4: Proportion of Women with a Flare-up Who Sought Treatment during the Preceding One Year by Socio-economic And Demographic Attributes (%)</b>	132
<b>Appendix 5.5: Proportion of Patients Who Received First Treatment by Type of Healthcare Service Provider during the Preceding One Year by Socio-Economic and Demographic Attributes (%)</b>	133
<b>Appendix 5.6: Proportion of Patients Who Visited a Number of Health Care Providers for Treatment after a Flare-up during the Preceding One Year by Socio-economic and Demographic Attributes (%)</b>	134
<b>Appendix 5.7: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Preceding One Year by Women Seeking Treatment By Districts (%)</b>	135
<b>Appendix 5.8: Sequencing of Visits to Different Types of Health Care Providers Seeking Treatment for a Flare-up during the Preceding One Year by Socio-economic and Demographic Attributes (per cent)</b>	136
<b>Appendix 5.9: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Socio-economic And Demographic Attributes (in Days)</b>	137
<b>Appendix 5.10: Proportion of Patients Who Recovered after Different Number of Visits to Health Care Providers for Treatment during the Preceding One Year by Socio-economic and Demographic Attributes (%)</b>	138
<b>Appendix 5.11: Proportion of Patients Exiting and Switching the Treatment after Visiting the Health Care Provider by Socio-economic and Demographic Attributes (%)</b>	139
<b>Appendix 5.12: Average Cost of Treatment of All the Four Visits (in Rs.) by Socio-economic and Demographic Attributes (%)</b>	140
<b>Appendix 5.13: Percentage of Households That Reported Spending More Than 10% on Treatment as a Percentage of the Total Household Expenditure by Socio-economic and Demographic Attributes (%)</b>	141
<b>Appendix 5.14: Households Spending on Treatment as a Percentage of the Total Non-food Expenditure by Socio-economic and Demographic Attributes (%)</b>	142
<b>Appendix 5.15: Key Deciding Factors for Choosing Health Care Providers (%) by District</b>	143
<b>Table 6.1: District-wise Number of Selected Households by Districts and Place of Residence</b>	146
<b>Table 6.2: Distribution of Selected Households by Socio-Economic Characteristics across Districts</b>	147
<b>Table 6.3: Proportion of Households Having Three Basic Facilities by Districts and Place of Residence</b>	151
<b>Table 6.4: Profile of Children Suffering from Acute Respiratory Infections (ARI) by Socio- Economic Characteristics across Districts (% Distribution)</b>	152

<b>Table 6.5: Proportion of Children Not Being Taken for Treatment after Flare-up by Districts (%)</b>	157
<b>Table 6.6: Average Number of Health Care Providers Consulted For Treatment of ARI in Children (Five Years of Age) after a Flare-up during the Preceding One Month</b>	164
<b>by Socio-economic and Demographic Attributes (Numbers)</b>	164
<b>Table 6.7: Proportion of Children Who Recovered by Number of Visits and District (%)</b>	165
<b>Table 6.8: Status (Exiting/Repeating Visit to the Same Healthcare Provider/ Switching Healthcare Provider) of Patients after the First and/or Subsequent Visit to</b>	166
<b>the Health Care Provider by District (%)</b>	166
<b>Table 6.9: Average OOPE and Its Share in the Total Household Expenditure by District</b>	168
<b>Table 6.10: Share of the Treatment Cost as a Percentage to the Total Cost by Different Visits</b>	169
<b>Table 6.11: Distribution of Treatment Expenses by the Type of Providers and District (%)</b>	171
<b>Table 6.12: Share of Households Spending More Than 10% of the Total Expenses on Treatment by District</b>	171
<b>Table 6.13: Percentage Households Reporting Spending on Treatment as a Percentage of the Total Household Non-food Expenditure by Different Visits to the Health Care Service Providers by District</b>	172
<b>Table 6.14: Financing Strategies to Meet Treatment Costs (% Households) by District</b>	173
<b>Table 6.15: Type of Health Insurance Coverage by Districts and Per Capita Expenditure Quartiles (% Households)</b>	174
<b>6.4.4. Salient Findings from the Analysis of OOP Spending</b>	174
<b>Table 6.16: Respondent Ratings of Public and Private Providers by District (% Households)</b>	176
<b>Appendix 6.1: Status of Treatment after the Fourth Visits Total Sample (1,630)</b>	178
<b>Appendix 6.2: Proportion of Children Not Seeking Treatment after a Flare-up during the Preceding One Month by Socio-economic and Demographic Attributes (%)</b>	178
<b>Appendix 6.3: Average Duration of Delay in Seeking Treatment by Socio-economic and Demographic Attributes (in Days)</b>	179
<b>Appendix 6.4: Proportion of Children Being Taken for Treatment after a Flare-up during the Preceding One Month by Socio-economic and Demographic Attributes (%)</b>	180
<b>Appendix 6.5: Proportion of Children Who Received First Treatment By the Type of Healthcare Service Provider during the Preceding One Year by Socio-economic and Demographic Attributes (%)</b>	180
<b>Appendix 6.6: Proportion of Children Being Taken for Treatment to a Number of Health Care Providers by Socio-economic and Demographic Attributes (%)</b>	181

<b>Appendix 6.7: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Preceding One Month Who Sought Treatment by Districts (%)</b>	181
<b>Appendix 6.8: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Preceding One Month Who Sought Treatment by Socio-economic and Demographic Attributes (%)</b>	182
<b>Appendix 6.9: Proportion Of Children Who Recovered, by Number of Visits to Healthcare Providers for Treatment during the Preceding One Month by Socio-economic and Demographic Attributes (%)</b>	183
<b>Appendix 6.10: Proportion of Children Exiting and Switching the Treatment after Visiting the Health Care Provider by Socio-economic and Demographic Attributes (%)</b>	184
<b>Appendix 6.11: Average Cost of Treatment of All the Four Visits (In Rs.) by Socio-economic and Demographic Attributes (%)</b>	185
<b>Appendix 6.12: Percentage Households That Reported Spending More Than 10% on Treatment as a Proportion of the Total Household Expenditure by Socioeconomic and Demographic Attributes (%)</b>	185
<b>Appendix 6.14: Key Deciding Factors for Choosing Health Care Providers by District (%)</b>	187



## List of Figures

<b>Figure 1.1: Model of Pathways to Treatment (Walter and Scott 2012)</b> .....	4
<b>Figure 4.1: Housing Characteristics in the Sample Households by District</b> .....	47
<b>Figure 4.2: Percentage Distribution of Households by Type of Toilet Facilities by District and Place of Residence</b> .....	48
<b>Figure 4.3: District-wise Percentage Distribution of Households by Source of Drinking and Place of Residence</b> .....	49
<b>Figure 4.4: Share of Households across Wealth Quartiles by Districts and Place of Residence</b> .....	50
<b>Figure 4.5: Treatment Seeking Behaviour</b> .....	53
.....	54
<b>Figure 4.6: Overall Status of Treatment among Ill Persons (1889)</b> .....	54
<b>Figure 4.7: Status of Treatment after All Four Visits by District</b> .....	55
<b>Figure 4.8: District-wise Average Duration of Chronic Respiratory Conditions (in Years) by Age Categories</b> .....	56
<b>Figure 4.9: Proportion of Adults Sought Treatment by District</b> .....	57
<b>Figure 4.10: Proportion of Adults Sought Treatment by District and Place of Residence (%)</b> .....	58
<b>Figure 4.11: Proportion of Adults with a Flare-up Sought Treatment in the Last Year by Expenditure Quartiles (%)</b> .....	58
<b>Figure 4.12: Share of First Source of Treatment by Type of Healthcare Service Provider by District</b> .....	59
<b>Figure 4.13: Distribution of Patients by Number of Providers Visited by District</b> .....	60
<b>Figure 4.14: Average Duration between Flare-up and Seeking Treatment from the First Health Care Provider by District in Days</b> .....	62
<b>Figure 4.15: Average Duration between Beginning of the Episode and First Visit to the Provider by Place of Residence and District (in Days)</b> .....	63
<b>Figure 4.16: Average Duration between Start of the Episode and First Visit to the Provider by Expenditure Quartiles and District (in Days)</b> .....	63
<b>Figure 4.17: Proportion of Patients Recovered by Place of Residence and Number of Visits</b> .....	64
<b>Figure 5.1: Housing Characteristics in the Sample Households by District</b> .....	96
<b>Figure 5.2: Percentage Distribution of Households by Type of Toilet Facilities by District and Place of Residence</b> .....	97
<b>Figure 5.3: District-wise Percentage Distribution of Households by Source of Drinking and Place of Residence</b> .....	98
<b>Figure 5.4: Share of Households across Wealth Quartiles by Districts and Place of Residence</b> .....	99
<b>Figure 5.5: Treatment Seeking Behaviour</b> .....	102
<b>Figure 5.6: Overall Status of Treatment among the Ill women (1,738)</b> .....	103
<b>Figure 5.7: Status of Treatment after All Four Visits by District</b> .....	104

<b>Figure 5.8: Average Duration of Gynaecological Conditions (in years) by Age Categories</b> .....	105
<b>Figure 5.9: Proportion of Women Sought Treatment by District</b> .....	106
<b>Figure 5.10: Proportion of Women Sought Treatment by District and Place of Residence (%)</b> .....	107
<b>Figure 5.11: Proportion of Women Sought Treatment by Expenditure Quartiles (%)</b> .....	107
<b>Figure 5.12: Share of First Source of Treatment by Type of Healthcare Service Provider by District</b> .....	108
<b>Figure 5.13: Distribution of Patients by Number of Providers Visited by District</b> .....	109
<b>Figure 5.14: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by District (in Days)</b> .....	112
<b>Figure 5.15: Average Duration between the Beginnings of the Illness Episode and First Visit to the Provider by District and Place of Residence (in Days)</b> .....	113
<b>Figure 5.16: Average Duration between the Start of the Episode and First Visit to the Provider by Expenditure Quartiles and Districts (in Days)</b> .....	113
<b>Figure 5.17: Proportion of Patients Recovered by Place of Residence and Number of Visits</b> .....	115
<b>Figure 5.19: Average Cost of Treatment for All the Four Visits (in Rs.)</b> .....	122
<b>Figure 6.1: Housing Characteristics in the Sample Households by District</b> .....	148
<b>Figure 6.2: Percentage Distribution of Households by Type of Toilet Facilities by Districts and Place of Residences</b> .....	149
<b>Figure 6.3: Percentage Distribution of Households by Source of Drinking Water by Districts and Place of Residence</b> .....	150
<b>Figure 6.4: Share of Households across Wealth Quartile by Districts and Place of Residence</b> .....	151
.....	154
<b>Figure 6.5: Treatment Seeking Behaviour</b> .....	154
<b>Figure 6.6: Overall Status of Treatment among the Ill Children (1,630)</b> .....	155
<b>Figure 6.7: Status of Treatment after All Four Visits by Districts</b> .....	156
<b>Figure 6.8: Average Duration of Time between the Flare-up and Seeking of Treatment from the First Health Care Provider by District in Days</b> .....	158
<b>Figure 6.9: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Districts and Place of Residence (in Days)</b> .....	159
<b>Figure 6.10: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Expenditure Quartiles (in Days)</b> .....	159
<b>Figure 6.11: Proportion of Children Sought Treatment by Districts</b> .....	160
<b>Figure 6.12: Proportion of Children Sought Treatment by District and Place of Residence (%)</b> .....	161
<b>Figure 6.13: Proportion of Children Sought Treatment by Expenditure Quartiles</b> .....	161
.....	161
<b>Figure 6.14: Share of the First Source of Treatment by the Type of Healthcare Service Provider by District</b> .....	162



<b>Figure 6.15: Distribution of Patients by the Number of Health Care Providers Visited by Districts.....</b>	<b>163</b>
<b>Figure 6.16: Proportion of Recovering Children (Five Years of age) by Place of Residence and Number of Visits to the Healthcare Providers (%) .....</b>	<b>165</b>
<b>Figure 6.17: Proportion of Households Reporting Treatment Costs (%) .....</b>	<b>169</b>
<b>Figure 6.18: Average Cost of Treatment Incurred on All the Four Visits (in Rs.) .....</b>	<b>170</b>



# Executive Summary

## A. INTRODUCTION

**A1.1** Healthcare-seeking behaviour is a function not only of how individuals perceive their own health status, but also of the economic and social circumstances of patients, healthcare provider characteristics, and other factors that influence how perceptions of ill health are translated into healthcare use. Existing frameworks used to study healthcare seeking behaviour tend to consider illness and the patient response to it as a single shot (or aggregated) event, including the associated healthcare use patterns and expenses incurred by households or other payers. This approach to understanding healthcare use is also broadly characteristic of data collection approaches and empirical literature on healthcare use in South Asia and elsewhere.

Approaches that do not adequately account for treatment pathways in responding to illness potentially suffer from at least two major limitations in their analyses of the implications of illnesses for households and health systems in low- and middle-income countries (LMICs) such as India. Compared to their counterparts in high-income countries, LMIC health systems entail weaker regulatory oversight over providers and limited insurance coverage, and this can generate incentives for illness episodes to result in longer treatment pathways because of the uncertainty about provider quality (and advice), and because resource limitations could initially bias the patient towards cheaper and possibly lower-quality providers, including self-medication. If treatment pathways are temporally long, estimates of household out-of-pocket spending constructed from existing household surveys (with their typical recall periods ranging from 15 to 30 days) will exclude portions of treatment expenses associated with episodes of illness. Relatedly, the longer time span of illness episodes implies that the costs of foregone earnings from work for the ill person and/or their caregivers would be correspondingly larger but not accounted for adequately by the data collected. Secondly, not capturing the sequencing and length of treatments can lead to the omission of important information about health system functioning. For example, consumer perceptions about the quality of available primary care services (public or private), and the functioning of referral systems and physical and financial access to services could influence the time taken to obtain treatment, and the choice of provider options.

Existing surveys in India do not always capture information on the numbers and sequencing of providers of different types. This is a major concern, especially for chronic conditions, which are increasing as a share of India's disease burden. Because of delayed impacts of chronic conditions, the time lag between the initial identification of a health concern and the point at which formal treatment occurs will vary across contexts and individuals, as also will time intervals between subsequent health visits. The absence of a definite cure may fuel longer and sometimes irrational searches for

effective treatments, especially in weak health systems. Potentially long, complex (zigzagging) patterns of treatment-seeking, and ultimately costlier treatments, for chronic conditions as compared to acute conditions, suggest weaknesses of existing data collection efforts, and in prevailing measurements of the household and national economic burden of illness in India. The responses to acute episodes are also likely to differ among those with an established chronic condition (with its known complications) than those without. This may entail shorter waiting times or the need to consult more qualified providers earlier during the treatment pathway.

**A1.2** This report presents new survey findings that help shed light on the question of treatment pathways in two states of India, Odisha, and Uttar Pradesh. For this purpose, three sets of health conditions (one acute and two chronic) were considered: acute respiratory conditions among children, chronic breathlessness problems among adults, and chronic common gynaecological conditions among women. Due to COVID, surveys in two additional states, Maharashtra, and Tamil Nadu, could not be carried out in time to be included in this report.

### **B. RESEARCH QUESTIONS**

**B1.** For each of a set of three health conditions, six questions underpin the results presented in this report:

- Who and how many providers were consulted?
- What were the time lags between the identification of the problem and the first visit, and between subsequent visits?
- What are the key socio-economic, demographic, and potential system drivers of healthcare-seeking pathways in Odisha and Uttar Pradesh?
- How does the household financial burden of illness affect the healthcare-seeking pathways?
- What were the perceptions about the facilities among those seeking health care? and
- What were the factors affecting the choice of a health care facility?

### **C. SAMPLING METHODOLOGY**

The study covered three sets of populations: (1) Children aged 0-5 years who were reported experiencing acute respiratory conditions (ARI) during the month preceding the date of the interview; (2) Individuals aged 18 years and above with chronic respiratory conditions; and (3) Women with chronic common gynaecological problems.

Sampled households containing individuals with the three targeted conditions were spread across 397 villages and 119 urban blocks in four districts (two each in Odisha and Uttar Pradesh), four-fifths being from rural areas. The districts, two each from Odisha and Uttar Pradesh, from where individuals (and the households they belonged to) were sampled were chosen to be at the median level of human development within each state. Given that district-level health data in India mostly consists of reproductive and child indicators, the districts chosen for this survey were roughly at the median of the indicator, “the percentage share of women making four or more antenatal care (ANC) visits during the birth of the last child” within each State.

For sampling purposes, primary sampling units (PSUs) consisting of villages (for rural areas) and Census Enumeration Blocks (CEBs) for urban areas were first chosen. About 125-150 households in each PSU were then listed using a pre-designed listing instrument (the listing survey) and stratified by health condition. In the selected PSUs, 3-5 households were randomly selected, within each health condition stratum, resulting in 400 individuals per condition per district being chosen for administering the survey.

### **D. SAILENT FINDINGS**

As noted previously, this report focuses only survey findings from the first category of states - Odisha and Uttar Pradesh that have relatively less developed health care systems.

#### **D1. Results from the Listing Survey**

The listing survey was undertaken to construct a sampling frame for the “main” survey for the three targeted health conditions: acute respiratory infections (ARI) among children aged 0-5 years, chronic respiratory conditions among adults aged 18 years and above, and common gynaecological problems among women.

D1.1 Data from the listing survey were also used to estimate the self-reported prevalence rate of these three health conditions. In Uttar Pradesh and Odisha, the 30-day ARI prevalence rate was 6.2 per cent, with the prevalence being slightly higher in rural areas as compared to urban areas (6.3 per cent versus 5.9 per cent). There was no clear pattern of rural-urban differences for the prevalence of ARI at the district level though, with the urban prevalence rates being higher than the rural prevalence rates in two districts, and lower than the rural prevalence rates in the remaining two districts. The ARI prevalence rate was higher among individuals sampled in Odisha than in Uttar Pradesh. No major differences in ARI rates were observed across caste, religion (Hindu versus non-Hindu) or tribal status. Smaller households reported higher ARI prevalence compared to larger households, a pattern that was consistent across all 4 districts.

D1.2 A person aged 18 years and above was reported as having a chronic respiratory condition if they reported experiencing/suffering from chronic cough, and severe shortness of breath even at rest or on making a minimal effort, for a period longer than six months, and with a flare-up of these symptoms during the one year preceding the survey, even if for a single day. These symptoms are consistent with severe Chronic Obstructive Pulmonary Disease (COPD), such as chronic bronchitis, asthma, and emphysema/COPD.

Data from the listing survey suggest relatively low levels of prevalence (1.8 per cent) of chronic respiratory conditions in the four sample districts, with the prevalence rate in Odisha (2.1%) being slightly higher than in Uttar Pradesh (1.5%). Not surprisingly, there was some cross-district variation, with the prevalence of chronic respiratory conditions in Dhenkanal (2.8 per cent) being double that in Chandauli (1.4 per cent), the district with the lowest prevalence of chronic respiratory conditions.

There was no clear rural-urban differential in the prevalence rates of chronic respiratory conditions. However, prevalence was lowest among Scheduled Caste (SC)/Scheduled Tribe (ST) populations, and slightly higher among the Hindus than the non-Hindus. The self-reported prevalence of chronic respiratory conditions among individuals living in households with fewer than five members was larger than in households with five or more members.

D1.3 The listing survey gathered self-reported information on common gynaecological conditions, encompassing characteristics such as abnormally heavy bleeding and/or abnormally painful menstrual periods, or abnormal vaginal discharge during the year preceding the survey, and severe enough to regularly disrupt daily activities, or for the individual to contemplate seeking treatment.

The prevalence of common gynaecological conditions in the full sample was 3.5 per cent, with roughly similar magnitudes in Uttar Pradesh (3.6 per cent) and Odisha (3.3 per cent). There was little evidence of rural-urban differentials in the prevalence rates of common gynaecological conditions. The prevalence of gynaecological conditions was not associated with social, economic, and religious attributes. However, there was a positive association between self-report of gynaecological condition and household size, as well as between self-report of gynaecological condition and the number of women in the household.

## **D2. Chronic Respiratory Conditions: Healthcare Use, Provider Choice and Out of Pocket Spending**

*D2.1 Sample Characteristics:* The summary findings reported in this section are based on a survey of 1,898 adults from an equivalent number of households. Households belonging to the Other Backward Classes (OBCs) and the General categories comprised 71.3 per cent of the sample, with the remainder (28.7 per cent) being from

the SC/ST communities. A large majority of the sample households were Hindus, followed by Muslims, and Others. The average size of the household was 6.3 in Uttar Pradesh sample and 4.5 in the Odisha sample. Almost two-fifths of the individuals in the sample were 60 years and older, and men comprised almost 90 per cent of the sample. About 80 per cent reported being married. In terms of educational attainment, roughly one-half reported being educated up to the Matriculation (Matric) level, with only 10 per cent attaining education at the higher secondary level and above. Around 60 per cent of the individuals reported not working, with the share of non-workers ranging from 58 per cent to 65 per cent across districts.

*D2.2 Treatment Seeking:* A large share (about 87 per cent) of the sample of persons with a chronic breathlessness reported seeking treatment, although there was some inter-district variation with almost of one-fourth of the Dhenkanal sample not seeking treatment. In contrast, in the district of Firozabad almost all the individuals sampled sought treatment. The major reasons for not seeking treatment included a preference for self-medication, to wait for recovery without medication, and a lack of money. In Dhenkanal, about 75 per cent of the sample of persons who did not seek help from health care providers also reported that they opted for self-care/self-medication.

Almost four-fifths (79.1 per cent) of the individuals reporting chronic respiratory condition made exactly one visit to the health care provider during the episode. Only 1.8 per cent of the patients visited four health care providers, the highest allowed in the survey. The proportion of patients who reported visiting more than two health care providers was higher in Uttar Pradesh than in Odisha. In general, patients from rural areas visited more providers than their urban counterparts, and patients with higher levels of educational attainment made fewer visits than their relatively less educated counterparts. No major differences were seen in the number of visits by gender, occupational categories, income/expenditure, and age.

The average time lag between the start of the episode and first treatment visit was smaller in Odisha (3.5 days) than in Uttar Pradesh (six days). It was longer for patients in rural areas as compared to that for urban residents; and longer among the SC/ST population groups compared to others. Higher educational attainment, higher incomes and smaller household sizes were associated with smaller lags. However, gender and occupational status were not associated with time to obtaining health care.

*D2.3 Choice of provider:* More than half the patients sought care from private health care providers during their first visit for treatment. Although a significant number of patients from rural areas, and SC/ST populations visit public health care providers as their first source of treatment, there are no major variations in the share of providers first chosen by rural-urban residence, gender, and across social groups. When patients were asked about subsequent visits, it was noticed that among those who had visited public health care providers, chemists, and others during their first visit, a large proportion chose to visit private health care providers. Comparing across districts, a

higher proportion of patients visited public health care providers in Odisha; and in Uttar Pradesh, it was the share of private health care providers that was higher. However, during subsequent visits, the patients mainly consulted private health care providers even in Odisha.

*D2.4 Out-of-pocket (OOP) Expenditure and Financing:* OOP healthcare spending by households was higher in Uttar Pradesh than in Odisha, and patients living in urban areas reported high levels of OOP spending than rural patients. Here, expenses incurred during the first visit accounted for almost 80 per cent of the total treatment cost over the full treatment pathway, reflecting the observations that most patients made only one visit. Most OOP spending was incurred on private healthcare providers. However, the share of OOP expenditures on public sector healthcare providers in Odisha was higher than in UP.

Catastrophic spending rates (using thresholds from health expenditure to the total household non-food expenditure) are typically larger for urban households (relative to rural households) when expenses on the first visit are considered; but no major differences were observed between the two groups when OOP expenses for the full treatment pathway were accounted for. The catastrophic spending rates for poorer households were higher than for their richer counterparts.

The data also suggest that the two most frequently used sources of finance for health spending are household savings and borrowing. Insurance and asset sales as a financing strategy were used by only a few households.

*D2.5 Factors associated with choice of healthcare facility:* Good reputation of the facility (65.8 per cent), proximity (58.4 per cent), and affordability (49.0 per cent) were three most important considerations for choosing health care facilities for treatment. Familiarity with the health care facility because of relatives/friends working there, and the recommendation of relatives were not important considerations for respondents in their choice of the facility. A little more than a quarter of the respondents reported that public health facilities were of poor quality. Only about 10 per cent of the ill persons who sought treatment found public facilities to be excellent and approximately 17 per cent had a similar opinion about private facilities.

### **D3. Chronic Common Gynaecological Problems: Healthcare Use, Provider Choice and Out of Pocket Spending**

*D3.1 Sample Characteristics:* The summary findings reported in this section are based on a survey of 1,738 women reporting chronic gynaecological conditions, from an equivalent number of households. 77.3 per cent of the women sampled were from rural areas (ranging from 64.2 per cent in Firozabad to 83.2 per cent in Dhenkanal) and the remainder from urban areas (ranging from 16.8 per cent in Dhenkanal to 35.8 per cent



in Firozabad). Households primarily belonged to the OBC and General categories and were mostly Hindu by religion.

About 60 per cent of sample consisted of women aged less than 30 years. 72 per cent of the women were married, 57 per cent had completed matriculation, and 20 per cent had completed higher secondary or higher levels of education. The respondents mostly (90 per cent) did not work.

*D3.2 Treatment Seeking:* About 55 per cent of the women reporting a flare up in their condition, also reported having received treatment from a healthcare provider. The proportion of women not seeking treatment was slightly higher for those who were living in the rural areas, were unmarried, and were younger (less than 25 years of age). Almost two-thirds of the women who did not seek treatment waited for recovery on its own, while 12.9 per cent cited lack of money as the main reason for not seeking treatment. For 18.6 per cent of the women in Dhenkanal, the highest share among the 4 study districts, self-care was also a reason for not seeking treatment. Lack of money was a considerable hurdle for a higher proportion of women who were living in rural areas, belonged to the SC/ST population, or had lower levels of education.

A high proportion of women seeking treatment (almost 84 per cent) visited exactly one health care provider, and 11.9 per cent visited two health care providers. Women in Odisha visited fewer providers compared to their UP counterparts, and rural women visited fewer providers than urban women. The proportion of women visiting exactly one health care provider increased with higher levels of education and decreased with a rise in monthly per capita income.

On average it took 20.2 days, for a woman to access a health care provider following a flare-up in her gynaecological condition. The lag between flare up and treatment was higher in Uttar Pradesh than in Odisha. Women living in urban areas accessed healthcare providers slightly earlier (18.4 days) than their rural counterparts (20.8 days). The level of income was inversely related to the duration of delay in seeking treatment. On an average, women belonging to households in the lowest quartile took almost 10 additional days (26.1 days) to seek help as compared to those in the richest category who took 15.8 days to do so. Married women tended to defer seeking treatment longer than their unmarried counterparts. Women belonging to the SC/ST categories exhibited longer delays in seeking treatment. While illiterate women delayed treatment by 29.8 days, women with education up to the higher secondary level and above exhibited a delay of just 10.3 days in seeking treatment. Women living in smaller households had shorter delays, and the average delay in seeking care increased with age.

*D3.3 Choice of provider:* A significant share of the women (44.9 per cent) consulted private health care providers for their first consultation. There was a higher preference for public health care providers amongst women in Odisha. In Firozabad district, 39

per cent of the women visited traditional health care providers, highest among all the districts under study. For the subsequent visits, women moved to private providers. The data show that women who sought treatment from chemists and informal providers also moved to consulting private health care providers in subsequent visits. The proportion of women visiting private providers decreased with age in all districts. Women from the OBC/General category, and those with educational attainment of higher secondary level or higher, and women belonging to the highest expenditure quartile visited private health care providers more often than others.

The rate of recovery among women was only 10.6 per cent. However, among the women who sought treatment, 15.5 per cent recovered after their first visit. The recovery rate fell sharply with an extension of the treatment pathways. Moreover, after their first visit, 68.6 per cent of the women did nothing, or resorted to self-care. A higher proportion of women living in rural areas did nothing or resorted to self-care compared to their urban counterparts. Factors such as rural/urban residence, marital status, social group, and educational and age categories did not have any association with the recovery rate of women. The recovery rate was higher for women in the top quartile compared to those in the lowest quartile.

*D3.4 Out of pocket (OOP) Healthcare Expenditure and Financing:* Household OOP spending on treatment was higher per flare up in Odisha than in Uttar Pradesh, and patients living in rural areas reported high levels of OOP spending than patients from urban areas. Given the pattern of healthcare use that was observed, the expenditure incurred during the first visit accounted for almost 87 per cent of the total treatment cost over the full treatment pathway. Private providers accounted for 70 percent of OOP expenses. Catastrophic spending rates (using thresholds from health expenditure to the total household non-food expenditure) were observed to be larger for rural households, relative to urban households. Around 88 per cent of the households were dependent on their household savings, followed by borrowings from relatives/moneylenders/healthcare providers for financing medical expenses.

*D3.5 Factors associated with choice of healthcare facility:* 65 per cent of all respondents preferred private healthcare providers for their good reputation. Around 55 per cent of the patients preferred the 'Other' category of healthcare providers, including informal service providers, due to their proximity. Having friends/relatives working in the facility and recommendations of relatives did not influence on the patients' healthcare-seeking behaviour. Most patients reported being satisfied with both public and private healthcare facilities and respondents described them as providing a 'good service'. This rating was given for 89 per cent of the public and 84 per cent of the private facilities.



#### **D4 Acute Respiratory Infections among children 0-4 years: Healthcare Use, Provider Choice and Out of Pocket Spending**

*D4.1 Sample Characteristics:* 78.5 per cent of the sample of children was from rural areas, with a significant share of the households belonging to OBC and General categories, followed by Hindus. The average household size of the respondents was 5.9 in Uttar Pradesh and 4.5 in Odisha. About one-third of the children were below the age of one year, 36 per cent were between the ages of 2 and 3 years, and the remaining (29.1 per cent) were 4-5 years old. Boys comprised three-fifths of the sample (59.6 per cent).

*D4.2 Treatment Seeking:* Most children (95 per cent) that reported acute respiratory infections received some treatment. The Dhenkanal district had the highest proportion (12.7 per cent) of untreated children with ARI, and urban children had a slightly higher share of treatment cases than rural children; and treatment rates for boys were higher than for girls. About 88 per cent of the children received care from exactly one health care provider, with no cross-district variation. A very small proportion of children (only 2 per cent) were taken to more than three health care providers.

Nearly 90 per cent of the children who obtained treatment from a health care provider did so within five days of the flare-up. The average delay for the whole sample was 2.1 days, with no variations in the place of residence. The duration of delay decreased with a rise in household economic status, as indicated by monthly per capita expenditure. The duration of delay was slightly smaller for female children (1.7 days) compared male children (2.4 days). Children from the OBC/General populations were taken to a health care provider sooner than those belonging to the SC/ST populations, and the duration between flare up and treatment increased with the size of the household and age of the child.

*D4.3 Choice of Provider:* While 31.5 per cent of the children reporting treatment were taken to public providers, 62.5 percent received treatment from private health care providers. The proportion of children receiving care from private health care providers was higher in Uttar Pradesh as compared to those in Odisha. The proportion of children being taken to chemists, traditional and other types of health care providers was very small (6.1 per cent). In rural areas, a higher proportion of children were taken to public providers than in the urban areas, and the share of children receiving treatment from public providers was higher among children from SC/ST households (35.1 per cent) compared to OBC/general households (29.3 per cent).

About 52 per cent of the children who were taken to a health care provider recovered after the first visit, while another 20 per cent recovered after the second visit. Overall, 64 per cent of the children with ARI (including those who did not receive any treatment) recovered. Recovery rates were higher in Uttar Pradesh than in Odisha. As

observed for other conditions, children receiving treatment from public health care providers or chemists, or other types of health care providers shifted to private health care providers for longer treatment pathways.

*D4.4 Out of Pocket (OOP) Healthcare Expenditure:* The OOP spending by the households on the treatment of children was higher in Uttar Pradesh than in Odisha, and children living in urban areas reported higher levels of OOP spending than children in rural areas. As before, a much higher share of treatment costs was accounted for by the first provider visit (82 per cent) compared to the consequent visits. The distribution of the total treatment costs according by provider showed that the private provider share of treatment costs was about 79 per cent for the full sample. However, the share of spending on public providers was higher in Odisha (compared to UP), at around 40 per cent.

Catastrophic spending rates were larger for rural households than urban households. Around 81 per cent of the households were dependent on their household savings to meet treatment costs. There were some cross-district differences, with households relying mostly on savings to finance healthcare in Firozabad, and 21% of the households in Dhenkanal district borrowing to finance healthcare treatment.

*D4.5 Factors determining the choice of healthcare facility:* Good reputation of the facility (71 per cent), proximity (66.3 per cent), and good personal experience (48.0 per cent) were the three most important considerations for respondents, in their choice of the health care facility. Most of the respondents reported that both public and private healthcare facilities were 'good', with public facilities receiving better commendations than the private ones.

## **D5 Major Highlights**

Overall, the survey data from four districts in Odisha and Uttar Pradesh, two states characterized by weaker health systems on average in the Indian context, point to some key findings. First, although flare ups were mostly accompanied by household efforts to obtain treatment, only a little over half of the women reporting chronic gynaecological ailments did so, and that too with considerable delays. In addition, delays in seeking treatment were higher for adults (with respiratory ailments; women with gynaecological problems) relative to much quicker responses in the case of childhood ARI. In terms of provider choice, private providers were the main source of health care in Uttar Pradesh whereas in Odisha, a significant number of ill persons visited public health care facilities. Poorer people tended to delay treatment more. Another striking finding was that most patients made just one visit to the healthcare facility following the onset of a condition. Consequently, more than 80 per cent of all OOP spending was incurred for the first visit. Savings comprised the most dominant source of financing for healthcare. Among those who did not seek treatment, a major reason cited by most respondents was the lack of finance. Apart from income, major

determining factors that affected the choice of health care facilities were good reputation of the facility and proximity.

### **D6 Looking Ahead**

**D6.1 The second part of this survey**, which will delineate findings from the other two States with higher levels of health system development, viz., Maharashtra and Tamil Nadu, will follow this report. The survey for the remaining two States will be launched after the pandemic-induced restrictions on movements are relaxed. The full range of policy implications emerging from the findings will also be discussed once data from all the four States have been gathered and analyzed.

**D6.2 In parallel, in-depth qualitative research** is being conducted across 4 districts in Uttar Pradesh and Maharashtra. The qualitative inquiry is focused on gaining in-depth insights into people's experiences with seeking care for chronic illnesses; it unpacks how patients with a chronic illness navigate care-seeking in the context of a weak, poorly functioning, and poorly regulated health system; it attempts to understand and reveal the rationales that underpin people's care-seeking actions. The qualitative study also explores the many ways in which chronic illnesses disrupt people's lives; it reveals how a weak, poorly functioning, and poorly regulated health system amplifies these disruptions. Most of the fieldwork and first round of analyses have been completed – these will be shared separately as peer-reviewed manuscripts.



# Chapter 1

## Review of Healthcare Pathways in South Asia

### 1.1. Introduction

Healthcare seeking behaviour can be defined as, “any action or inaction undertaken by individuals who perceive themselves to have a health problem, or to be ill for the purpose of finding an appropriate remedy” (Olenja 2003). It is thus likely to be a function not only of how individuals perceive their own health status, but also of the economic and social circumstances of patients, healthcare provider characteristics, and other factors that influence how perceptions of ill health are translated into healthcare use (for example, Das and Mohpal 2016; Varkey 2004; Ismail et al. 2019). Consistent with this thinking, Kroeger (1983) conceptualised healthcare-seeking behaviour as comprising two steps, of which the first focused on the ‘processes’ of decision-making and the second on explanatory variables associated with different healthcare choices. In this framework, explanatory variables consist of household and individual socio-economic and demographic characteristics, health conditions, and healthcare provider characteristics. Andersen (1995) offers another (related) framework for understanding healthcare-seeking decisions, with three factors driving choices: pre-disposing factors (for example, demographics, and health beliefs), enabling factors (household, and personal and community factors) and the level of need.

Rightly or wrongly, however, the above frameworks tend to emphasise illness and the patient response to it as a single shot (or aggregated) event, including the associated healthcare use patterns and expenses incurred by households or other payers. This approach to understanding healthcare use is also broadly characteristic of data collection approaches and empirical literature on healthcare use in South Asia and elsewhere. For instance, data on healthcare use gathered by the National Sample Survey Office (NSSO) and the India Human Development Survey (IHDS), conducted by the National Council of Applied Economic Research (NCAER), assumes there is no temporal dimension to the decisions to seek healthcare. In both these surveys, though the respondents could report up to two healthcare provider visits for an episode of illness that required outpatient care, no data was gathered on the time lag from illness to seeking treatment initially, or the time between visits.

Approaches that do not adequately account for treatment pathways in responding to illness potentially suffer from at least two major limitations in their analyses of the implications of illnesses for households and health systems in low- and middle-income countries (LMICs) such as India. As compared to their counterparts in high-income countries, LMIC health systems entail weaker regulatory oversight over providers and limited insurance coverage, and one might expect illness episodes to result in longer

treatment pathways because of the uncertainty about provider quality (and advice), and also because of resource limitations that could initially bias the patient towards cheaper and possibly lower-quality providers, including self-medication. If treatment pathways are temporally long, estimates of household out-of-pocket spending constructed from existing household surveys (with their typical recall periods ranging from 15 to 30 days) will exclude portions of treatment expenses associated with episodes of illness. The exclusion of some of the treatments and their corresponding costs can downwardly bias estimates of commonly used measures of financial burden that do not account for duration, such as catastrophic spending and medical impoverishment. Moreover, the longer time span of these illness episodes implies that the costs of foregone earnings from work for the ill person and/or their caregivers would be correspondingly larger, and not adequately accounted for in the data.

Secondly, a lack of data on the sequencing and length of treatments implies that important information about health system functioning could be lost. For example, consumer perceptions about the quality of available primary care services (public or private), and the functioning of referral systems and physical and financial access to services could influence time lags in decisions to obtain treatment and the choice of options such as self-medication and unqualified healthcare providers. However, existing surveys in India do not always capture this information or, even if they do (as in the National Sample Survey [NSS] health surveys), the corresponding information on the sequencing of providers of different types is typically unavailable.

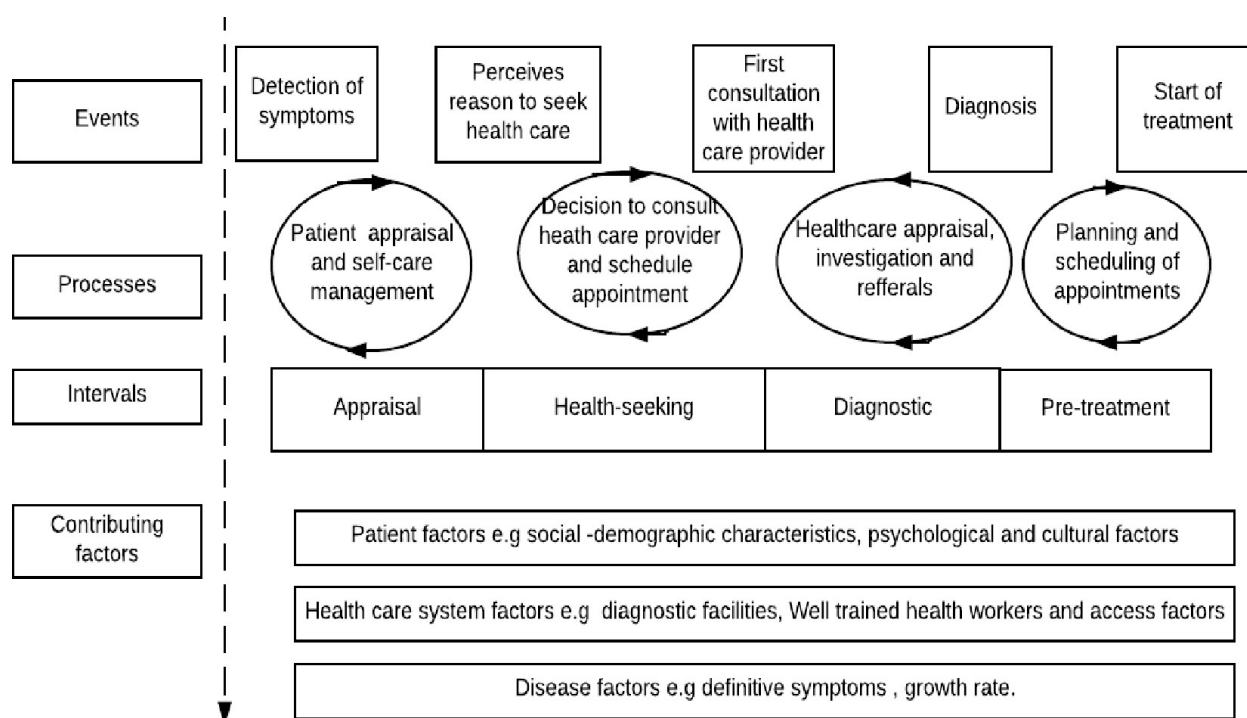
An understanding of treatment pathways can be especially insightful for chronic conditions, which are increasing as a share of India's disease burden. Unlike in the case of a single acute episode, which usually requires immediate medical attention (with little option for delaying seeking of healthcare), chronic conditions tend to progress more slowly, though the frequency and intensity of acute episodes increases in the absence of timely treatment. Because of delayed impacts of chronic conditions, the time lag between the initial identification of an "issue" and the point at which formal treatment is first sought becomes a key choice variable, as also do time intervals between subsequent health visits. The behavioural economics literature also reveals that distant consequences tend to be discounted heavily in decision-making, a feature that is likely to be characteristic of chronic conditions, especially in their early stages. The relative lack of medical urgency and limited household resources may also generate choices that emphasise proximity and low-cost options during the early phases of the treatment sequence. The absence of a definite cure may fuel longer and sometimes "irrational" searches for effective treatments, especially in weak health systems where qualified medical help is not readily accessible. In sum, long, complex (zigzagging) patterns of treatment-seeking, and ultimately costlier treatments, which are likely to be more characteristic of health-seeking behaviour for chronic conditions as compared to acute conditions, point to the weaknesses of existing data collection efforts, analyses of health-seeking behaviour, and prevailing measurements of the household and national economic burden of illness in India. Finally, responses to

acute episodes are likely to differ among those with an established chronic condition (with its known complications) rather than those without. This may entail shorter waiting periods or the need for consulting more qualified providers earlier in the treatment pathway.

Formal models that can be used to conceptualise treatment-seeking pathways and their drivers are limited in the economic literature on healthcare, though the labour market literature on job search decisions is potentially relevant. The sociological literature on health-seeking behaviour offers some guidance, though it is focused primarily on health systems of high-income countries. Figure 1.1 (from Walter and Scott 2012) offers one such framework from this literature. In this framework, health-seeking behaviour allows for alternative healthcare response pathways, including lack of knowledge about, or the neglect of initial symptoms, self-medication, and lifestyle changes made by the affected individual. Walter and Scott categorised their framework as a 'Model of Pathway to Treatment', consisting of events, processes, intervals, and contributing factors. Events refer to the first point of detection of bodily changes and the cognitive understanding of the symptoms, inability to cope with the symptoms, and the reasons for seeking the treatment, followed by the diagnosis and treatment of the disease. The initial consultation with the healthcare provider, leading to the formal diagnosis and the start of the treatment, marks the end of the sequence of events. Intervals are the time periods between events, sub-categorised as appraisal intervals, help-seeking intervals (for example, the time between the decision to consult with a provider, and having done so), diagnostic intervals, and pre-treatment intervals. Processes are about the cognitive, emotional, and organisational elements leading to the next possible event in the sequence. Finally, contributing factors correspond to the descriptive characteristics of patients, the type of disease-clinical factors, and healthcare system factors that impact both the patient and the decision-making behaviours. There is a natural extension of the Walter and Scott model, somewhat more suited to LMICs and one that requires further unpacking of the box of health system factors, alongside the patient characteristics that matter. In this version, weaknesses in health system functioning can lead to a delayed or incorrect diagnoses, healthcare providers taking more time than required to diagnose patients, and inadequate referral linkages and lack of coordination between the public and private sectors.



Figure 1.1: Model of Pathways to Treatment (Walter and Scott 2012)



In the Walter and Scott framework, and the discussion preceding it, empirical work targeted to treatment pathways could be used to answer one or more of the following questions that capture the elements of the timing and sequencing of treatment:

- Was any provider consulted, and why?
- What was the first source of treatment? What factors affected that choice?
- What were the time durations between identification of the health problem and the choice of the first treatment, and between identification of the health problem and the time to treatment with the first trained healthcare provider? What factors affected the time taken for obtaining the first treatment?
- How many treatment providers were consulted during the episode? What factors contributed to the number of consultation visits?
- What was the sequencing of providers who were consulted during the episode (namely, who was consulted first, who was consulted second, and so forth)? Which factors affected this sequencing of providers?
- How (or why) did the patient exit treatment? What factors affected this choice?

The natural extensions to these questions are those focusing on the financial impacts of illness on the household, which reflect treatment pathways, including out-of-pocket spending on health services, and household income losses.



In the remainder of this introductory chapter, we report the findings of a brief literature review of the empirical research on treatment pathways in the context of chronic conditions in South Asia. The goal of this review is to highlight what has been done so far in this region with respect to the analysis of treatment pathways, and to indicate key gaps in the literature.

### **1.2. Findings from the Literature in South Asia**

Our review for South Asia suggests that the analysis of treatment pathways is relatively rare. Thus, our initial focus is on elements of “single-shot” healthcare-seeking as is common in the literature including, where available, information on the choice of the first healthcare episode after the patient experiences an illness and the time to consulting the first provider. We also explore some of the socio-economic and demographic drivers of provider choice and delays in treatment, such as gender, economic status, and rural residence. In doing so, we do not intend to undertake a comprehensive literature review, and instead focus on the main themes emerging from this work. Later in the chapter, we explore the limited evidence on longer healthcare-seeking pathways.

### **1.3. Gender and Healthcare Seeking**

It was found that women’s health-seeking choices were influenced first by their socio-economic and demographic circumstances. Younger women were less likely to seek treatment than older women, and poor women (especially in rural areas) were less likely to seek treatment as compared to the economically better-off women in urban areas (Prusty and Unisa 2013). Regionally, women in southern India were higher users of health services than their north Indian counterparts, possibly reflecting better access to health services and higher levels of literacy among the former. However, increased severity (as proxied by the number of symptoms reported for gynaecological conditions) did result in greater use of healthcare services (Rani and Bonu 2003).

We find that in South Asia, women are more likely than men to use private sector care for chronic conditions, including the services of informal care providers rather than public sector healthcare facilities, as compared to men (Das et al. 2018; Prasad et al. 2005; Shaikh and Hatcher 2007). There are a variety of reasons for this, ranging from health system characteristics to the general circumstances of women in the region. Private providers are often preferred to public providers in rural areas owing to a lack of availability of doctors in primary health centres, especially the lack of female doctors in rural facilities, unavailability of drugs, and long waiting times. Women also prefer private health institutions due to the greater attention to privacy and trust offered by private providers. In this context, Bhatia and Cleland (1995) found that for menstrual

problems, women in India preferred consulting private providers whether qualified or unqualified, over government health services.

Women also experienced delays in treatment, mainly on account of fear, embarrassment, reluctance to get internal examination, especially when female doctors were not available, distance to health facilities, and lack of control over financial resources. In Pakistan, both male and female patients prefer seeking treatment for tuberculosis (TB) from government healthcare facilities but as TB is a source of stigma in the society, many women patients shy away from seeking treatment, effectively delaying access to health care (Khan et al. 2020). If suitable healthcare providers were not available, many tended to prefer home remedies, self-medication, or informal care, as in Pakistan (Khan and Fatima 2014; Bhatti & Fikree 2002), in Sri Lanka (Hemachandra and Manderson 2009; Perera et al. 2012), and in India (Chaudhary et al. 2012; Gosoni et al. 2008; Seeberg et al. 2014). In contrast, men in South Asia were more likely to use formal care when sick, reflecting their role as earning members in the family who could not afford to stay at home for too long when ill (Das et al. 2018).

### **1.4. Residence (Rural versus Urban), Economic Status and Healthcare-seeking**

Poorer rural populations tend to disproportionately rely on private unqualified providers for chronic conditions, especially in northern India. Raza et al. (2015) provide evidence for this from Bihar and Uttar Pradesh, a major reason for this being proximity. Similarly, in Madhya Pradesh, one study found that private unqualified doctors accounted for more than three-quarters of all primary care visits in the poorest rural areas (Das and Mohpal. 2016). Among TB patients in rural Madhya Pradesh, most patients preferred consulting private providers. Faith in the provider, proximity to the health facility, and low cost were reported as reasons for choosing the provider during their first visit, usually in the private sector. However, during subsequent visits, shifts were observed from public to private providers (Fochsen et al. 2006). Diabetes patients from the rural sections of Delhi also reported seeking care from private providers to a greater extent than their urban counterparts (Kishore et al. 2015). In contrast, in the rural coastal areas of South India, patients with chronic conditions reported relying more on public healthcare services due to the services being provided free of cost and ease of access to healthcare (Chauhan et al. 2015). There is some evidence of delays in seeking treatment, with rural patients delaying treatment-seeking to a greater extent than urban patients, primarily due to the travel distance entailed in reaching providers (Kotecha et al. 2011; Kishore et al. 2015; Thakur and Murhekar 2013; Rajeswari et al. 2002).

Evidence from other countries in the region is also suggestive of greater reliance of rural populations on private services, though not universal. In Pakistan, Anwar et al. (2012) attribute this to the greater distances involved in reaching public facilities,

restricted hours of operation, and unavailability of qualified female healthcare providers. Self-medication, and complementary or alternative treatment sources are the first choices of treatment in the rural areas of Nepal (Yadav et al. 2020; Shankar et al. 2002; Adhikari and Rijal 2014). Rural residents are more comfortable with the traditional treatments or self-medication, as modern medicines tend to be more expensive; and also because most of the respondents stay within a 30-minute walking distance from medical stores and informal care providers who are common sources of drugs (Shankar et al. 2002; Subba 2008; Adhikari & Rijal 2014). One study of the elderly from the rural areas of Bangladesh found that patients prefer government hospitals for the treatment of chronic illnesses as these services are usually located nearby (Jabeen et al. 2013).

There is a large body of literature from the larger South Asian countries suggesting that healthcare use rates are higher among urban than rural populations. A similar pattern was observed in Bhutan, one of the smallest countries in the region. Poorer Bhutanese people living in remote areas had a lower likelihood of visiting a healthcare provider (Damrongplasit and Wangdi 2017). Moreover, the economically better-off individuals in Bhutan were more likely to seek healthcare from secondary and tertiary levels, even after accounting for higher transportation costs (Herberholz et al. 2018). A large body of literature documents similar findings in India and Pakistan (for example, Anwar et al. 2012; Das and Mohpal 2016).

### 1.5. Treatment Pathways

Evidence on treatment pathways for India is somewhat limited and that too only for TB. The main findings on this subject can be summarised as follows. Firstly, patients tend to prefer private providers as their source of care, which is often the informal practitioner (Kapoor et al. 2014). Considerable delay occurs between the time when the symptoms first emerge and treatment is sought, especially with formal providers, with mean delays being roughly of the order of 15-30 days. The main reason for initial delays in seeking care is that the symptoms are not considered serious, the stigma associated with TB, lack of information, and financial problems (Mistry et al. 2017; Kulkarni et al. 2013; Jangid et al. 2016). Poor rural women experience longer delays in seeking and getting treatment than their male counterparts (Rajeswari et al. 2002). Further delays, from 5 to 30 days, occur between the time care is first sought and the diagnosis obtained via sputum microscopy in the case of TB. This is linked both to the provider sought, as well as systemic weaknesses in the public sector, including lack of diagnostic facilities and unavailability of trained staff (Das et al. 2017 Basnet et al. 2009).

Following on from initial visits, though patients prefer to continue with the same provider in a private facility, they often have to shift to government providers as the treatment pathway gets longer and treatment expenses start becoming a significant

burden (Das and Mohpal 2016 ; Jangid et al. 2016; Arjun et al. 2019). It is also seen that longer pathways are associated with a shift from informal to formal care, as patients seek more effective remedies for their conditions, typically by the second, or third visits (Kusuma and Babu 2019). On an average, the number of consultations prior to reaching to the final treatment provider ranges from 2 to 3 (Sreeramareddy et al. 2014; Kapoor et al. 2012; Mistry et al. 2017; Konda et al. 2014; Das et al. 2017). Needless to add, patients seeking treatment from multiple healthcare providers experience larger delays (Thakur and Murhekar 2013; Das et al.,2017; Konda et al. 2014).

### **1.6. Plan for this Report**

Partly in response to the limited literature on the subject in India, this report presents new findings that help shed light on the question of treatment pathways in India. Specifically, data from household surveys in Odisha and Uttar Pradesh are presented to inquire about healthcare pathways and associated health spending for the most acute episodes for three sets of conditions: chronic breathlessness among adults, gynaecological conditions among women, and acute respiratory conditions among children. The following four questions underpin the results presented in this report:

- Who and how many providers were consulted?
- What were the time lags between the identification of the problem to the first visit, and between subsequent visits?
- What are the key socio-economic, demographic, and potential system drivers of healthcare-seeking pathways in the two States?
- How does the household financial burden of illness depend on healthcare-seeking pathways?

# Chapter 2

## Survey Methodology and Data Collection

### 2.1. Introduction

To recall from the previous chapter, the goal of this study was to investigate the health seeking behaviour of individuals with chronic and acute conditions in four Indian states, the key correlates of this behaviour, and its potential consequences. Of key interest was the following question: Do we observe healthcare-seeking pathways and out-of-pocket expenditure patterns among individuals with chronic conditions which are different in the States that have more developed health systems as compared to those that do not? There were three health conditions of interest in this study: acute respiratory infections (ARI) among children; chronic respiratory conditions among adults; and common gynaecological problems among women.

Following are the specific questions that this study has attempted to answer:

- What are the major healthcare-seeking pathways that individuals with the above health conditions (and the households they belong to) adopt and how do these pathways vary across states at different levels of health system development?
- What are the factors that drive the choice of providers along the pathways, including the choice of whether to seek care or not?
- How do healthcare-seeking choices influence household economic well-being, as captured by the indicators of medical impoverishment and catastrophic spending?

Apart from an analysis of secondary data based on existing household surveys containing healthcare use and expenditure information, we also gathered primary data on healthcare use and expenditure, and potential covariates from households in the four States under study. These states were chosen to ensure inclusion of two States that were considered to have relatively well-developed health systems (Tamil Nadu and Maharashtra), and two States that were considered to have relatively less developed health systems in India (Uttar Pradesh and Odisha).

The National Institution for Transforming India (NITI) Aayog generates composite health index scores for the States in India. The Index is a weighted composite Index based on indicators in the following three domains: (a) Health Outcomes; (b) Governance and Information; and (c) Key Inputs/Processes, wherein each domain is assigned a weight based on its importance. The indicator values are standardised (scaled 0 to 100) and used for generating composite Index scores and overall performance rankings for the reference year (2015-16). Table 2.1 presents a

classification of India's States into three groups based on the Index scores. The Index score for overall performance ranged widely from 33.7 in Uttar Pradesh to 76.6 in Kerala. The four States chosen for this study reflect the top and bottom-end of the state health systems in India in addition to capturing its geographic diversity. The presence of Kerala, with its highly regarded health system, at the top of the ranking, and of Uttar Pradesh towards the bottom, provide some confidence that these rankings are not inaccurate as a reflection of the strength of the health system in the country.

**Table 2.1: Level of Development in the Selected States**

Level of Development Based on Health Index Score	States
Low (33.7-50.0)	Uttar Pradesh (33.7), Rajasthan, Bihar, Odisha, Madhya Pradesh, Assam, Uttarakhand, Jharkhand, and Haryana (47.0)
Medium (50.1-60.0)	Chhattisgarh (52.0), Telangana, West Bengal, Karnataka, Andhra Pradesh, and Jammu & Kashmir (60.0)
High (60.1-76.6)	Maharashtra (61.1), Himachal Pradesh, Gujarat, Tamil Nadu, Punjab, and Kerala (76.6)

Source: "Healthy States, Progressive India- A Report on the Ranks of States and Union Territories", Ministry of Health & Family Welfare, Government of India (2015-16).

The remainder of this chapter discusses the survey design and sampling strategy, and the implementation of the surveys in the four States.

## 2.2. Sampling Design

The study focused on the following three target population groups:

- (1) Children aged 0-5 years who suffered from acute respiratory conditions (ARI) in the month preceding the date of the interview;
- (2) Individuals aged 18 years and above with chronic respiratory conditions; and
- (3) Women with common gynaecological problems.

The sampled individuals (and the households they belonged to) were determined by the process (described as steps) outlined below.

**The first step** consisted of the identification of the four States where the study was carried out. As noted previously, these States were chosen on the basis of our assessment of the status of their respective health systems: two States (Tamil Nadu and Maharashtra) had relatively high performing health systems whereas the other two (Uttar Pradesh and Odisha) were among the States with relatively low-performing health systems.



In the **second step**, two districts in each of the four States, broadly representing the health systems of their parent States, were chosen. Since district characteristics can vary quite significantly, even within States, in our search for indicators for choosing the districts, we prioritised health service use and/or outcomes, given our focus on health systems. The most commonly available data at the district level in India pertains to indicators related to the delivery of maternal and child health services, as data for outcomes related to chronic conditions are rarely available at the district level in India. This prompted us to choose districts that were roughly at the median of the indicator “percent share of women with four or more antenatal care (ANC) visits in their last birth” within each State.

**The third step** was about identifying villages and wards (urban blocks) where households (containing at least one individual with one of the three health conditions) were sampled. It was estimated that 125 villages/urban blocks per district were needed to achieve a sample of 400 individuals per condition per district. In the four States and eight districts, approximately 1,000 villages and urban wards, referred to as Primary Sampling Units (or PSUs) were selected for the study, with a minimum of 125 PSUs being selected from each district. In each sample PSU, 3-5 households per were randomly selected for each health condition with an equal probability from a sampling frame that was stratified by condition and was specifically developed for this purpose (see below).

In its initial assessment, the survey team had sought a distribution of urban PSUs and rural PSUs to correspond to their respective shares of the urban and rural populations within each district. However, socio-economic data (for Uttar Pradesh and Odisha) showed that urban PSUs exhibited considerably greater heterogeneity in socio-economic and demographic characteristics of their respective populations than rural PSUs. In an effort to limit the sampling errors in urban settings, the survey team increased the number of urban PSUs (and lowered the number of rural PSUs) relative to their initially planned shares while retaining the original total number of PSUs.

The PSUs in each of the districts were sampled from a sampling frame that comprised the list of all villages and urban wards as per the 2011 Census of India. For rural areas, the full list of Census villages (within each sampled district) was further stratified into three groups based on the socio-economic ranking (low, medium, and high), with the female literacy rate in each village being used as a proxy indicator for the socio-economic ranking. The number of sampled PSUs in the rural areas within each stratum was determined on the basis of the population shares of the villages contained in each. Finally, the sample villages (rural PSUs) were selected within each stratum using probability proportional to the population size.

In urban areas, no stratification by female literacy rates was deemed necessary owing to the prevalence of roughly similar literacy rates in the urban wards. The PSUs in



urban areas were selected using probability proportional to the population size for the different wards. Within each ward, one Census Enumeration Block (CEB) was selected for data collection purposes.

In the **fourth step**, household listing was undertaken to each selected primary sample units (PSUs); villages for rural areas and the census enumeration blocks (CEBs) for the urban areas. About 125-150 households in each PSU were listed through a designed listing pro forma to stratify the households. Thus, approximately 125,000 households were listed for the survey. All the households in PSUs containing fewer than 150 households were listed. The PSUs containing more than 150 households were divided into segments, with each segment containing 125-150 households. This was done with the help of Anganwadi workers/Accredited Social Health Activist (ASHA) workers/panchayat members. Thereafter, the investigators randomly chose one segment and obtained a full listing.

A “listing form” (a short questionnaire) was administered to each household in the list, which was used to gather information on a small set of questions on the household socio-economic and demographic profiles, and whether any household member (in the pre-specified age groups and reference period) had any of the three health conditions being analysed, and if they did, information on the relevant member’s age and gender was collected.

In the **fifth step**, individuals whose healthcare-seeking behaviour and health expenditures were of interest (and the households they belonged to) were identified for sampling purposes. Here, it may be recalled that the goal was to gather information on a sample of 400 individuals for each condition per district. With 125 PSUs in each district, this meant that the study team had to choose 3-5 households (and individuals with the relevant conditions) in each PSU. This also further meant that for each health condition, the subset of households containing at least one individual with that condition from the PSU list of 125 households had to be identified to create a “condition-specific sampling frame” of households/individuals, and then 3-5 households had to be randomly chosen from that subset. Table 2.2 reports the results from this exercise for each district with regard to the number of PSUs included the number of households in the sampling frame, and the number of households and individuals in the condition-specific sampling frames.

Table 2.2: Sampling Details

	Districts						Total
	Chandauli	Firozabad	Bargarh	Dhenkanal	Odisha	UP	
Number of Selected PSUs							
Rural	98	91	110	98	189	208	397
Urban	28	44	25	22	72	47	119
All	126	135	135	120	261	255	516
Number of Listed Households							
Rural	12,210	11,192	14,569	11,624	23,402	26,193	49,595
Urban	3,516	5,182	3,269	2,766	8,698	6,035	14,733
All	15,726	16,374	17,838	14,390	32,100	32,228	64,328
Number of Households for Detailed Interview (Acute Respiratory Infection among Children Aged 0-5 Years)							
Rural	337	275	341	326	612	667	1,279
Urban	81	132	86	52	213	138	351
All	418	407	427	378	825	805	1,630
Number of Households for Detailed Interview (Chronic Breathing Problem in the Adult Population Aged 18+)							
Rural	338	289	406	494	627	900	1,527
Urban	64	115	104	88	179	192	371
All	402	404	510	582	806	1,092	1,898
Number of Households for Detailed Interviews (Women Aged 18+ Suffering from Gynaecological Problems)							
Rural	325	300	366	352	625	718	1,343
Urban	79	167	78	71	246	149	395
All	404	467	444	423	871	867	1,738

Source: NCAER-NOSSAL 4IS Health Survey-2019.

### 2.3. Sample Weights

Since the sampling within each district was not random with equal probability and involved stratification at multiple levels, sampling weights were needed to arrive at estimates representative at the district level, within each State. Obtaining State-level estimates from a sample of 2 districts in each State (out of a total of 168 districts in the four States) is obviously problematic, especially since the districts themselves were chosen in a pre-determined way. However, to the extent that district-level estimates represent an average for the State they belong to, they may be considered as broadly representing the average for the State as a whole.

What are the differences, if any, between the weighted and un-weighted estimates? Table 2.3 depicts the district-level prevalence of acute respiratory conditions among children, chronic respiratory conditions among adults, and the prevalence of common gynaecological problems among women, with and without adjustment for sample weights. These estimates about prevalence rates suggest that the differences between the weighted and un-weighted estimates are small.

**Table 2.3: Prevalence Rate (%) of Different Conditions: Weighted and Un-weighted**

	Acute Respiratory Conditions-Child		Chronic Respiratory Conditions-Adult		Common Gynaecological Conditions-Women	
	Weighted	Un-weighted	Weighted	Un-weighted	Weighted	Un-weighted
Chandauli	5.26	5.04	1.34	1.33	3.01	3.05
Firozabad	5.32	5.44	2.02	2.05	5.17	5.07
Bargarh	7.45	7.63	1.65	1.67	5.03	4.96
Dhenkanal	8.63	8.47	3.62	3.61	2.69	2.71
Uttar Pradesh	5.29	5.23	1.72	1.57	4.22	3.94
Odisha	7.99	8.03	2.53	2.27	4.00	3.50
Total	6.24	6.31	2.06	1.91	4.13	3.70

Source: NCAER-NOSSAL 4IS Health Survey-2019.

## 2.4. Reliability of Estimates

While there is no fool-proof method for establishing the reliability of all the survey results, the evaluation of sampling and non-sampling errors can help in increasing the degree of confidence in the survey findings. Sampling errors can be assessed within the framework of the sampling design and can potentially be controlled by increasing the sample size. Table 2.4 reports estimates the percentage of standard errors for selected variables in the main survey.

The data presented in Table 2.4 suggest that the estimates of beneficiaries across different characteristics have been obtained quite precisely with the standard errors (as a proportion of the mean) being mostly around 2-5 per cent or less.

**Table 2.4: Estimates of Standard Errors**

Characteristics	Adult			Child			Women		
	Sample Size	Mean	CV (%)	Sample Size	Mean	CV (%)	Sample Size	Mean	CV (%)
Number of days taken to visit the health care provider after the onset of the most recent flare-up	1678	4.77	4.34	1601	2.14	5.39	963	19.62	3.79
Per capita total cost associated with this illness	1678	3940	4.18	1601	2475	5.72	963	2471	5.04
Percentage of households with separate kitchens	360	33.91	3.33	425	53.57	3.11	289	50.39	3.92
Percentage of households with access to toilet facilities	360	74.28	2.08	425	66.04	2.34	289	73.39	2.37
Percentage of households drinking water directly from the source	360	89.27	1.16	425	91.44	1.08	289	89.70	1.39
Monthly Per Capita Income	1967	1899	2.40	1693	1616	2.97	1796	1676	2.84
Monthly Per Capita Expenditure	1967	2441	2.02	1693	2329	1.58	1796	2184	1.67
% food expenditure	1967	46.75	0.79	1691	47.83	0.79	1796	47.24	0.78

Source: Estimates from the NCAER-Nossal 4IS Health survey data, 2019

Non-sampling errors arise mainly from multiple sources. First, respondents may refuse to cooperate and may not provide the information required by the survey. If the non-response rate is high, and especially if the non-response is not distributed randomly across households, it may result in biased estimates. In this survey, non-response rates were very low, at about 3 per cent during line listing, and at less than 1 per cent in the main interview.

Second, and a potentially even more problematic situation is when respondents provide only partial information or information that is not usable, and even false information. Third, interviewers can have preconceived notions that influence how they interpret the responses to survey questions and record such responses. These factors increase errors in the data collected and the corresponding parameter estimates based on that data. There is no completely satisfactory procedure for a precise measurement of non-sampling errors or methods for fully addressing them. However, during the survey work for this study, many steps were undertaken to mitigate non-sampling errors, including the use of computer-assisted survey administration, selection of a team of highly experienced interviewers, and adherence to a strong training regimen for implementation of the survey. About 80-100 interviewers and supervisors helped execute the survey, backed by four State/zone coordinators and four NCAER professionals. These individuals were selected for their language expertise enabling them to understand and interpret the responses given in different languages spoken in the States. They were also engaged for an extended period of 3-5 months to undertake the task of primary data collection. All the survey team members possessed a bachelor's (university) or higher degree and had 2-7 years of survey administration experience; and about 40 per cent of the team members had post-graduate (masters-level) qualifications. This aspect is discussed further in the next section.

### **2.5. Survey tools; data collection and quality assurance**

Overall, four study tools (questionnaires) were developed to address the requirements emanating from the core objectives of the study. The quality of data collected through these instruments was ensured through a robust process of data collection and quality assurance checks. These steps have been elaborated in the following sections.

#### **2.5.1. Development of study tools**

The process of questionnaire development spanned several months, involving multiple consultations among experts from across the study team, and pilot surveys. The four main survey instruments that were developed included:

- Household listing questionnaire;
- Child questionnaire;

- Adult questionnaire; and
- Women's questionnaire.

A workshop, comprising team members from the Nossal Institute for Global Health, NCAER, and the Population Council (Delhi office) was held in December 2018 in Delhi to discuss the first draft of the questionnaires. The listing questionnaire was primarily intended to develop a sampling frame for the specific health conditions of interest to the study and included a small set of questions on the household socio-economic and demographic characteristics, and on whether any individuals in the household were experiencing ARI, chronic respiratory conditions, and gynaecological conditions. The main challenge was to ensure that health conditions were defined in such a way that respondents could identify and report them easily, and to ensure short length of the questionnaire to limit non-response.

The other survey instruments were designed to gather more detailed information on the households' socio-economic and demographic characteristics, healthcare use behaviour, healthcare expenditures, and health insurance coverage, as also household perceptions of quality of care across different healthcare providers and access of the household to alternative healthcare providers. Considerable efforts were made to identify the appropriate respondents for the different instruments.

Tables 2.5 and 2.6 describe the main modules included in the survey questions. The questionnaires for adults and women (with gynaecological conditions) are broadly similar, barring the targeted interviewee and the health condition of interest. The questionnaire directed to children who had experienced an ARI had a slightly different list of questions than the other two and was slightly shorter. In contrast to the other two questionnaires, it left out Section 8 (on financial implications of illness) and Section 9 (cost of previous episodes of the same illness) and also left out a question in Section 4 (on the duration of time that a child was ill with the condition). Overall, the questionnaires for adults with chronic respiratory conditions and women with gynaecological conditions consisted of 18 sections each, whereas the questionnaire for children with ARI had 16 sections.

As can be seen in Tables 2.5 and 2.6, Sections 1-3 captured the demographic information on the household, whereas Sections 4 through 7 gathered information specific to the individual with the health condition, along with health care use behaviour, perceived quality of care, healthcare-related travel, and household expenditure on treatment. Sections 8 through 13 were used to collect information on the health conditions of all the members of the household. Sections 14 through 16 included questions related to household income, expenditure on medical and non-medical spending, and household living conditions, such as home ownership, availability of water, and electricity, among others. Section 17 gathered information on household ownership of consumer durables, while Section 18 focused on whether households possessed various identification documents like ration card, and Pan Card, without asking for any details about these documents.

**Table 2.5: Household Listing Questionnaire**

Section/Title	Content
Section 1: General Characteristics	Location, demographic, social and economic variables.
Section 2: Household member(s)/ with the 3 chronic conditions	Information on the three health conditions (acute respiratory infection, chronic respiratory condition and common gynaecological problems).
Section 3: Details on household members with the 3 conditions	Age and gender of the children with acute respiratory infection, adults with chronic respiratory condition and women with common gynaecological problems.

**Table 2.6: Adult, Women, and Child Questionnaires**

Section/Title	Content	Availability Status
Section 1: Location	Location-related variables for the household.	Adult Women Child
Section 2: Household characteristics	Socio-economic, demographic and other household characteristics.	Adult Women Child
Section 3: Household roster-demographic and other characteristics of household members	Age, gender, relationship to the head of the household, marital status, educational status and occupational status of household members.	Adult Women Child
Section 4: Treatment-seeking behaviour.	Information about health status and treatment sought.	Adult Women Child
Section 5: Perceived quality of health care facilities	Reasons for provider choice, perception of quality of health care providers, and availability of health facilities.	Adult Women Child
Section 6: Travel for health care	Mode of travel, time to health care facility and treatment, travel distance, and companions when obtaining health care.	Adult Women Child
Section 7: Expenses for care	Household expenditures on health and their composition.	Adult Women Child
Section 8: Financial implications of illness	Information about financial implications of seeking treatment for the disease, excluding the most recent episode. The information regarding duration of illness, number of visits to a health facility in a year, details of hospitalisation, and consumption of medicines, is also gathered in this section.	Adult Women
Section 9: Associated cost of all other episodes of illness (excluding the most recent episode of care that mentioned previously)	Information about five major health expenditure events, with respect to the time of occurrence, reasons for seeking treatment, type of provider consulted, total expenditure and its source.	Adult Women
Section 10: Health insurance	Status of insurance and type of insurance.	Adult Women Child
Section 11: Health care access		Adult



Section/Title	Content	Availability Status
	Self-reported access by healthcare provider type: travel time, mode of transport commonly used, distance to facility, and whether services utilised.	Women Child
Section 12: Perceived quality of public sector health facilities	Awareness and perception about quality of treatment received, availability of equipment and medicines, and overall experience with PHCs, CHCs, and the district hospital.	Adult Women Child
Section 13: Health care use by all household members	Ailments, whether and from treatment sought and expenditures the	Adult Women Child
Section 14: Household income	Household monthly income and main sources of income.	Adult Women Child
Section 15: Household expenditure:	Expenditure on the food and non-food items (including medical expenses?), by household members.	Adult Women Child
Section 16: Household basic amenities	Household access to and use of housing, cooking fuel, sources of drinking water, treatment of drinking water before consumption, toilet, and electricity facilities.	Adult Women Child
Section 17: Ownership of land and consumer durables	Agricultural land, bicycle, chair, etc.	Adult Women Child
Section 18: Unique identity	Possession of identity documents by members of households like ration card, voter card, passport, etc.	Adult Women Child

### 2.5.2 Data collection process

For the purpose of data collection, locally recruited interviewers/supervisors with graduate/post-graduate/MBA qualifications and 2 to 7 years of experience in survey work were engaged. Many survey team members had previous experience with survey work as part of the National Family and Health Survey (NHFS). About 75 per cent of the field investigators in our study were women. Implementation of the survey required about 20-25 field investigators/supervisors for about 3-5 months in each state, including pilot data gathering, household listing and survey data collection.

Survey responses were collected with the help of Computer Aided Personal Interviewing (CAPI) techniques. This entailed the setting up of a support infrastructure, including CAPI devices/tablets, relevant accessories, a central server, and a supporting operating system, along with front-end and back-end software. Survey questionnaires were uploaded on devices with data range, consistency, and logic checks, relevant skips, and other functionalities. CAPI has the advantage of reducing time lags between data collection and analysis. Without the intermittent steps of coding and data entry, the risk of non-sampling errors like coding errors and



dynamic questionnaires, is lower relative to traditional paper-pencil based personal interviews. The five apparent advantages offered by CAPI are that it ensures the absence of routing errors, reduces time lag, eliminated a separate data entry phase, offers new ways to formulate questions, and creates the possibility of randomisation of responses (Leeuw, Evelyne de, 2008). Additional data quality support was provided in the form of spot checks and field supervision.

During the implementation of the survey, the field investigators were required to synchronise their devices and upload the completed questionnaires as well as the updated respondent information at regular intervals. This information was checked by the supervisor via random calling to the surveyed households about the visit and duration of the interview, among other things. In addition, the supervisor also accompanied the field investigators and did spot checking to assess how the interviews were being conducted and the information was sought and entered in the tablets. Following the verification of the responses to the questionnaire, the application administrator exported all the data to the central database. Not all areas were set up for attaining a continuous online connection to the central server. In these cases, the approach was first to save the questionnaire data offline, and later forward it to the server once the device was in a location (say, an urban setting) where an online connection to the server was available.

### **2.5.3. Quality Assurance**

High priority was accorded to provision of rigorous training of the field investigators who carried out the implementation of the survey. The main objective of this training was to ensure that the investigators became thoroughly familiar with the questionnaires and the underlying concepts and were able to effectively communicate the survey questions to the respondents. In India's setting, where respondents are often uninformed and in most cases illiterate, this can be critical for achieving high-quality responses.

For this study, training was carried out in two stages. In the first stage, a 'training of trainers' exercise was conducted by the NCAER team at Delhi. In the second stage, "on-site" training was imparted to the field investigation team at different locations in each survey district in the four selected States. This training was carried out by the person who had received training during the first stage (training of trainers), under the supervision of the NCAER team. The duration of training was five days in each case.

At the field level, a three-tier supervision structure was adopted. One supervisor from the partner organisation supervised the work of the team comprising four field investigators. NCAER also deputed State-level coordinators/supervisors for each State. They supervised all the field staff, including the partner organisation's

supervisors. Members of the NCAER core study team remained in continuous touch with the field survey teams. This process helped facilitate a quick and amicable resolution of any hindrances in implementation of the survey. In some PSUs, the potential respondents refused to be interviewed until an influential person from the locality signed off. The NCAER team kept a close watch on these minor irritants to facilitate smooth completion of the survey.

### **2.6. Challenges faced during primary data collection**

The main challenges related to survey implementation can be classified into logistical, respondent-related, and interviewer-related challenges, and challenges emanating from other factors.

#### **2.6.1. Logistical Challenges**

The first challenge was to get the questionnaire translated into local languages and to find a precise terminology for the specific health conditions that we were interested in. In our case, since the survey was undertaken in four states which are culturally very diverse and have their own distinctive languages, translation and terminology issues were particularly salient, as in these four states (more precisely, in the two districts within the States), the terminology used to describe an identical health condition was often different. The questionnaires were translated by competent persons into local languages. The experience of the field investigators and supervisors also helped a lot in delineating area-specific terms associated with diseases. Any remaining issues were addressed after the pilot testing and even during the data collection process.

The jury is still out over the suitability of CAPI-based surveys or manually implemented (paper questionnaires) surveys in low- and middle-income country settings, such as India's. For this study, a CAPI-based process of data collection was adopted. This entailed the development of a programme to record the responses of the individuals. The process of development of the programme was complicated by the fact that the main questionnaires were somewhat lengthy, and had many conditional (skip) responses, often over several modules. The challenge here mainly lay in striking a balance between the sophistication of the software and its usability in field settings. For example, an excessively complicated programme can cause the tablet to hang and affect the efficiency of data collection. Thus, developing a usable programme fine tuning it for field implementation proved to be a highly time- and effort-intensive exercise.

A related challenge but one pertaining to hardware was the tendency of the tablet batteries to get drained rapidly, necessitating charging them at frequent intervals. In remote rural areas, where the supply of electricity tends to be unreliable, this situation posed a major challenge, though the use of power banks helped greatly in this respect. The team also carried spare tablets to offset the persistent risk of some of the devices

becoming non-functional. Additionally, the risk of theft of tablets that tend to be relatively expensive was also a lingering concern. Despite tremendous development in the field of Information and Communication Technologies (ICTs), the issue of weak telecommunication signals in remote areas kept arising, hindering the process of data collection. It also delayed the uploading of the completed surveys, at times leading to inaccuracy in the GPS mapping of the households. All these resulted in increasing the data collection times, the uploading process for data, and the delay in the overall monitoring process during the implementation of the survey. The use of CAPI devices also imposes staff recruitment requirements. Investigators have to be reasonably technology-savvy to operate the tablets and simultaneously be conversant with the local language.

Even after the software and hardware issues of CAPI were addressed and a qualified investigator team was recruited, concerns about ensuring the collection of a high-quality data and consistency in the data collection process loomed large. This challenge was addressed in two days. As noted previously, the NCAER team ensured that an experienced person closely oversaw the data collection process in the field in a supervisory capacity. Moreover, the collected data was checked daily to identify any commonly occurring mistakes and to quickly correct any issues thereof. In one case, during the daily scrutiny of the uploaded data, it was observed that one of the field investigators was getting confused between the number of health care providers consulted (Question 4.9 in Section 4) and major health expenditures (Section 9). As a resolution to the problem, the particular field investigator was contacted and the difference between these items was explained to him. Many other similar challenges faced by the field investigators were not only corrected promptly but also flagged to ensure extra caution in the next phase of the data collection process.

### **2.6.2. Respondent-Related Challenges**

We found that the educational qualifications of the respondents correlated well with higher rates of survey response and easier administration of the questionnaire. Low levels of educational attainment may potentially pose a challenge, especially in studies related to the health sector, as it involves self-reporting on health status and recall of many numbers.

In view of the varying abilities of the respondents, effective and consistent administration of the survey questionnaires posed a significant challenge. In our study, some of the respondents showed a serious lack of awareness of their exact health status, let alone be able to provide information related to a specific disease. There were circumstances wherein respondent recollection about the type of doctor contacted, their qualifications, and the treatment administered was very sketchy. In these cases, the role of the investigator expanded to the role of moderator, nudging the respondent into narrating the entire process and in the meantime, also providing all the details sought in the questionnaire.

The issue of availability of the respondent also presents a challenge. In rural areas, people go to work in the fields early and return late. Moreover, the time between 1 pm and 3 pm should also be avoided for administering the questionnaire, as it signifies an extended lunch time. Further, female respondents are not available when the household chores must be completed, especially in the noon and in the evening. The time window for carrying out the survey in urban areas is still narrower. In urban areas, people are not available during weekdays, and they are not willing to give time on weekends. From our experience, the incidence of survey non-response is more common in urban areas than in rural areas. In general, the reasons for non-response are complex: they may be due to factors specific to the respondent, the topic of the survey, reaction to the field investigator, or something entirely unknown. Repeating a question when the respondent is providing an obviously incorrect answer may also invite a hostile reaction.

Even when agreeing to respond to the questionnaire, respondents may provide a ‘no response’ to certain questions. There are many factors underpinning this ‘non-response.’ In rural areas, people are often unable to accurately estimate the number of days, distance, age, expenditures incurred, and so on. Families engaged in agriculture find it very difficult to give information about their income as the harvest of crops is seasonal, and there is uncertainty about production and prices. Moreover, they may not always be able to separate the cost of inputs from revenues, and can at best provide estimates of gross revenue, and not income. In urban areas, people do not want to divulge details about income and household amenities for safety reasons and/or potential tax liabilities or something entirely different.

Finally, the degree of trust a respondent has in the interviewer plays a crucial role. Similarly, concerns about the end-use and confidentiality of information must also be addressed by the interviewer, preferably at the beginning of the interview. A proper introduction and a careful reading of the consent statement may ameliorate some of these concerns, but only up to an extent. Our experience has been that brochures about the organisation and its work and visibility in the public space help in substantially narrowing the trust deficit. The trust factor is more complicated for questionnaires designated for female respondents, as more often than not, they are accompanied by other family members (usually their in-laws) at the time of the interview. This situation may also dissuade the respondent from revealing information that may be related to the prestige of the family, or the privacy of the respondent. However, the high levels of training that our survey team was imparted, and extensive pilot work helped in addressing some of these concerns.

### **2.6.3. Interviewer-related Challenges**

Field investigators connect the theoretical aspects of the study with the actual respondent. Their role is, therefore, crucial to the quality of outcomes from the survey. Apart from the basic requirements for the field investigator to possess a certain level

of education, experience, and local knowledge, the role of field investigator training cannot be over-emphasised. In our experience, the training should be suited to the learning process of the field investigators, which usually entails the need for being slow and deliberate, necessitating clarification of all doubts/concerns, and a mix of informal and formal settings. This is why the training of the field investigators was conducted in two phases, including firstly, training of the trainers, and secondly, in-field training of the investigators where the survey was to be conducted.

Knowledge of the terrain of the field is very crucial and must be kept in mind when recruiting field investigators. While the survey was being conducted, there was an instance when some of the female investigators, who were among the interviewers, got a little late in the evening in a village in Chandauli district. Returning to the hotel became a big concern for them as the last public transport vehicle had already left the place and no other means of transport was available. Here, the friendly relations between the supervisor and the village headman proved to be a saviour, as the village headman offered his own vehicle to transport the team to the hotel at no cost.

Another continuous challenge is that of eliciting responses from the female respondents. The fundamental requirement in such a situation is to have female field investigators for conducting the interviews with the female respondents. This, in turn, leads to the attendant challenge of finding female investigators possessing appropriate skills and willing to travel to remote locations. The security of female investigators, as mentioned above in just one of the many instances, also becomes crucial. This led the study team to strictly limit its working hours to middle of the day, which is also a time when the female respondents are busy with their household chores in rural areas and are in their offices in the urban areas. This condition, sometimes quite severely, limits the number of interviews that can be conducted per day. One way of managing this issue was to fix an appointment with the respondents a day prior to the interview through a phone call and requesting them to be available at a particular time slot.

It is critical to establish a positive attitude and temperament among the field investigators. The possibility of abusive behaviour from some of the respondents should also be considered. Sometimes, even repeating a question to a respondent may become a sensitive issue, as the respondent not being able to understand a question in one attempt may be interpreted as a challenge to the respondent's intelligence. These instances tend to be common during administration of the income and expenditure-related sections of the survey, owing to mismatches between the details furnished for the sub-items and the reported total expenditure or income. Pressing beyond a point on these questions also often invites hostile reactions. In one instance, while filling the details of consumption expenditure in a village of Firozabad district, when the interviewer reminded the respondent that the sum of expenditures on individual items did not match the total monthly consumption expenditure, the respondent got angry and immediately discontinued the survey.

It is usually observed that if the interviewer consults documents while addressing the doubts of the respondents regarding the questions and related concepts raises suspicion and/or creates loss of confidence in the minds of respondents. In such cases, the investigators may be mistaken for some fly-by-night information gatherers with a dubious purpose. One way to handle these issues is to take approval for the survey from locally influential people like the village headman. Another response which is quite effective is to replace the field investigator involved in any such incidence with another more experienced field investigator. Here, the presence of mind of the supervisor is an invaluable asset as the respondent may totally refuse to give the interview. Therefore, if the interviewer is able to memorise definitions, threshold values, sequence of questions, and various sections of the questionnaire, it enhances the level of the respondents' confidence in the exercise.

The phenomenon of field staff dropping out of the survey is also quite frequent and proves to be expensive. Trained field investigators drop out mid-way from the survey for various reasons. Replacing them is quite expensive as the new field investigator needs to be imparted training afresh. This entails careful selection of the field investigators with experience and competence.

Here, it is noteworthy that the questions are primarily related to the personal lives of the respondents and sometimes stir emotional responses and even outbursts. Administering the questionnaire related to children is replete with such potentially volatile situations as a mother, while providing details of health-seeking behaviour of her presently seriously sick child, may not find it comfortable to recall every minor detail. Besides, the questionnaires are often long, and, therefore, retaining the interest of the respondent requires the deployment of a high level of soft skills. Here, one may cite the example of a field investigator who used to engage in interesting chats with the respondent after completing a fixed section of the questionnaire. Thus, the most sought-after attributes of the field investigators are their educational levels, tech-savviness, awareness of the locality where they would be carrying out the investigation, experience in conducting field surveys, physical fitness, and an amiable personality.

#### **2.6.4. Miscellaneous Challenges**

We also suggest avoiding conducting surveys during extreme seasons unless they are an intrinsic part of the research design. India has immense climatic variations: while Rajasthan may be reeling under an intense heat wave and drought-like conditions, Northeast India could, at the same time, be receiving copious rainfall and experiencing floods. In one instance, the entire investigating team had to be admitted in a hospital in Varanasi in the month of June while conducting a survey in Chandauli district due to dehydration and diarrhoea caused by the heat conditions. Adverse weather and climatic extremes also pose threats to the physical safety of the survey team, which should accorded the highest priority. The period coinciding with elections must also be avoided for carrying out the survey, as the respondents usually confuse field



investigators with political activists who may be affiliated to one or the other political party. This can influence the quality of data and the level of cooperation offered by the respondents and can sometimes lead to financial demands from the field investigators. For instance, the field work of a survey slowed down considerably during the months of March, April and May 2019, when the general elections were being held.

Besides, festivals are celebrated in different parts of India during different times of the year. Festivals are not a good time to conduct field surveys owing both to the difficulty of accessing respondents and the risk of introducing positive biases in the reported data. Finally, in view of the extensive access that people have to social media, rumours can spread like wildfire, sometimes leading to untoward incidents like mob lynching, which has especially been known to occur when individuals are suspected of being child abductors. These rumours potentially jeopardise the physical safety of the field staff. In one such episode in a village in Firozabad district, the local people informed the police about “the arrival of people from outside”. The supervisor had to show relevant documents and convince the police personnel about the genuineness of the data collection process. Thus, an effective response to deal with such situations is mandatorily carrying all the necessary documents, if possible, taking a local person along as part of the survey team, and giving prior information to the local political representatives about the arrival of the survey team for data collection.

## **2.7. Data Limitations**

Although tremendous care was taken in gathering the data during this survey, there was need for caution in interpreting and contextualising the outcomes resulting from the analysis of this data. Two issues were of particular concern. First, the sampling design and households interviewed included only two districts from each State. The method of choosing these districts and their relative scale (as compared to the overall State population) suggests that inferring State-level outcomes from the analysis of the data can be misleading.

Second, the target population from rural areas also included respondents with low levels of educational attainment, and in some cases, even illiterate participants. This observation and the fact that the recall of information related to healthcare use and expenditure can be challenging even for educated respondents suggests that the resulting estimates must be interpreted with care. In this connection, it may be noted that the target population also included female respondents who were almost always accompanied by another individual at the time of interview, which could have led to a bias in the responses.





## Chapter 3

# Prevalence of ARI, Chronic Respiratory Conditions and Common Gynaecological Conditions: Findings from the Listing Survey

### 3.1. Introduction

This chapter describes the prevalence of three health conditions, Acute Respiratory Infections (ARI), chronic respiratory conditions, and common gynaecological conditions, based on the data obtained from the listing survey. We report prevalence rates for each of these groupings by location, and by socio-economic, demographic, and religious characteristics for which information was gathered in the listing survey. Recall that the listing survey was undertaken as a first step towards developing a sampling frame for the “main” survey that gathered information on healthcare use pathways and spending for the three health conditions of interest. Information was gathered from 64,328 households using the listing questionnaire.

For our purposes, ‘prevalence’ is defined as the number of cases reporting the specific condition during the relevant reference period, and the prevalence rate for a given condition implies the prevalence of that condition taken as a proportion of the population, and for the appropriate age groups and by gender. As per this definition, prevalence is to be distinguished from ‘incidence’, which refers to the number of new cases over a reference period.

Data from the listing survey allowed the team to estimate the prevalence rates for Acute Respiratory Infections (ARI) among children, chronic respiratory conditions among adults, and common gynaecological conditions among women, in two districts each from the States of Uttar Pradesh and Odisha. Since ARI, unlike chronic gynaecological and respiratory conditions, is an acute condition, its prevalence over the last month is almost equal to incidence. Table 3.1 lists the three health conditions and the corresponding age group, gender, reference period, and respondent categories for which information was collected as part of the listing survey.

We also assessed whether the prevalence rates estimated in our study are comparable to the estimated prevalence rates for similar conditions from other surveys for the same districts/regions. For example, the National Family Health Survey (NFHS) and the National Sample Survey Organisation (NSSO) also periodically gather information on morbidity for different health conditions. In addition, smaller scale studies to have also been carried out from time to time for estimating the prevalence rates of similar conditions. Differences in definitions (of conditions), reference periods, and age groups make such comparisons challenging, as seen in Table 3.1.

**Table 3.1: Respondent Characteristics and Recall Periods by Condition**

Health Condition	Gender	Age (in years)	Reference period	Respondent <sup>1</sup>
Acute Respiratory Infections (ARI) <sup>2</sup>	All	Less than 6	Last 30 Days	Mother of the child with ARI
Chronic Respiratory Conditions <sup>3</sup>	All	18 and above	Last One Year	The person with the health condition
Common Gynaecological Conditions <sup>4</sup>	Women	18 and Above	Last One Year	The female with the health condition

Note: Age is in completed years.

The remainder of this chapter is divided into four sub-sections. Sub-sections 3.2-3.4 describe the findings on the prevalence rates from the listing survey, each focusing on one of the three conditions, that is, ARI, chronic respiratory conditions, and common gynecological conditions, respectively. In the last sub-section, we present and discuss the results from multivariate regression analyses that explore the relationship between indicators for the three health conditions and a set of correlates, consisting of socio-economic, demographic, and locational characteristics.

### 3.2. Acute Respiratory Infections among Children

The prevalence of ARI among children is a leading cause of morbidity and mortality among children in India. A World Health Organization (WHO) report (Rudan et al. 2008) categorised risk factors of childhood pneumonia into three groups based on strength of association, as shown in Table 3.2.

<sup>1</sup>While the respondent for the listing questionnaire was the head of the household, the information regarding the three health conditions of interest was gathered from the target population, that is, the mother of the child with ARI, the person suffering from chronic respiratory conditions, and the woman suffering from common gynaecological conditions.

The definitions of the health conditions used during the field work were as follows:

<sup>2</sup> 'ARI' refers to a child of up to 5 (completed) years of age who has suffered, or is currently suffering from, severe cough, high fever, and difficulty in breathing during the last one month.

<sup>3</sup> 'Chronic respiratory conditions' refers to a person experiencing/suffering from chronic cough and severe shortness of breath at rest, or on minimal effort, for a period longer than six months, with an acute episode characterised by the flare-up of symptoms in the last one year, even if for a day. These symptoms are consistent with severe chronic pulmonary disease, that is, chronic bronchitis, asthma, and emphysema/COPD.

<sup>4</sup> 'Chronic gynaecological conditions' refers to a woman self-reporting one or more of the following: abnormally heavy bleeding and/or abnormally painful menstrual periods or abnormal vaginal discharge during the last one year, which were severe enough to regularly disrupt daily activities or to make the woman contemplate seeking treatment.

**Table 3.2: Category-wise Risk Factors of Childhood Pneumonia**

Risk Factor Categories	Risk Factors
Definite Risk Factors	Malnutrition (weight-for-age z-score <-2), Low birth weight (<= 2500g), Lack of exclusive breastfeeding (during first 4 months), Lack of measles immunisation (within the first 12 months of life), Indoor air pollution, Crowding
Likely Risk Factors	Parental smoking, Zinc deficiency, Maternal inexperience, Co-morbidities (diarrhoea, heart disease, asthma)
Possible Risk Factors	Maternal education, Day-care attendance, Rainfall (humidity), High altitude (cold air), Vitamin A deficiency, Higher birth order, Outdoor air pollution

Source: Rudan et al. (2008).

Table 3.3 reports data on the prevalence of ARI in the listing survey, broken down by rural and urban residence. In Uttar Pradesh and Odisha, the 30-day ARI prevalence rate for the full sample was 6.2 per cent, with the prevalence being slightly higher in rural areas as compared to urban areas (6.3 per cent versus 5.9 per cent). The ARI prevalence rate was higher in the two districts sampled in Odisha (8.0 per cent) than in the two districts sampled in Uttar Pradesh (5.2 per cent). Overall, there is no clear pattern of rural-urban differences in the prevalence of ARI at the district level, with the urban prevalence rates being higher than the rural prevalence rates in two districts and lower than the rural prevalence rates in the other two districts.

**Table 3.3: 30-day Prevalence Rate of ARI by Place of Residence (%)**

Districts/States	Rural	Urban	Total
Chandauli	5.36 (4.78 - 5.93)	4.14 (3.16 - 5.10)	5.20 (4.70 - 5.70)
Firozabad	4.97 (4.42 - 5.51)	5.89 (4.94 - 6.84)	5.25 (4.77 - 5.72)
Bargarh	7.32 (6.55 - 8.08)	8.53 (6.77 - 10.28)	7.44 (6.74 - 8.13)
Dhenkanal	8.77 (7.90 - 9.62)	6.61 (5.02 - 8.19)	8.56 (7.79 - 9.32)
UP	5.17 (4.76 - 5.56)	5.45 (4.75 - 6.14)	5.23 (4.88 - 5.57)
Odisha	7.98 (7.41 - 8.55)	7.65 (6.45 - 8.84)	7.95 (7.43 - 8.46)
All	6.26 (5.92 - 6.58)	5.86 (5.27 - 6.45)	6.19 (5.89 - 6.47)

Source: Authors' estimates, using data from the field survey.

Note: "State-level" estimates are a weighted sum of the district-level estimates from the two districts in each state; 95% confidence intervals are reported in parentheses below point estimates.

Table 3.4 reports estimates of ARI-prevalence rates from Round 4 of the National Family and Health Survey (NFHS-4) of 2015-16 (India Fact Sheet: NFHS-4, 2017).

Given that the listing survey was carried out in only four districts, a comparison of ARI prevalence at the State level is obviously not appropriate. Thus, we focused on comparisons of ARI prevalence in the districts for which data was available both in NFHS-4 and in the listing survey. We find that the ARI prevalence estimates from NFHS-4 are higher than our listing survey estimates in Uttar Pradesh (for the Chandauli and Firozabad districts), but considerably lower than our listing survey estimates in Dhenkanal, the only district in Odisha for which comparable data was available.

**Table 3.4: 14-day Prevalence Rate of ARI by Place of Residence, Social Groups, and Religious Groups (%)**

Districts/States	Rural	Urban	All
Chandauli	8.10	-	8.50
Firozabad	6.60	9.70	8.60
Bargarh	NA <sup>^</sup>	NA	NA
Dhenkanal	2.80	-	2.70
UP	3.70	4.90	4.70
Odisha	1.90	2.50	2.40

**Source:** District Fact Sheets of the Respective Districts, NFHS 2015-16, National Family Health Survey (NFHS-4), India, 2015-16: Uttar Pradesh; National Family Health Survey (NFHS-4), India, 2015-16: Odisha.

**Note:** <sup>^</sup>NA reflects the values that are not provided by the NFHS due to small sample sizes.

Multiple factors could have played a role in the differences in estimates in ARI prevalence from the NFHS-4 and from our listing survey. Apart from the different years in which data were collected, the variation in the prevalence estimates could have arisen from differences in the definition of ARI used in the two surveys, the age group for which the prevalence rate was estimated, the reference period used, and the time at which the data was collected. The NFHS-4 estimates were based on information gathered from children aged less than five years, with a reference period of two weeks. In comparison, the listing survey gathered information on ARI for children aged five years (completed) or less, but with a reference period of 30 days, and the additional requirement that the condition was severe enough to contemplate seeking treatment. The format of the questions used to identify ARI was also slightly different in the listing survey as compared to NFHS-4. For example, NFHS-4 asked households whether children had fever, or had symptoms of ARI, whereas in the listing survey, the respondents were directly asked the question as to whether the children had ARI (including using local terminology for ARI). Finally, the NFHS-4 surveys in Odisha and Uttar Pradesh were conducted primarily during the first half of the year, though the survey period extended to mid-September in the two Uttar Pradesh districts. In contrast, the listing survey was conducted from March to October 2019, more or less uniformly over the period. The seasonality effects on the prevalence of ARI can be very significant, as discussed below.

A full assessment of the main drivers of differences in the two sets of ARI prevalence estimates (NFHS-4 and the listing survey) is beyond the scope of this chapter.

However, differences in the timing of the surveys could have played a major role in the differences in estimates of ARI prevalence. The ARI prevalence rates post-monsoon were more than double the ARI prevalence rates during in the pre-monsoon phase in all four districts in the listing survey (Table 3.5). In NFHS-4, the surveys were conducted primarily during the late winter and pre-monsoon periods in Odisha, which would have resulted in a lower than average ARI prevalence. In Uttar Pradesh, however, the NFHS-4 stretched deep into the late-monsoon phase, and further into the post-monsoon period.

**Table 3.5: Seasonal Variations in the 30-day Prevalence Rate of ARI**

Districts/States	Two Phases of the ARI Survey			Time Period of NFHS
	March-June 2019	August-October 2019	All	
Chandauli	2.6	7.6	5.2	3 <sup>rd</sup> February to 17 <sup>th</sup> September
Firozabad	1.7	8.2	5.3	4 <sup>th</sup> February to 17 <sup>th</sup> September
Bargarh	2.3	11.1	7.4	21 <sup>st</sup> January to 4 <sup>th</sup> July
Dhenkanal	6.5	10.6	8.6	21 <sup>st</sup> January to 4 <sup>th</sup> July
UP	2.1	7.9	5.2	27 <sup>th</sup> January to 17 <sup>th</sup> September
Odisha	4.4	10.9	8.0	21 <sup>st</sup> January to 4 <sup>th</sup> July
All	2.9	9.0	6.2	

Source: Authors' estimates, using data from the listing survey; and NFHS-4 data.

Previous work has noted the association of ARI with socio-economic status (Taksande and Yeole, 2015). Data from Table 3.3 provides little evidence of an association between location and ARI prevalence. We also did not observe any significant variation by caste or tribal status (Table 3.6), with the ARI prevalence rates being roughly similar across the three social-ethnic groupings, that is, Scheduled Castes and Scheduled Tribes (SCs/STs), Other Backward Castes (OBCs), and other castes that were neither SC/ST nor OBC). The ARI prevalence rates are slightly higher among Hindus than non-Hindus. However, the sample size of non-Hindu households in the listing survey is very small in Odisha, making the ARI prevalence estimates in the latter group of individuals very imprecise.

In the listing survey, smaller households reported a higher prevalence of ARI as compared to larger households—the ARI prevalence rate was of 9.4 per cent in households that had fewer than five members versus 4.9 per cent in households that had a membership of five or more—a pattern that is consistent across districts and both the States under study. It is a priori unclear as to whether this reflects a recall issue, that is, respondents in households with many children being less able to recall instances of ARI, or some other factor.

**Table 3.6: 30-day Prevalence Rate of ARI by Socio-religious Status and Household Size**

Districts/St ates	Social Groups			Religious Groups		Household Size (No. of Members)		Total
	SC/ST	OBC	Others	Hindu	Non- Hindus	Less than Five	5 and Above	
Chandauli	5.28 (4.51 - 6.05)	5.37 (4.62 - 6.11)	3.98 (2.58 - 5.38)	5.21 (4.67 - 5.74)	5.12 (3.63 - 6.61)	8.59 (7.01 - 10.17)	4.58 (4.07 - 5.09)	5.20 (4.70 - 5.70)
Firozabad	5.92 (4.78 - 7.06)	4.80 (4.24 - 5.37)	6.24 (4.93 - 7.54)	5.31 (4.80 - 5.82)	4.70 (3.35 - 6.05)	7.92 (6.72 - 9.12)	4.46 (3.96 - 4.95)	5.25 (4.77 - 5.72)
Bargarh	6.54 (5.53 - 7.55)	8.35 (7.33 - 9.36)	5.34 (2.70 - 7.97)	7.44 (6.74 - 8.13)	5.65 (-3.86 - 15.16)	9.20 (8.11 - 10.29)	5.83 (4.96 - 6.70)	7.44 (6.74 - 8.13)
Dhenkanal	9.37 (8.09 - 10.65)	7.95 (6.91 - 8.99)	8.21 (5.77 - 10.65)	8.57 (7.81 - 9.34)	NA	12.09 (10.75 - 13.43)	5.98 (5.12 - 6.85)	8.56 (7.79 - 9.32)
UP	5.51 (4.87 - 6.15)	5.01 (4.56 - 5.46)	5.49 (4.51 - 6.47)	5.27 (4.90 - 5.63)	4.88 (3.88 - 5.87)	8.16 (7.21 - 9.11)	4.52 (4.16 - 4.87)	5.23 (4.88 - 5.57)
Odisha	7.79 (7 - 8.59)	8.17 (7.44 - 8.9)	7.21 (5.39 - 9.04)	7.96 (7.44 - 8.47)	3.35 (-2.64 - 9.34)	10.44 (9.59 - 11.28)	5.90 (5.29 - 6.52)	7.95 (7.43 - 8.46)
All	6.48 (5.97 - 6.98)	6.05 (5.66 - 6.44)	5.88 (5.02 - 6.75)	6.28 (5.98 - 6.58)	4.86 (3.88 - 5.84)	9.43 (8.79 - 10.06)	4.89 (4.58 - 5.20)	6.19 (5.89 - 6.47)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates; NA indicates inadequate representation in the sample to arrive at a point estimate.

**Table 3.7: 30-day Prevalence Rate of ARI by Income Group**

Districts/State s	Per Capita Household Income Quintiles					
	1	2	3	4	5	Total
Chandauli	3.68 (2.92 - 4.43)	4.08 (3.16 - 5.00)	5.98 (4.76 - 7.21)	6.92 (5.44 - 8.41)	10.09 (8.03 - 12.15)	5.20 (4.70 - 5.70)
Firozabad	3.33 (2.15 - 4.51)	3.99 (3.08 - 4.90)	4.34 (3.44 - 5.24)	5.86 (4.87 - 6.85)	7.64 (6.42 - 8.87)	5.25 (4.77 - 5.72)
Bargarh	5.11 (3.49 - 6.73)	6.65 (5.05 - 8.26)	6.50 (5.01 - 7.98)	7.29 (5.98 - 8.60)	10.48 (8.83 - 12.13)	7.44 (6.74 - 8.13)
Dhenkanal	7.50 (6.03 - 8.98)	7.53 (5.64 - 9.42)	7.18 (5.32 - 9.03)	9.93 (8.28 - 11.59)	10.42 (8.63 - 12.21)	8.56 (7.79 - 9.32)
UP	3.58 (2.94 - 4.22)	4.04 (3.39 - 4.68)	5.00 (4.26 - 5.73)	6.19 (5.37 - 7.02)	8.26 (7.2 - 9.31)	5.23 (4.88 - 5.57)
Odisha	6.62 (5.51 - 7.72)	7.02 (5.80 - 8.25)	6.77 (5.61 - 7.92)	8.37 (7.34 - 9.39)	10.46 (9.24 - 11.67)	7.95 (7.43 - 8.46)
All	4.57 (4.01 - 5.14)	4.96 (4.37 - 5.56)	5.54 (4.92 - 6.17)	7.07 (6.43 - 7.72)	9.17 (8.37 - 9.96)	6.19 (5.89 - 6.47)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates.

Table 3.7 reports our findings on the 30-day ARI prevalence by (monthly) per capita income quintiles of households. The key observation is that the self-reported ARI prevalence is rising with income, whether considered for the full sample, or at the level



of individual districts in the two States. Since the number of children per household decreases with an increase in income per capita in the listing survey, these trends could suggest under-reporting of ARI cases among the poorer households. Of course, another explanation is that richer households are more likely to seek care and are thus more likely to have their children diagnosed with ARI.

### 3.3. Chronic Respiratory Conditions among Adults

Chronic respiratory conditions encompass a range of health conditions under the rubric Chronic Obstructive Pulmonary Disease (COPD). These conditions progress slowly over time and are common in populations aged 30 years and above. Given the challenges of accurately diagnosing specific clinical conditions, our study focused on identifying ‘chronic respiratory conditions’ (chronic breathlessness) among adults. The respondent for the questions on chronic respiratory conditions was the person suffering from the disease.

Conditions giving rise to chronic breathlessness account for a significant share of India’s disease burden. As one illustration, COPD, which showed a rise from an estimated 28.1 million cases in 1990 to almost 55.3 million in 2016, accounted for 5.2 per cent of Disability-adjusted Life Years (DALYs) lost in India in 2017. The number of persons dying from asthma came down from 0.28 million in 1990 to 0.26 million in 2017, with the share of total deaths falling from 3.3 per cent to 2.6 per cent during the same time period. The share of asthma in total DALYs also declined from 1.7 per cent in 1990 to 1.5 per cent in 2017 (India State-Level Disease Burden Initiative, 2018).

The prevalence estimates for chronic respiratory conditions (chronic breathlessness), reported in Table 3.8, are based on self-reports without any physical examination or investigation by a qualified health professional. In the listing survey, chronic respiratory conditions were identified if a person reported experiencing/suffering from chronic cough, and severe shortness of breath at rest or on minimal effort, for a period longer than six months, and with a flare-up of these symptoms in the last one year, even if for a single day. These symptoms are broadly consistent with severe chronic pulmonary disease, such as chronic bronchitis, asthma, and emphysema/COPD.

The estimates based on data from the listing survey point to relatively low levels of prevalence (1.8 per cent) of chronic respiratory conditions in the four districts. The State level figures from NFHS 2015-16 (India Fact Sheet: NFHS-4, 2017) are broadly consistent with our two district aggregates of prevalence estimates in the two States. In NFHS-4, the gender-segregated prevalence rates of asthma for the population in the age group of 15-49 years were 1.2 per cent and 1.0 per cent for women and men, respectively, in Uttar Pradesh, and 2.5 per cent and 2.2 per cent, respectively in Odisha. Since it is unlikely that respondents would have been able to distinguish

between COPD, bronchitis, or asthma, the prevalence of asthma for NFHS-4 is likely to be a good proxy for ‘chronic respiratory conditions’ as defined in our study.

There are, however, differences between the two surveys on multiple dimensions, including the definition used to identify a chronic respiratory condition and the recall period. NFHS-4 estimates are based on data from adults aged 15–49 years, reporting only asthma. Our study includes all reports of chronic respiratory conditions (asthma, along with other health conditions related to respiratory problems, is included) lasting more than six months among adults aged 18 years or above, and where there was a flare-up requiring medical attention during the last one year.

The estimates reported in Table 3.8 indicate a prevalence rate of 2.1 per cent for chronic respiratory conditions in the two districts of Odisha, which is slightly higher than the rate of 1.5 per cent witnessed in the two districts of Uttar Pradesh. There was some cross-district variation as well, with the prevalence of chronic respiratory conditions in Dhenkanal (2.8 per cent) being double of that in Chandauli (1.4 per cent), the district with the lowest prevalence of chronic respiratory conditions. However, there was no clear pattern in the rural-urban prevalence rates of chronic respiratory conditions.

**Table 3.8: Prevalence of Chronic Respiratory Conditions in the Adult population by Place of residence (%)**

Districts/States	Rural	Urban	Total
Chandauli	1.37 (1.27 - 1.47)	1.20 (1.02 - 1.38)	1.35 (1.26 - 1.44)
Firozabad	1.74 (1.61 - 1.87)	1.48 (1.31 - 1.65)	1.65 (1.54 - 1.75)
Bargarh	1.60 (1.48 - 1.71)	1.74 (1.50 - 1.98)	1.61 (1.51 - 1.71)
Dhenkanal	2.79 (2.62 - 2.97)	2.77 (2.43 - 3.11)	2.79 (2.63 - 2.95)
UP	1.55 (1.46 - 1.63)	1.41 (1.29 - 1.54)	1.51 (1.44 - 1.58)
Odisha	2.11 (2.01 - 2.21)	2.20 (2.00 - 2.40)	2.12 (2.03 - 2.21)
All	1.81 (1.74 - 1.87)	1.59 (1.48 - 1.69)	1.77 (1.71 - 1.82)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates.

Table 3.9 reports the breakdown of prevalence rates for chronic respiratory conditions in the sample by indicators of socio-economic status, religion, and household size. Broadly, the prevalence rates are lowest among the SC/ST population, and highest in the “General” category, that is, excluding SCs/STs and OBCs. These patterns persist even when the data are disaggregated to the district level.

Overall, the self-reported prevalence rates for chronic respiratory conditions are slightly higher among the Hindus than the non-Hindus. The prevalence of chronic

respiratory conditions among individuals living in households with fewer than five members is larger than in households that have five or more members, which is different from the findings on ARI prevalence.

**Table 3.9: Prevalence of Chronic Respiratory Conditions in the Adult Population by Socio-religious Status and Household Size (%)**

Districts/St ates	Social Groups			Religious Groups		Household Size		Total
	SC/ST	OBC	General	Hindu	Non- Hindus	Less than Five	5 and above	
Chandauli	1.22 (1.09 - 1.35)	1.35 (1.22 - 1.48)	1.76 (1.45 - 2.07)	1.37 (1.28 - 1.47)	1.08 (0.84 - 1.33)	0.90 (0.72 - 1.08)	1.46 (1.36 - 1.56)	1.35 (1.26 - 1.44)
Firozabad	1.72 (1.46 - 1.97)	1.63 (1.49 - 1.76)	1.65 (1.42 - 1.89)	1.64 (1.53 - 1.75)	1.67 (1.33 - 2.00)	1.39 (1.19 - 1.59)	1.74 (1.61 - 1.86)	1.65 (1.54 - 1.75)
Bargarh	1.49 (1.33 - 1.65)	1.55 (1.41 - 1.69)	3.05 (2.52 - 3.58)	1.61 (1.51 - 1.72)	0.78 (-0.14 - 1.71)	1.20 (1.07 - 1.33)	2.16 (1.98 - 2.34)	1.61 (1.51 - 1.71)
Dhenkanal	2.41 (2.13 - 2.69)	2.84 (2.63 - 3.04)	3.55 (3.03 - 4.06)	2.79 (2.64 - 2.95)	0.77 (-1.14 - 2.7)	2.66 (2.45 - 2.87)	2.94 (2.71 - 3.18)	2.79 (2.63 - 2.95)
UP	1.40 (1.27 - 1.52)	1.52 (1.43 - 1.61)	1.69 (1.50 - 1.87)	1.52 (1.45 - 1.6)	1.42 (1.21 - 1.63)	1.20 (1.06 - 1.34)	1.61 (1.53 - 1.69)	1.51 (1.44 - 1.58)
Odisha	1.83 (1.68 - 1.97)	2.12 (2.00 - 2.24)	3.35 (2.98 - 3.73)	2.12 (2.03 - 2.21)	0.78 (-0.07 - 1.64)	1.81 (1.69 - 1.92)	2.51 (2.37 - 2.66)	2.12 (2.03 - 2.21)
All	1.61 (1.51 - 1.7)	1.77 (1.70 - 1.84)	2.15 (1.97 - 2.32)	1.79 (1.73 - 1.85)	1.41 (1.20 - 1.61)	1.58 (1.49 - 1.67)	1.87 (1.80 - 1.95)	1.77 (1.71 - 1.82)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates.

Table 3.10 reports the prevalence rates by (monthly) per capita income quintiles of households. Barring Firozabad, where the prevalence rates for chronic respiratory conditions decline with income, the data suggest no clear patterns by income status.

**Table 3.10: Prevalence of Chronic Respiratory Conditions among the Adult Population by Income Quintiles (%)**

Districts/ States	Per Capita Household Income Quintiles					Total
	1	2	3	4	5	
Chandauli	1.51 (1.34 - 1.67)	1.50 (1.30 - 1.71)	0.96 (0.79 - 1.14)	1.15 (0.93 - 1.37)	1.29 (1.03 - 1.55)	1.35 (1.26 - 1.44)
Firozabad	2.54 (2.16 - 2.93)	1.79 (1.55 - 2.04)	1.45 (1.24 - 1.65)	1.45 (1.24 - 1.67)	1.38 (1.18 - 1.57)	1.65 (1.54 - 1.75)
Bargarh	1.75 (1.47 - 2.03)	2.39 (2.07 - 2.71)	1.16 (0.99 - 1.32)	1.57 (1.34 - 1.8)	1.60 (1.37 - 1.83)	1.61 (1.51 - 1.71)
Dhenkanal	2.96 (2.64 - 3.28)	3.21 (2.71 - 3.71)	2.01 (1.75 - 2.28)	2.98 (2.61 - 3.35)	3.00 (2.65 - 3.36)	2.79 (2.63 - 2.95)
UP	1.82 (1.66 - 1.98)	1.66 (1.50 - 1.82)	1.25 (1.11 - 1.39)	1.36 (1.2 - 1.51)	1.35 (1.20 - 1.51)	1.51 (1.44 - 1.58)
Odisha	2.47 (2.25 - 2.69)	2.71 (2.43 - 2.98)	1.47 (1.33 - 1.61)	2.14 (1.94 - 2.35)	2.19 (1.99 - 2.39)	2.12 (2.03 - 2.21)
All	2.06 (1.93 - 2.19)	2.00 (1.86 - 2.14)	1.36 (1.26 - 1.46)	1.71 (1.58 - 1.84)	1.72 (1.59 - 1.85)	1.77 (1.71 - 1.82)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates.

### 3.4. Common Gynaecological Conditions

The listing survey gathered self-reported information on common gynaecological conditions (abnormally heavy bleeding and/or abnormally painful menstrual periods or abnormal vaginal discharge) during the last one year, which were severe enough to regularly disrupt daily activities or for the individual to contemplate seeking treatment. The respondent for the information on common gynaecological conditions was the female with the health condition.

The prevalence estimates constructed using the definition of the previous paragraph will differ from the prevalence estimates based on an examination by a qualified medical professional, and they may even vary by the location of the interview with the respondent. Previous work suggests that the prevalence rates for gynaecological conditions may be downwardly biased if their estimates were based on information from interviews conducted by lay persons at the residence of the respondent (Filippi et al. 1997). In the Indian context, a similar downward bias in the self-reporting of gynaecological conditions has been observed in multiple studies when respondents were interviewed in their home environment (Bhatia and Cleland 2000; Bang et al. 1989; Dheresa et al. 2017). Other factors that can influence self-reports of gynaecological conditions include awareness levels about the condition, education of the respondent, family income, availability of health facilities, the attitudes of the health professionals with whom the women interact, and the asymptomatic characteristics of some gynaecological conditions (Kambo et al. 2003; Bang et al. 1989).

Table 3.11 reports estimates of the prevalence of gynaecological conditions in the listing survey sample, broken down by State, district, and by rural and urban

residence. The prevalence rate of common gynaecological conditions in the full sample is 3.5 per cent, with roughly similar magnitudes in Uttar Pradesh (3.6 per cent) and Odisha (3.3 per cent). We found little evidence of rural-urban differentials in the prevalence rates of common gynaecological conditions. However, the prevalence rate for common gynaecological conditions was highest in Firozabad (4.2 per cent) among the four districts that were part of the listing survey.

**Table 3.11: Prevalence of Common Gynaecological Conditions by Place of Residence (%)**

Districts/States	Rural	Urban	Total
Chandauli	2.78 (2.54 - 3.01)	2.57 (2.16 - 2.97)	2.75 (2.54 - 2.96)
Firozabad	4.12 (3.82 - 4.43)	4.44 (3.95 - 4.93)	4.23 (3.97 - 4.50)
Bargarh	3.84 (3.56 - 4.11)	3.70 (3.13 - 4.27)	3.82 (3.57 - 4.07)
Dhenkanal	2.67 (2.41 - 2.93)	2.54 (2.02 - 3.07)	2.66 (2.43 - 2.89)
UP	3.42 (3.23 - 3.61)	4.01 (3.66 - 4.36)	3.57 (3.4 - 3.74)
Odisha	3.34 (3.14 - 3.53)	3.19 (2.79 - 3.58)	3.32 (3.15 - 3.49)
All	3.38 (3.24 - 3.52)	3.82 (3.56 - 4.09)	3.46 (3.34 - 3.58)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates.

We tried to obtain the comparable prevalence rates of gynaecological conditions from NFHS-4 data, which gathered information from women aged 15-49 years. Unfortunately, district-level estimates for gynaecological conditions in NFHS-4 data were not readily available. At the State level, the estimates of the prevalence rates based on the NFHS-4 data were 11.9 per cent for Uttar Pradesh and 3.8 per cent for Odisha. In general, it is difficult to compare these State-level estimates from NFHS-4 with the district-level estimates, or State-level estimates constructed from the sampled districts, from the listing survey, given the considerable inter-district variations in the prevalence rates of gynaecological conditions, even within a State (Kambo et al. 2003).

In addition, though neither NFHS-4 nor our listing survey deployed medical professionals to identify gynaecological conditions, there are definitional differences between NFHS-4 and our survey, and differences in the population sampled. To reiterate, the NFHS sample includes women aged 15-49 years reporting a gynaecological issue, whereas the listing survey includes women above the age of 18 years who reported a gynaecological issue that was severe enough to force them to stop working for at least one day and to consider seeking treatment. Thus, it is not surprising to find that the estimated prevalence rates for gynaecological conditions were lower than the estimates from the NFHS data.

**Table 3.12: Prevalence of Common Gynaecological Conditions by Socio-religious Status and Household Size (%)**

Districts/States	Social Groups			Religious Groups		Household Size		Total
	SC/ST	OBC	Others	Hindu	Non-Hindu	Less than Five	5 & Above	
Chandauli	2.99 (2.65 - 3.32)	2.52 (2.24 - 2.81)	2.91 (2.28 - 3.54)	2.71 (2.49 - 2.92)	3.17 (2.53 - 3.82)	2.35 (1.92 - 2.78)	2.85 (2.61 - 3.09)	2.75 (2.54 - 2.96)
Firozabad	4.88 (4.22 - 5.54)	3.95 (3.64 - 4.26)	4.57 (3.94 - 5.21)	3.96 (3.70 - 4.23)	6.63 (5.52 - 7.74)	3.45 (3.00 - 3.91)	4.50 (4.18 - 4.82)	4.23 (3.97 - 4.50)
Bargarh	3.64 (3.26 - 4.02)	3.98 (3.63 - 4.33)	3.62 (2.67 - 4.58)	3.81 (3.56 - 4.05)	9.84 (4.51 - 15.16)	4.47 (4.13 - 4.81)	2.96 (2.61 - 3.3)	3.82 (3.57 - 4.07)
Dhenkanal	2.91 (2.46 - 3.36)	2.62 (2.32 - 2.92)	2.21 (1.61 - 2.8)	2.66 (2.43 - 2.89)	NA	3.19 (2.86 - 3.52)	2.04 (1.74 - 2.34)	2.66 (2.43 - 2.89)
UP	3.66 (3.34 - 3.98)	3.40 (3.18 - 3.62)	4.03 (3.56 - 4.50)	3.40 (3.22 - 3.57)	5.16 (4.5 - 5.81)	3.02 (2.70 - 3.34)	3.73 (3.53 - 3.93)	3.57 (3.40 - 3.74)
Odisha	3.38 (3.08 - 3.67)	3.37 (3.13 - 3.60)	2.76 (2.23 - 3.28)	3.31 (3.14 - 3.49)	6.81 (3.05 - 10.58)	3.94 (3.70 - 4.18)	2.54 (2.31 - 2.78)	3.32 (3.15 - 3.49)
All	3.52 (3.3 - 3.73)	3.39 (3.23 - 3.54)	3.67 (3.31 - 4.03)	3.36 (3.24 - 3.48)	5.19 (4.54 - 5.83)	3.61 (3.42 - 3.81)	3.37 (3.22 - 3.53)	3.46 (3.34 - 3.58)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates.

NA indicates inadequate representation in the sample to arrive at a point estimate.

Our results (in Table 3.12) suggest relatively small differences across caste and tribal groups in the two states. There is, however, some evidence that the prevalence of gynaecological conditions is lower among the Hindu women (3.4 per cent) as compared to their non-Hindu counterparts (5.2 per cent). The differences in prevalence rates by household size do not appear to be significant.

**Table 3.13: Prevalence of Common Gynaecological Conditions by Income**

Districts/ States	Household Income Per Capita Quintiles					Total
	1	2	3	4	5	
Chandauli	2.94 (2.58 - 3.30)	2.61 (2.18 - 3.04)	2.95 (2.43 - 3.47)	2.29 (1.75 - 2.84)	2.61 (2.06 - 3.15)	2.75 (2.54 - 2.96)
Firozabad	5.37 (4.51 - 6.23)	4.60 (3.99 - 5.20)	4.26 (3.68 - 4.85)	4.02 (3.46 - 4.59)	3.50 (3.04 - 3.97)	4.23 (3.97 - 4.50)
Bargarh	2.24 (1.71 - 2.76)	2.60 (2.09 - 3.12)	3.59 (3.15 - 4.04)	3.62 (3.07 - 4.17)	6.27 (5.62 - 6.92)	3.82 (3.57 - 4.07)
Dhenkanal	2.57 (2.10 - 3.05)	1.86 (1.32 - 2.40)	2.66 (2.20 - 3.12)	2.66 (2.08 - 3.23)	3.30 (2.76 - 3.84)	2.66 (2.43 - 2.89)
UP	3.68 (3.32 - 4.03)	3.66 (3.29 - 4.03)	3.72 (3.33 - 4.12)	3.46 (3.05 - 3.87)	3.27 (2.90 - 3.63)	3.57 (3.40 - 3.74)
Odisha	2.44 (2.08 - 2.79)	2.31 (1.94 - 2.69)	3.25 (2.92 - 3.58)	3.23 (2.83 - 3.63)	5.03 (4.59 - 5.47)	3.32 (3.15 - 3.49)
All	3.21 (2.96 - 3.46)	3.21 (2.94 - 3.48)	3.48 (3.23 - 3.73)	3.36 (3.07 - 3.64)	4.06 (3.77 - 4.34)	3.46 (3.34 - 3.58)

Source: Authors' estimates, using data from the field survey.

Note: 95% confidence intervals are reported in parentheses below point estimates.

Table 3.13 reports our survey-based gynaecological prevalence estimates by (monthly) household per capita income quintiles. These estimates suggest that the prevalence rates are broadly similar across income quintiles in Uttar Pradesh (3.68 per cent in the lowest income quintile, 3.27 per cent in the highest income quintile), but in Odisha, the prevalence rates rise with income (2.44 per cent in the lowest income quintile, 5.03 per cent in the highest income quintile).

### 3.5. Socio-economic Correlates of ARI, Chronic Respiratory Conditions and Gynaecological Conditions: Findings from Multivariate Analyses

In this sub-section, we briefly explore the association between indicators of the three health conditions and a range of socio-economic, demographic, and locational variables gathered in the listing survey, using multivariate logistic regression analyses. The estimates from these analyses are summarized in Table 3.14, which reports the relevant odd ratios for the weighted and un-weighted regression models.



**Table 3.14: Socio-economic, Demographic and Locational Correlates of ARI, Chronic Respiratory Conditions among Adults and Common Gynaecological Conditions: Results from a Multivariate Analysis**

Variables	Odd Ratios are Reported					
	ARI		Chronic Respiratory Conditions_		Gynaecological Conditions	
	Weighted	Un-weighted	Weighted	Un-weighted	Weighted	Un-weighted
Location (Reference Group: Rural)						
Urban	0.946 (0.065) <sup>^^</sup>	0.914 (0.056)	0.898 (0.045)	0.918 (0.040)	0.991 (0.049)	0.943 (0.042)
Caste (Reference Group) SC/ST						
OBCs	0.901 (0.052)	0.871 (0.047)	1.118 (0.049)	1.094 (0.045)	0.921 (0.041)	0.945 (0.039)
General	0.863 (0.083)	0.889 (0.080)	1.423 (0.093)	1.381 (0.081)	0.995 (0.066)	1.036 (0.064)
Reference for Income Group (Quintile 1)						
Quintile 2	1.176 (0.109)	1.128 (0.100)	0.979 (0.058)	1.037 (0.056)	0.909 (0.059)	0.869 (0.053)
Quintile 3	1.481 (0.141)	1.405 (0.128)	0.675 (0.041)	0.711 (0.040)	0.962 (0.059)	0.936 (0.054)
Quintile 4	1.457 (0.131)	1.415 (0.119)	0.843 (0.054)	0.868 (0.051)	0.929 (0.062)	0.895 (0.056)
Quintile 5	1.614 (0.155)	1.532 (0.138)	0.931 (0.059)	0.982 (0.057)	1.099 (0.072)	1.072 (0.064)
Household Size (Reference Group HH Size < 5)						
HH Size (>=5)	0.615 (0.042)	0.639 (0.041)	1.388 (0.069)	1.385 (0.064)	1.250 (0.060)	1.196 (0.055)
District (Reference Group: Chandauli)						
Firozabad	0.863 (0.064)	0.941 (0.067)	1.246 (0.072)	1.246 (0.068)	1.542 (0.086)	1.479 (0.078)
Bargarh	0.994 (0.079)	1.080 (0.080)	1.518 (0.091)	1.564 (0.087)	1.503 (0.083)	1.494 (0.080)
Dhenkanal	1.316 (0.103)	1.350 (0.098)	2.699 (0.154)	2.654 (0.138)	1.019 (0.064)	1.015 (0.060)
_No. of Children/Adults/Women**	1.398 (0.057)	1.375 (0.053)	1.296 (0.013)	1.306 (0.013)	1.282 (0.033)	1.318 (0.030)
Constant	0.061 (0.007)	0.061 (0.006)	0.012 (0.000)	0.011 (0.000)	0.026 (0.001)	0.025 (0.001)
N	20,984	21,079	64,299	64,299	64,298	64,298
Pseudo R2	0.0184	0.0165	0.0562	0.0565	0.0134	0.0134

Source: Authors' estimates, using data from the field survey.

Note: Standard errors are reported in parentheses below coefficient estimates. \*\*with respect to children, adults and women.

In general, the estimates from the multivariate analyses reflect the patterns that were observed from the simple cross-tabulations earlier in this chapter. For example, even after controlling for other covariates, the odds of finding a case of ARI are lower among larger-sized households relative to their smaller-sized counterparts; and are increasing in household size for chronic respiratory conditions and common gynaecological conditions. Similarly, the odds of finding an ARI increase with income, with no clear pattern in the relationship between incomes and the odds of finding a case of common gynaecological conditions or with chronic respiratory conditions. The odds of a case of ARI are lower among the higher castes; but higher castes do have

greater odds of reporting an individual with a chronic respiratory condition. Finally, the odds for finding any of these three conditions are lower in urban areas, though the effect sizes are small. Overall, the prevalence of gynaecological conditions does not show a strong association with social, economic, and religious attributes. However, there is a positive association between household size and the number of women in the household and finding a case with gynaecological conditions.

**Appendix Table 3.1: MPCI, Average HH Income, Number of Households, Household Size, Average Number of Children and Prevalence of ARI among Children**

Income Quintiles		SC/ST	OBC	General	Total
Quintile 1 (Poorest)	MPCI <sup>1</sup>	592.2	625.6	605.7	607.8
	Average HH Income <sup>2</sup>	4083.2	5378.3	5016.2	4716.6
	No of HHs <sup>3</sup>	1939	1652	291	3882
	HH Size <sup>4</sup>	7.15	8.76	8.32	7.94
	No. of Children <sup>5</sup>	1.92	2.04	1.92	1.97
	Prevalence Rate <sup>6</sup>	4.66	4.29	5.67	4.57
Quintile 2	MPCI	1166.8	1174.2	1167.7	1170.9
	Average HH Income	7985.0	8800.9	9698.7	8583.2
	No of HHs	1574	2128	366	4068
	HH Size	6.86	7.58	8.42	7.39
	No. of Children	1.75	1.79	1.80	1.78
	Prevalence Rate	5.36	4.70	4.90	4.96
Quintile 3	MPCI	1607.96	1606.60	1604.85	1606.88
	Average HH Income	10231.97	11330.53	12077.98	11038.44
	No of HHs	1322	2137	369	3828
	HH Size	6.38	7.10	7.58	6.91
	No. of Children	1.74	1.72	1.75	1.73
	Prevalence Rate	5.84	5.66	3.65	5.52
Quintile 4	MPCI	2128.5	2164.7	2219.6	2160.1
	Average HH Income	10959.1	11910.9	13291.7	11781.3
	No of HHs	1436	2726	517	4679
	HH Size	5.12	5.47	5.99	5.42
	No. of Children	1.59	1.61	1.65	1.61
	Prevalence Rate	8.36	6.58	6.27	7.08
Quintile 5 (Richest)	MPCI	3361.3	3634.3	4142.7	3647.7
	Average HH Income	13565.2	15998.3	19744.6	15995.9
	No of HHs	1127	2760	735	4622
	HH Size	4.02	4.41	4.83	4.38
	No. of Children	1.30	1.34	1.35	1.33
	Prevalence Rate	11.00	8.70	7.90	9.13
All	MPCI	1520.1	1886.3	2186.4	1789.7
	Average HH Income	8453.9	10868.6	12898.3	10237.4
	No of HHs	7398	11403	2278	21079
	HH Size	6.19	6.56	6.75	6.45
	No. of Children	1.71	1.69	1.66	1.69
	Prevalence Rate	6.48	6.05	5.89	6.19

Source: Authors' estimates, using data from the field survey.

Notes: <sup>1</sup> MPCI= Monthly per Capita Income in Rs.<sup>2</sup> Average HH income is the average income of households in that particular category. <sup>3</sup> No of HHs refers to total number of households in a particular category. <sup>4</sup> HH Size refers to the average size of the household. <sup>5</sup> No. of Children refers to average number of children per household in a category. <sup>6</sup> Prevalence rate refers to the prevalence of ARI in a particular category.



## Chapter 4

# Chronic Respiratory Condition: Healthcare Use Pathways, Out-of-Pocket Spending and Service Quality

As noted in the introduction to this report, analyses of treatment-seeking behaviour of individuals, including the full treatment pathway—the time taken to seek care in the first instance, the characteristics of providers consulted during the first and in subsequent visits, the timing of multiple visits, and the point at which they exit treatment—can offer important insights into patient (and household) preferences about health and healthcare, and the drivers of their decision-making about healthcare options. For example, patient reliance on traditional healers, unqualified providers, and home remedies can result from prevailing belief systems, lack of confidence in other options for medical care, financial constraints, and societal barriers such as stigma and religious prohibitions (Mohan et al. 2008; Das & Mohpal. 2016; Sinha et al. 2017). To the extent that patient choices are influenced by available alternatives for healthcare provision and their cost, an analysis of treatment pathways can shed light on key health system gaps with regard to the location and timing of services, quality of care, or affordability. Thus, treatment pathways can also be good indicators of the functioning of a health system, with better run health systems characterised by shorter pathways and superior health outcomes.

In this chapter, the characteristics of treatment pathways of individuals with chronic respiratory condition are assessed via:

- i. The time between the first appearance of symptoms and the time when the treatment was sought;
- ii. The number and types of healthcare providers visited;
- iii. The order in which healthcare providers were consulted, including the number of times patients switched between healthcare providers;
- iv. Total visits to health care providers; and
- v. The point of exit from treatment-seeking.

This chapter also reports findings on the households' out-of-pocket (OOP) spending on healthcare for individuals with chronic respiratory condition, including expenditures incurred on the full treatment pathway for the most recent acute episode related to the condition. In this, the study differs from most previous work on household spending on healthcare in India, which has tended to focus on expenditures on single (or at most two) treatment visits. Examining healthcare spending by households along the treatment pathway is also more appropriate for assessing the economic impact of treatment (on households) of long-running (or chronic) health

conditions.<sup>5</sup> By highlighting the aggregate OOP expenditures along the treatment pathway, the estimates we obtain are more likely to be more representative of the economic burden of chronic respiratory condition among the households in the four districts. The data gathered by the survey included household expenditure for medicines, diagnostic tests, consultation fees, and hospitalisation charges.

The quality of health care services available can play an important role in influencing health care seeking behaviour including along the treatment pathways. In this study, the quality of health care was assessed from the standpoint of the respondents and indicated by the patients' perceptions about the quality of health care services received.

Section 4.1 presents a description of the sampling procedure and household characteristics. It also provides details of the respondents. The remainder of this chapter is organised into four sections. Section 4.2 provides the demographic and socio-economic characteristics of persons with chronic respiratory condition. Section 4.3 reports findings on treatment-seeking behaviour, including elements of treatment 'pathways' of the respondent in the most recent episode in the year preceding the survey. Section 4.4 discusses the households' OOP spending on healthcare. Section 4.5 provides results from analyses of the survey data on the factors affecting a respondent's choice of healthcare facility.

### **4.1. Sampling and Household Characteristics**

The findings reported in this chapter are based on a survey of 1,898 individuals from an equivalent number of households sampled from four districts and are representative at the district level in Odisha and Uttar Pradesh. The sample of households surveyed included at least one adult who had been suffering with chronic breathlessness during the year preceding the survey with the focus of the survey questions on health care use and expenditure being on the individual who reported chronic breathlessness.

These households are spread across 397 villages and 119 urban blocks in the four districts. Out of the total sample of households, 80 per cent were from rural areas (ranging from 72 per cent in Firozabad to 85 per cent in Dhenkanal) and 20 per cent were from urban areas (ranging from 15 per cent in Dhenkanal to 28 per cent to Firozabad). The breakdown of sample households by district is reported in Table 4.1.

---

<sup>5</sup> In India, as in many other low- and middle-income countries, OOP expenditure on health care is a major cause of households becoming impoverished (Pandey et al. 2018).

**Table 4.1: District-wise Number of Selected Households by District and Place of Residence**

Districts/ States	Rural	Urban	All
Chandauli	338	64	402
Firozabad	289	115	404
Bargarh	406	104	510
Dhenkanal	494	88	582
All	1,527	371	1,898

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Further characterisation of the sample by social group, religion, and household size is given in Table 4.2. It can be seen that households belonging to Other Backward Castes (OBC) and the General categories comprised 71.3 per cent of the sample, with the remainder (28.7 per cent) being from the SC/ST communities. The share of SC/ST households was the highest in Bargarh and Chandauli districts with smaller shares in Firozabad and Dhenkanal.

Across all the four districts, a large majority of the sample households were Hindus (ranging from 88.6 per cent in Firozabad to 99.8 per cent in Dhenkanal), followed by Muslims and Others (ranging from 0.2 per cent in Dhenkanal to 11.4 per cent in Firozabad). It should be noted the households selected from the study belonged to a specific category, that is, the households having a minimum of one person who had been suffering from chronic breathlessness during the preceding one year; and the religion and caste classifications were based on the respondent's self-identification.

There were major differences in household size in the sampled households in Odisha and Uttar Pradesh. In the two Uttar Pradesh districts, the share of households with greater than five members was slightly more than half; in Bargarh and Dhenkanal (in Odisha), however, only about one-quarter of households had more than five members. Overall, the average size of the household was 6.3 in the Uttar Pradesh sample and 4.5 in the Odisha sample.

Table 4.2 also reports the breakdown of the sample districts by the share of population belonging to different (per capita) expenditure quartiles. The district with the highest share of households in the bottom quartiles<sup>6</sup> is Chandauli (19.2 per cent). Approximately one-half of the households fall in the second and third expenditure quartiles, across all the districts.

<sup>6</sup> The construction of expenditure quartiles is based on the full sample of households in the two States and based on per capita expenditures at the household level, using sample weights.

**Table 4.2: Distribution of Selected Households by Socio-economic Characteristics across Districts**

	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
Social Groups					
SC/ST	43.3	20.5	35.4	25.7	28.7
OBC/General	56.7	79.5	64.6	74.3	71.3
All	100.0	100.0	100.0	100.0	100.0
Religion					
Hindu	95.2	88.6	99.6	99.8	95.4
Muslim/Others	4.8	11.4	0.4	0.2	6.4
All	100.0	100.0	100.0	100.0	100.0
Household Size					
Up to 5 members	45.6	43.6	79.9	73.6	60.4
>5 members	54.4	56.4	20.1	26.4	39.6
All	100.0	100.0	100.0	100.0	100.0
Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	32.3	21.5	22.5	24.7	25.1
Quartile 2	25.6	23.8	21.6	28.2	24.9
Quartile 3	22.9	27.0	29.2	21.5	25.0
Quartile 4 (Richest)	19.2	27.7	26.7	25.6	25.0
All	100.0	100.0	100.0	100.0	100.0

Source: NCAER-Nossal 4IS Health Survey, 2019.

#### 4.1.1. Survey Respondents

The household questionnaire was administered to the individual who was the most knowledgeable about the person reporting chronic respiratory condition, the treatment for that person during the last one year, and other household-specific information such as income, and expenditure, among other things (details are given in Chapter 2). In 60 per cent of the sample households, the person with chronic respiratory condition was the respondent. In the remaining cases, the respondent was either the parent, spouse, or an adult child of the ailing person. This share was roughly the same across the four districts in Odisha and Uttar Pradesh.

#### 4.2. Housing and Individual Characteristics

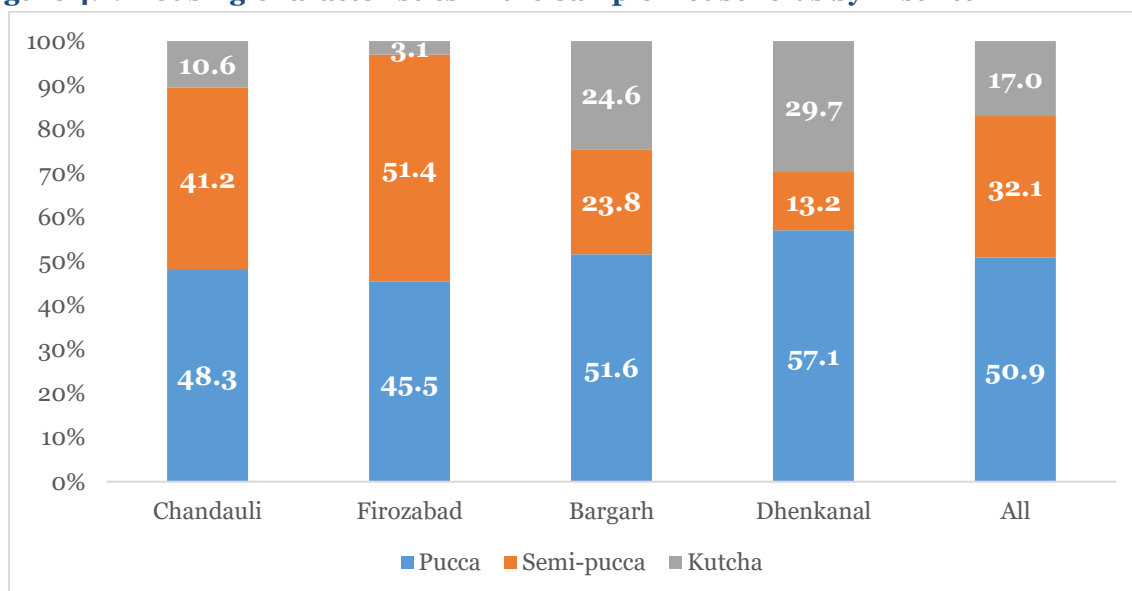
This section addresses two themes. First, it provides a description of the households' standard of living as measured by basic amenities and asset holdings such as the ownership and type of house, access to electricity, sanitation, drinking water and purification, type of cooking fuel used, and ownership of household consumer durables. Second, it reports the characteristics of the person with chronic respiratory condition.



### 4.2.1. Housing Characteristics

Ownership and type of house: It was found that 98 per cent of the sample households lived in their own house, and this proportion was similar across the four districts. As regards to the structure<sup>7</sup> of the houses (pucca, semi-pucca and kutchha), the share of households owning kutchha houses in the Odisha sample was much greater than in the Uttar Pradesh sample (Figure 4.1).

**Figure 4.1: Housing Characteristics in the Sample Households by District**



Source: NCAER-Nossal 4IS Health Survey, 2019.

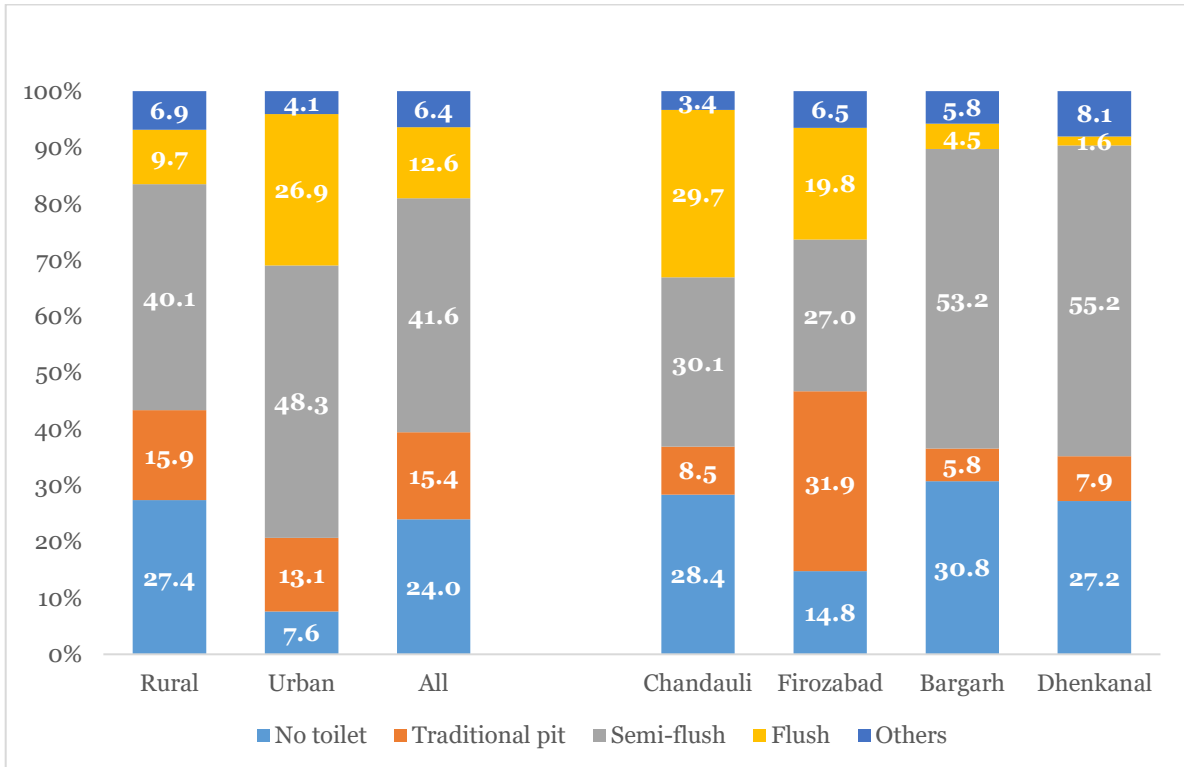
Access to electricity: The survey showed that 96 per cent of the households have access to electricity with a small rural-urban divide (95.4 per cent in rural households and 98.7 per cent in urban households, respectively). There is not much inter-district variation either, with the smallest share of households with access to electricity being 93 per cent in Chandauli, and the highest share of households with electricity being 97 per cent in Firozabad and Bargarh.

Access to sanitation facilities: About one-fourth of the households did not have a toilet and were practising open defecation. This was particularly prevalent in rural areas, where 27.4 per cent of the households had no toilet, as compared to a corresponding figure of 7.6 per cent in urban areas. There was some inter-district variation as well. Figure 4.2 shows the distribution of households by the type of toilet facilities in each district. A little more than 50 per cent of the households in the two districts of Odisha possessed semi-flush toilets, followed by pit toilets (around 15 per cent). In contrast, in the Firozabad district of Uttar Pradesh, 32 per cent of the households had pit toilets

<sup>7</sup>Based on the construction material used in the walls and roofs of the houses.

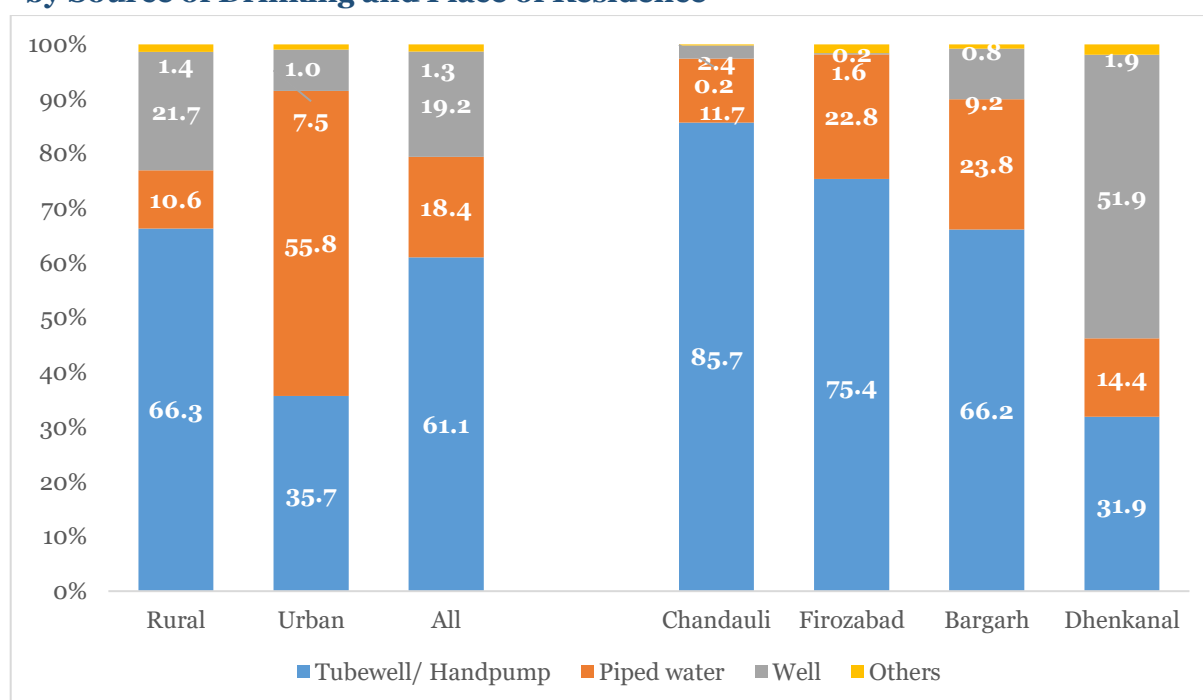
whereas in Chandauli, about 30 per cent of the households reported having flush toilet facilities.

**Figure 4.2: Percentage Distribution of Households by Type of Toilet Facilities by District and Place of Residence**



Source: NCAER-Nossal 4IS Health Survey, 2019.

Drinking water source and treatment: Two types of information related to drinking water were collected in this study: (i) sources of drinking water; and (ii) the treatment process, that is, the actions households undertake to make water safe for drinking. Overall, the provision for piped water in rural areas was poor (Figure 4.3), with only about 11 per cent of the rural households reporting access to piped water. Tube wells, hand pumps, and other types of wells were the most common sources of drinking water in rural areas. In contrast, about 56 per cent of the urban households had access to piped water for drinking, followed by tube wells and hand pumps (36 per cent). In our sample of households, more than 90 per cent reported not treating their water prior to drinking, and this practice was less prevalent in the households in Uttar Pradesh as compared to those in Odisha.

**Figure 4.3: District-wise Percentage Distribution of Households by Source of Drinking and Place of Residence**


Source: NCAER-Nossal 4IS Health Survey, 2019.

Hitherto, the access to basic services has been considered individually. If an index that captures access to all three— electricity, sanitation and drinking water—is used, the sample households fare worse. In rural areas, only 7.8 per cent of the households reported access to all three, and even in urban areas, access was far from universal, with only about half the households reporting such access (Table 4.3).

**Table 4.3: Proportion of Households Having Three Basic Facilities by Districts and Place of Residence**

	Rural	Urban	All
Chandauli	5.8	51.3	11.1
Firozabad	5.6	54.4	20.5
Bargarh	13.6	42.2	16.7
Dhenkanal	7.3	53.2	12.1
All	7.8	52.5	15.5

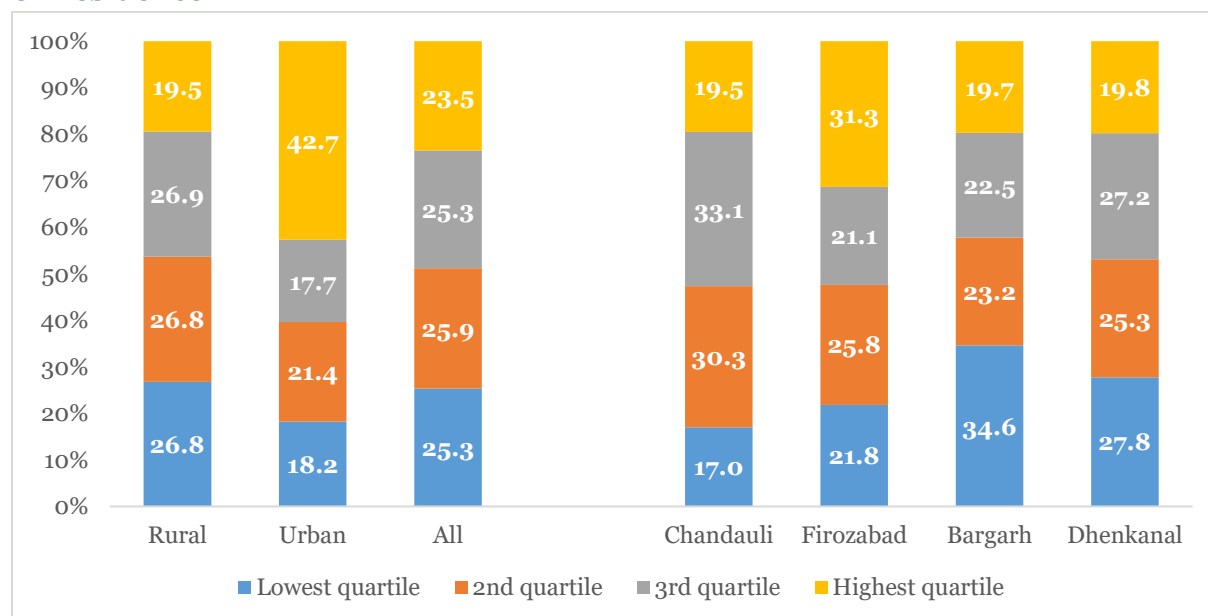
Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Wealth index:** The survey also collected information on the ownership of consumer durables by the household, in addition to housing amenities, to capture the details of the households' standard of living. Figure 4.4 reports the distribution of sampled households by wealth quartiles<sup>8</sup> by district and rural-urban location. Not surprisingly,

<sup>8</sup> Households are given scores based on the number and kinds of consumer goods they own, ranging from a television to a bicycle or car, and housing characteristics such as toilet facilities. These scores were derived using principal component analysis. Overall, wealth quartiles are compiled by assigning the household score, ranking each household by its score, and then dividing the distribution into four equal categories, each comprising 25 per cent of the households.

the wealthiest households are concentrated in urban areas, with 60 per cent of the urban households belonging to the top two wealth quartiles. In comparison, more than half of the rural households (53.6 per cent) belonged to the lowest two wealth quartiles. Among the districts, Firozabad had the highest share of households in the top wealth quartile. Bargarh had the highest share of households in the bottom wealth quartile, and indeed the Odisha households accounted for a larger share of the bottom quartile than the Uttar Pradesh households.

**Figure 4.4: Share of Households across Wealth Quartiles by Districts and Place of Residence**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

#### 4.2.2. Profile of the Person with Chronic Respiratory Condition

Table 4.4 reports information on the demographic and socio-economic profile of the person in the surveyed household who reported chronic respiratory condition among adults (aged 18 years and above). In our sample, almost two-fifths of the individuals belonged to the age group of 60 years and above, with the share of individuals aged 46-60 years and 18-45 years being slightly lower. The share of people aged 18-45 years was much lower in Firozabad than in the other districts, and as compared to the overall share of 28 per cent for this group in the sample. Men comprised a dominant share of the sample, accounting for an overall share of almost 90 per cent of the sample. There was some variation across States with the share of women in the two districts of Uttar Pradesh ranging from 14 to 15 per cent, which was double that of the share of women in the Odisha sample.

About 80 per cent of the persons reporting chronic respiratory condition reported being married. Almost half were educated up to the matriculation (Matric) level, with only 10 per cent having attained education up to the higher secondary level and above.

Educational attainment among the sample individuals in Odisha was higher than that in Uttar Pradesh. Around 60 per cent of the persons reporting chronic respiratory condition were not working, with the share of persons not working ranging from 58 per cent to 65 per cent across districts.

**Table 4.4: Profile of Ill Persons by Socio-economic Characteristics across Districts (% Distribution)**

	UP		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
<i>Age Categories (Years)</i>					
Up to 45	31.6	19.2	32.2	32.4	27.9
46-60	29.4	39.7	30.2	31.8	33.7
60 and above	39.0	41.2	37.6	35.9	38.4
<i>Gender</i>					
Male	84.8	86.1	93.4	93.2	89.6
Female	15.2	13.9	6.6	6.8	10.4
<i>Marital Status</i>					
Married	83.2	85.3	75.9	77.5	80.7
Unmarried/Divorced/Separated/Widowed	16.8	14.7	24.2	22.5	19.4
<i>Level of Education</i>					
Illiterate	45.4	47.2	28.6	29.5	37.7
Up to Matriculation Level	40.1	43.5	62.7	62.1	52.6
Higher Secondary and above	14.5	9.3	8.8	8.5	9.8
<i>Occupation Categories</i>					
Worker	35.3	39.0	42.3	35.9	38.0
Non-worker	64.7	61.0	57.7	64.1	62.1

Source: NCAER-NOSSAL 4IS Health Survey 2019.

### 4.3. Healthcare Pathways

The analysis in this section explores health-seeking responses by persons with chronic breathlessness in response to an acute episode during the year preceding the survey. The following specific questions were explored:

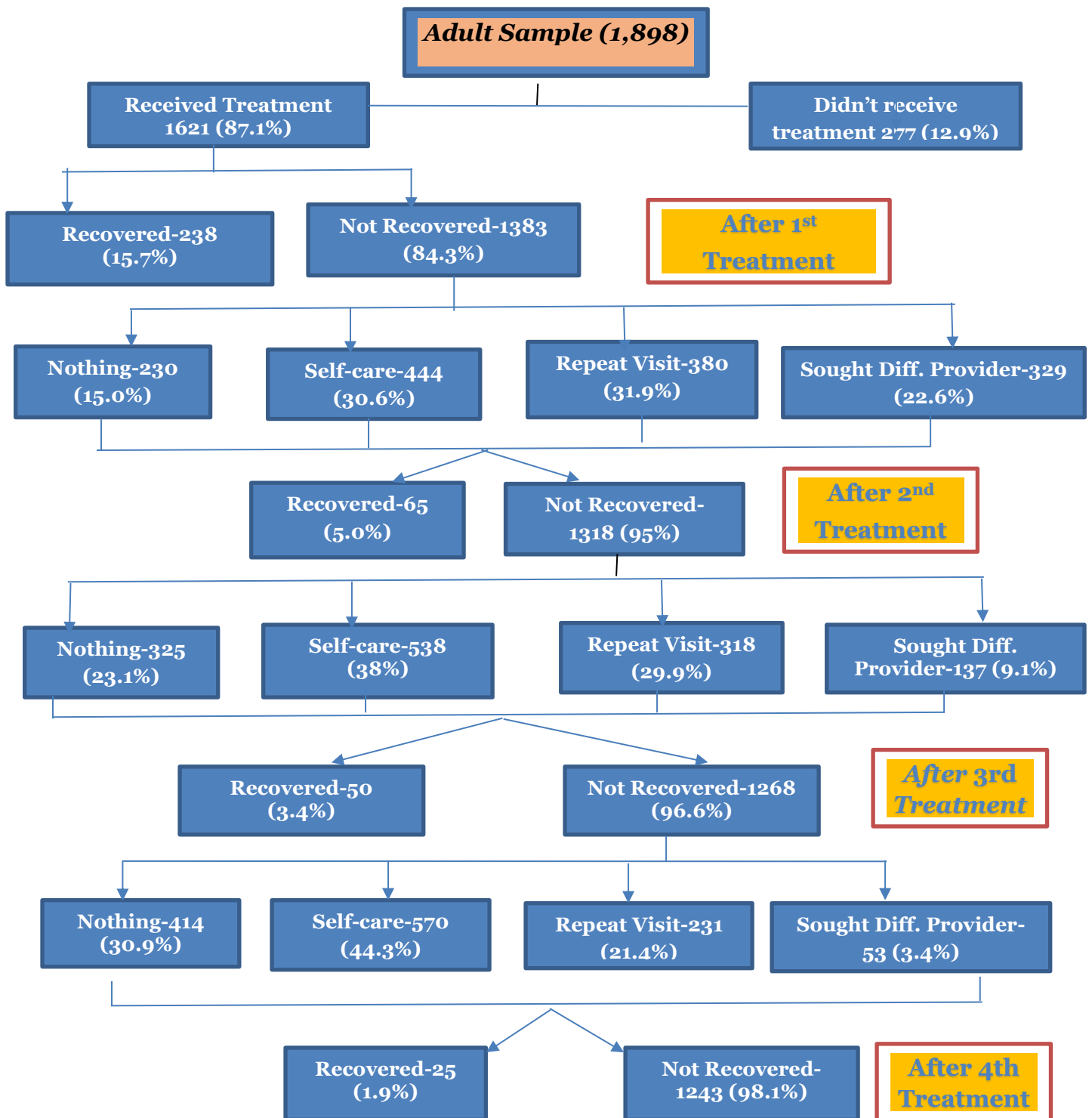
- Following the initial recognition of the acute episode, was any health provider consulted?
- What was the first source of treatment?
- What was the length of time from identification of the health problem to the choice of the first treatment?
- How many providers were consulted during the episode?
- What was the sequencing of providers consulted during the episode (namely, who was consulted first, who was consulted second, and so forth)?
- How (or why) did the patient exit treatment? What factors affected this choice?

### 4.3.1. Number of Visits and Distribution of Patients

Figures 4.5 and 4.6 provide an overview of the status of treatment starting from the point of “first sought treatment” to “exited treatment”.

It was observed that about 87 per cent of the adults with chronic respiratory conditions sought treatment from a health care provider when experiencing an acute episode during the year preceding the survey (Figure 4.5). Among the remaining 13 per cent who did not seek treatment from a health care provider, two-thirds reported self-care/self-medication as the major reason for not seeking treatment from external health care providers. Among the rest, ‘waiting for recovery’ and ‘lack of affordability’ were cited as the reasons for not seeking care. Following the first visit, about 84 per cent had not recovered. Among those who did not recover from the first visit and had to go for a second visit, about one-third visited the same health care provider and 22.6 per cent sought treatment from a different health care provider, with a mean gap of 23 days following their first visits. The remainder (46 per cent) either did nothing (15 per cent) or resorted to self-care/self-medication (31 per cent). About 95 per cent of those making their second visit did not recover. In this sub-group, about two-fifths made a third visit (30 per cent made a repeat visit to their previous provider and 9 per cent sought a different provider). Those making a fourth visit constituted a sub-set of individuals who did not recover after their third visit (96.6 per cent). Of this sub-set, about one-fourth made a fourth visit (21.4 per cent made a repeat visit and 3.4 per cent sought a different provider). Overall, only about one-fifth reported recovering after treatment from the acute episode (Figure 4.6).

Figure 4.5: Treatment Seeking Behaviour

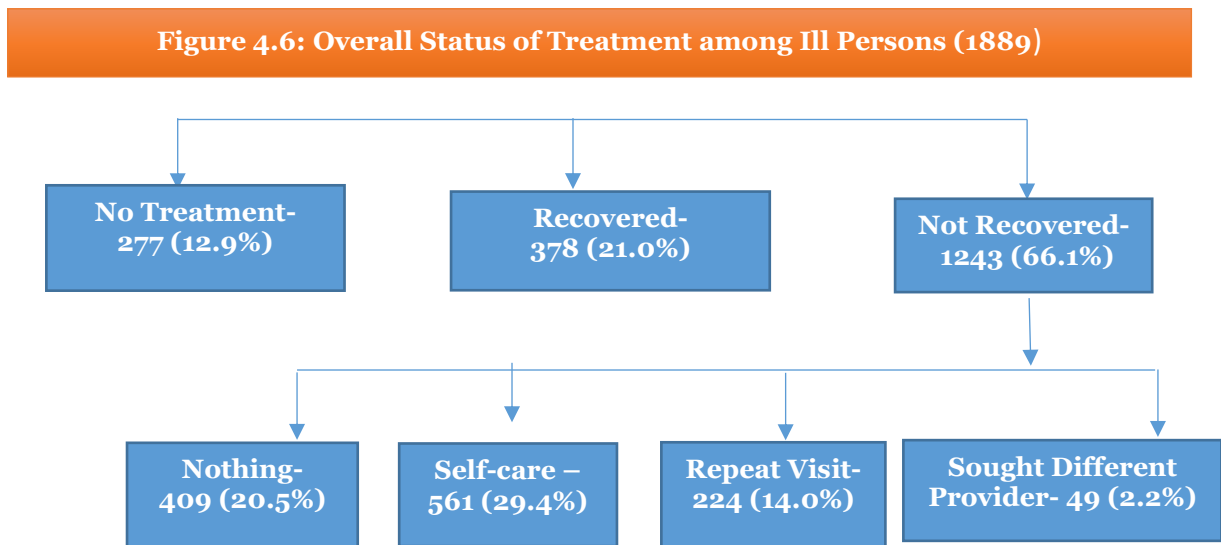


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

The study captured up to four visits of an ailing person who sought any advice from health care providers during the episode. It was found that of about 13 per cent of the ailing persons who did not seek treatment at any stage, one-fifth had recovered, and



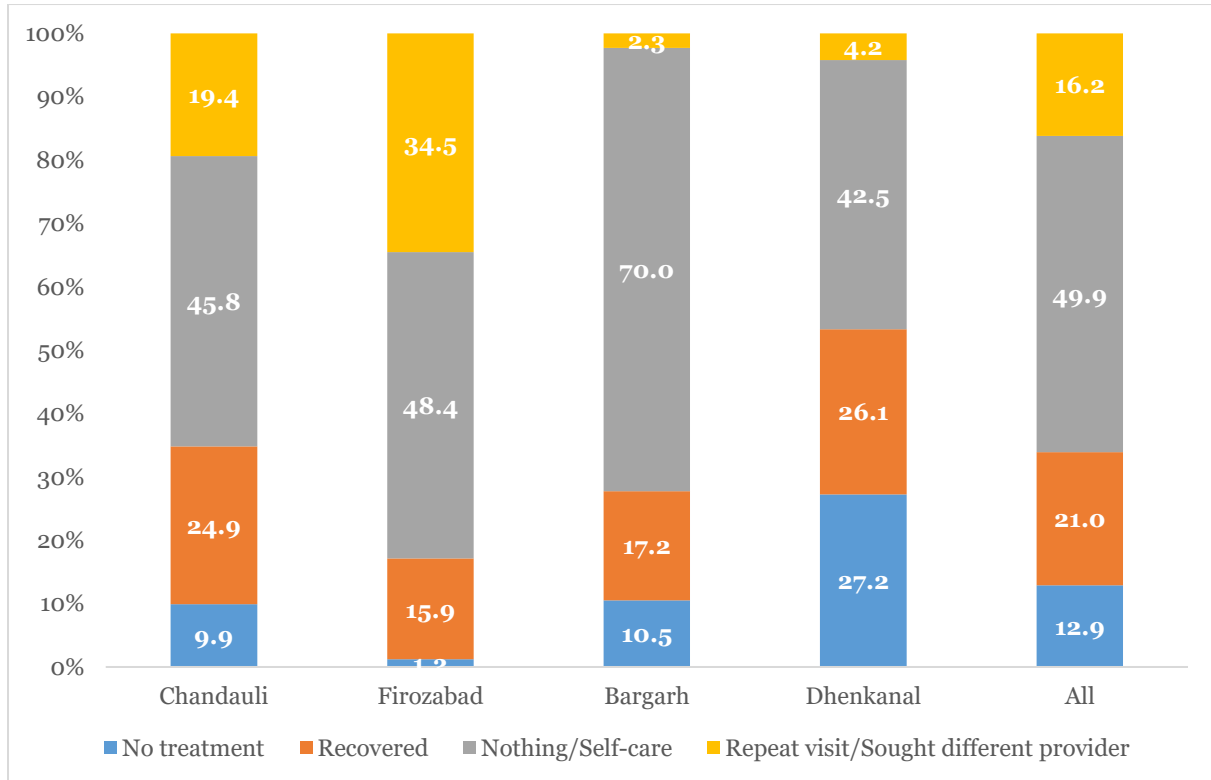
two-thirds reported not having done anything, or ultimately resorting to self-care (Figure 4.6).



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

One-fourth of the persons reporting respiratory conditions did not seek treatment in Dhenkanal, which is higher than the corresponding figure in the other three districts. In contrast, in Firozabad almost all the persons sought treatment (Figure 47). The recovery rate was higher in the Dhenkanal and Chandauli districts as compared to other two districts. It should also be noted that in Bargarh district, about 70 per cent of the ailing persons were neither seeking health care nor going in for self-care. In Dhenkanal, about 75 per cent of the ailing persons who did not seek any advice from health care providers during the episode of illness reported that they went for self-care/self-medication.

**Figure 4.7: Status of Treatment after All Four Visits by District**

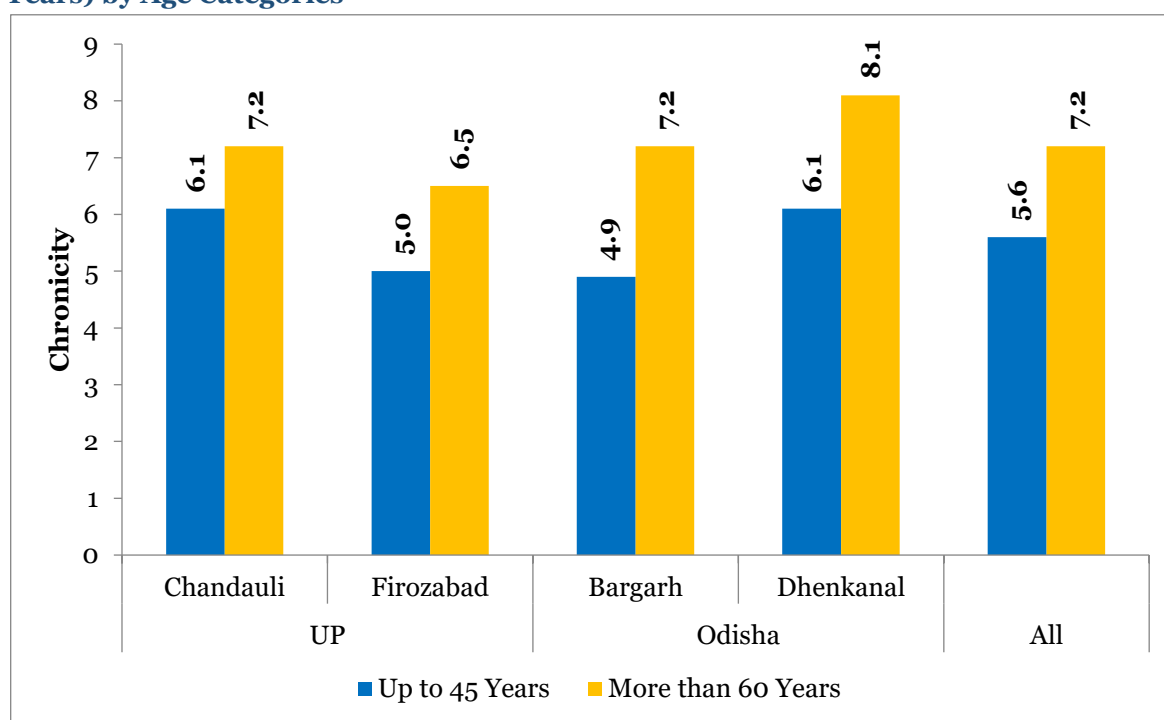


Source: NCAER-NSS 4IS Survey, 2019.

The status of treatment after the fourth visit by the level of residence, gender, and age categories, as given in Appendix 4.1, indicates that the tendency to not seek treatment and the recovery rate was higher in rural areas whereas the incidence of self-care was higher in urban areas. A higher number of male respondents received treatment as compared to female respondents. The recovery rate was higher among persons below 45 years of age.

#### 4.3.2. Length of Time Spent with Chronic Respiratory Condition

Figure 4.8 reveals, not surprisingly, that older individuals in the sample have a longer history of the condition. Overall, individuals in the Odisha and Uttar Pradesh samples had roughly similar mean lengths of living with the condition.

**Figure 4.8: District-wise Average Duration of Chronic Respiratory Conditions (in Years) by Age Categories**

Source: NCAER-Nossal 4IS Health Survey, 2019.

Appendix 4.2 reports the duration of chronic respiratory conditions across districts, including by place of residence and gender.

### 4.3.3. Reasons for Not Seeking Treatment

It may be recalled that 13 per cent of the patients did not seek care following an acute episode of their chronic respiratory condition during the previous year. Table 4.5 reports the share of patients across different categories of reasons for not seeking care. It was found that almost two-thirds of the patients who did not seek care opted for self-care and self-medication, with another 12.2 per cent waiting for auto recovery. Slightly more than one-tenth of the patients reported lack of money as the main reason for not seeking care while 9.5 per cent did not regard the episode as severe enough to require treatment. There are some variations at the district level, though the number of observations is too small for these shares to be considered reliable.

**Table 4.5: Proportion of Adult Patients Not Seeking Treatment**

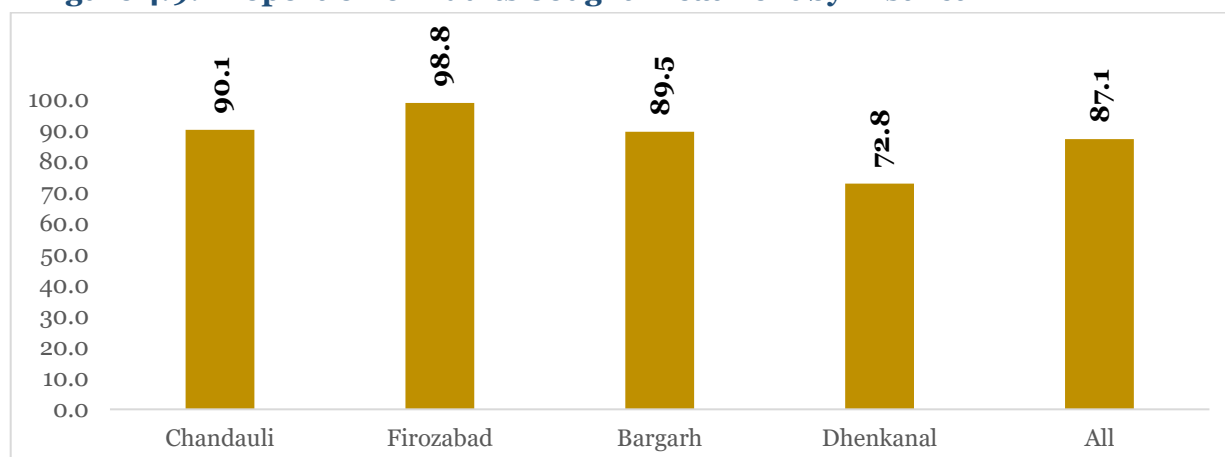
after a Flare-up During the Last One Year by Districts	All	Wait for Auto Recovery	Not Severe Enough	Got Better	Self-care/ Medication	Not Enough Money	Other
Districts							
Chandauli	29.5	28.9	8.4	20.6	10.0	2.7	
Firozabad	73.8	0.0	0.0	13.7	12.5	0.0	
Bargarh	4.7	14.9	0.0	70.5	9.9	0.0	
Dhenkanal	8.0	5.2	0.3	75.4	11.1	0.0	

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 4.3 shows that there were not many variations by place of residence, gender, social status, occupation status, income status, household size, and age categories. The proportion of patients citing the main reason for not seeking treatment as ‘the disease was not severe enough’, increases with the level of education.

#### 4.3.4. Consultation Status after Flare-up

The percentage share of adults with an acute episode associated with chronic respiratory conditions in the last 12 months and who sought treatment from a health care provider is reported in Figure 4.9. The share of patients seeking care in response to the episode was quite high (87 per cent), and slightly higher in the two districts of Uttar Pradesh than in Odisha (Dhenkanal district had the lowest share of patients seeking treatment, at 72.8 per cent).

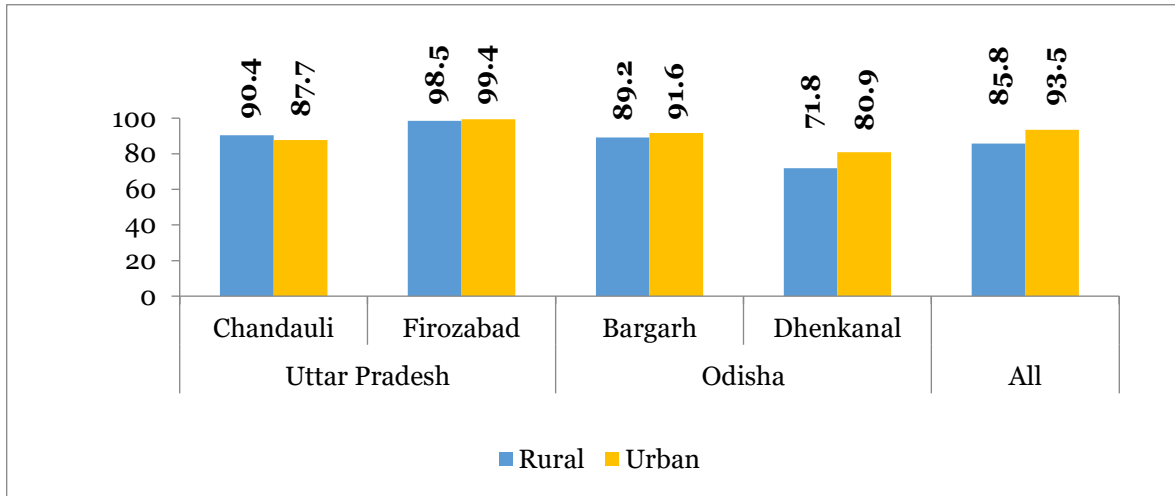
**Figure 4.9: Proportion of Adults Sought Treatment by District**


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Figure 4.10 shows that for the three districts, namely, Firozabad, Bargarh, and Dhenkanal, the proportion of patients seeking treatment was higher in urban areas as compared to rural areas. No differences were observed in the share of patients seeking treatment across the different quartiles in Uttar Pradesh, but the share of patients

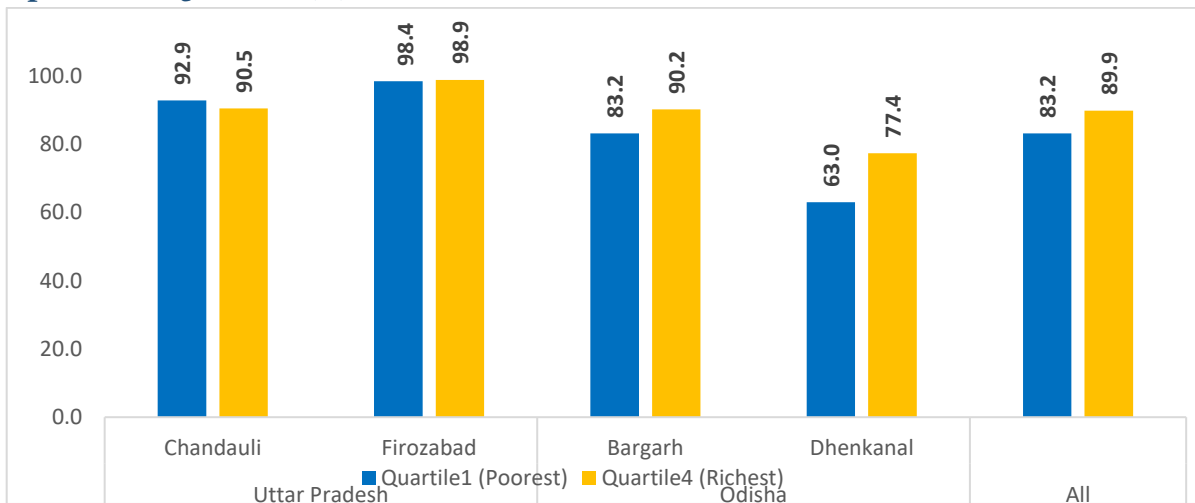
seeking treatment increased with a rise in monthly per capita expenditure in Odisha (Figure 4.11).

**Figure 4.10: Proportion of Adults Sought Treatment by District and Place of Residence (%)**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Figure 4.11: Proportion of Adults with a Flare-up Sought Treatment in the Last Year by Expenditure Quartiles (%)**



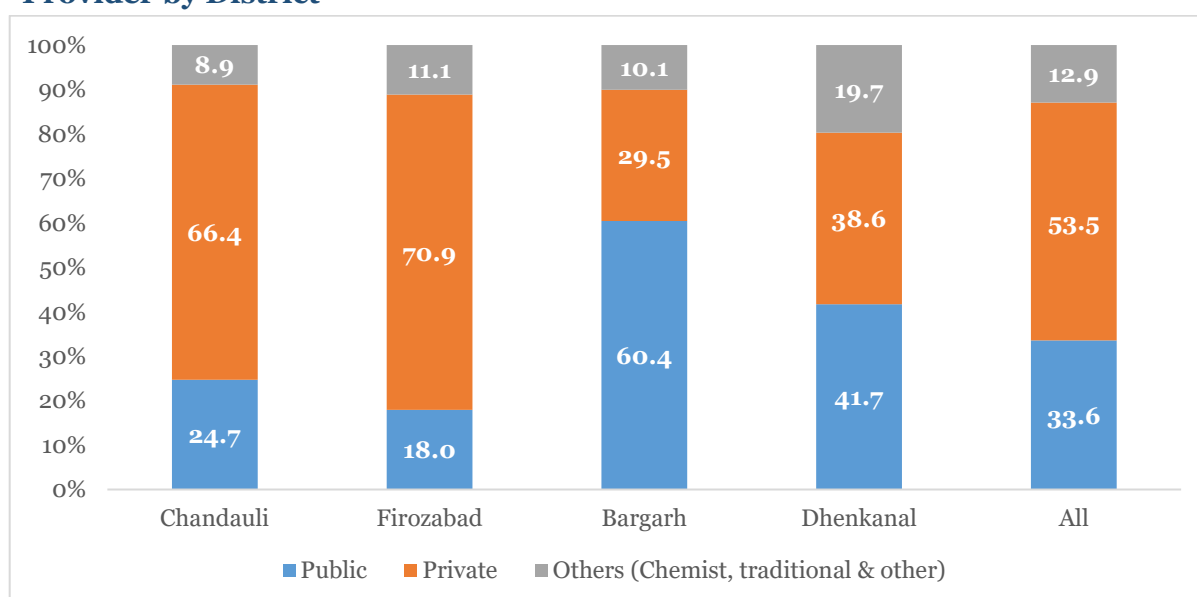
Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 4.4 shows that in three of the surveyed districts, namely, Firozabad, Bargarh, and Dhenkanal, the share of patients seeking treatment was higher in smaller households (that is, households with five or fewer members). In Odisha, a higher proportion of male patients sought treatment, while no gender differences were observed in Uttar Pradesh. No clear patterns were observed for other socio-economic or demographic characteristics.

### 4.3.5. Type of Service Provider at First Consultation

Figure 4.12 shows the proportion of patients who consulted three main types of health care providers, by district. The share of patients seeking health care from formal health care providers was 87.1 per cent for the full sample, of which 33.6 per cent were seeking care from public health care providers and 53.5 per cent from private health care providers. However, the share of public providers consulted at the first instance was higher in the two districts of Odisha than the corresponding figures for the two districts of Uttar Pradesh. The district of Dhenkanal, however, stood out, as about 20 per cent of the patients in that district sought treatment from other sources such as chemists, traditional healers, and others at the first instance, which was almost double their share in the other districts.

**Figure 4.12: Share of First Source of Treatment by Type of Healthcare Service Provider by District**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

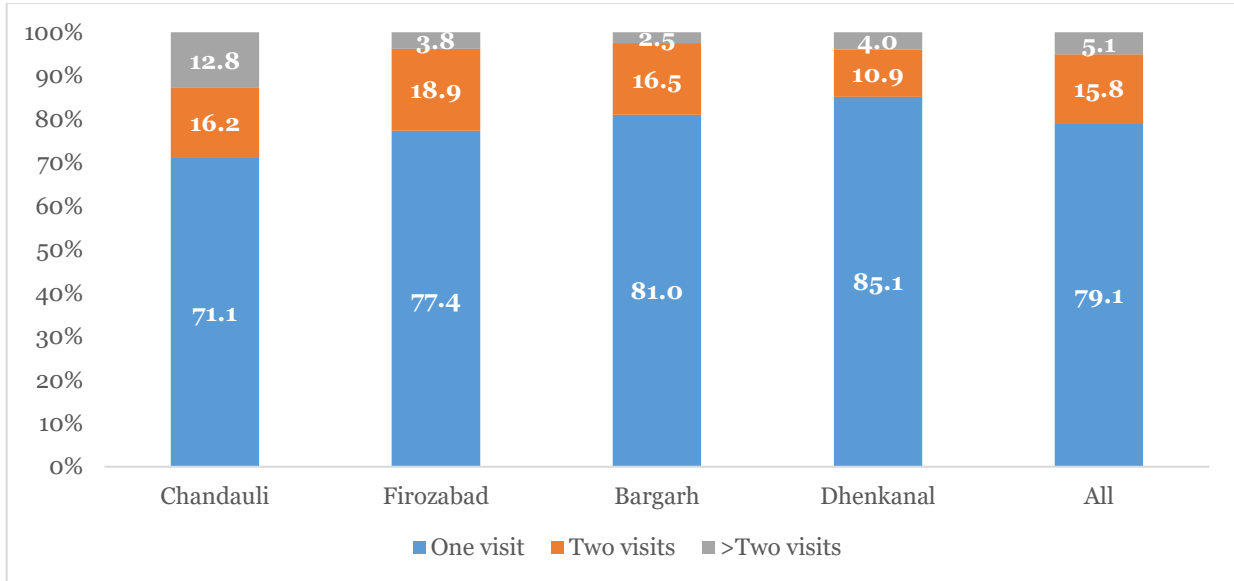
Although a significant number of patients from the rural areas, males, and SC/ST populations visit public health care providers as their first source of treatment, there are no major variations by rural-urban residence, gender, and across social groups (Appendix 4.5). The proportion of patients visiting public health care providers decreased with age in three of the surveyed districts, barring Chandauli.

### 4.3.6. Number of Providers Consulted

The distribution of patients by the number of provider visits is reported in Figure 4.13. Most patients (79.1 per cent) made exactly one visit, and only 1.8 per cent of the

patients visited four, that is, the highest number of health care providers. The proportion of patients visiting more than two health care providers was higher in the Uttar Pradesh sample than in the Odisha sample (Figure 4.13).

**Figure 4.13: Distribution of Patients by Number of Providers Visited by District**



Source: NCAER-NOSSAL 4IS Health Survey, 2019

Appendix 4.6 provides additional information, specifically on the socio-economic and demographic correlates of the number of visits made to the health care providers. Typically, patients from rural areas visit more providers than their urban counterparts, and patients with higher levels of educational attainment are likely to make fewer visits than relatively less educated patients. No significant differences were seen in the number of visits by gender, occupational categories, per capita expenditure quartiles of households, and age.

Table 4.6 shows the average number of healthcare providers consulted by adults with chronic respiratory conditions during the year preceding the survey. Typically, patients in Uttar Pradesh made a higher number of visits to health care providers than patients in Odisha, and rural patients made a larger number of visits than patients living in urban areas.



**Table 4.6: Average Number of Health Care Providers Consulted during the Last One Year for Treatment by Socio-economic and Demographic Attributes (Numbers)**

All	Chandauli	Firozabad	Bargarh	Dhenkanal	Total
	1.4	1.3	1.2	1.2	1.3
Place of Residence					
Rural	1.4	1.3	1.2	1.2	1.3
Urban	1.4	1.2	1.2	1.1	1.2
Gender					
Male	1.4	1.3	1.2	1.2	1.3
Female	1.4	1.3	1.2	1.2	1.3
Age Categories					
Up to 45 Years	1.3	1.3	1.2	1.2	1.3
46-60 Years	1.5	1.3	1.2	1.2	1.3
More than 60 Years	1.3	1.2	1.2	1.2	1.2
Monthly per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	1.4	1.3	1.1	1.1	1.3
Quartile 2	1.4	1.3	1.2	1.2	1.3
Quartile 3	1.4	1.3	1.2	1.2	1.3
Quartile 4 (Richest)	1.3	1.2	1.3	1.3	1.2

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

#### 4.3.7. Sequencing of Providers

More than half of the patients (53.5 per cent) sought care from private health care providers during their first visit (Appendix 4.7). When tracked for their subsequent visits, a majority of the patients still visited private health care providers. In fact, among those patients who visited public health care providers, chemists, and others during their first visit, a major proportion chose to visit private health care providers during the next three visits. Across the districts, a higher proportion of patients visited public health care providers in the two districts of Odisha and private health care providers in Uttar Pradesh. However, during their subsequent visits, the patients mainly consulted private health care providers even in the two districts of Odisha.

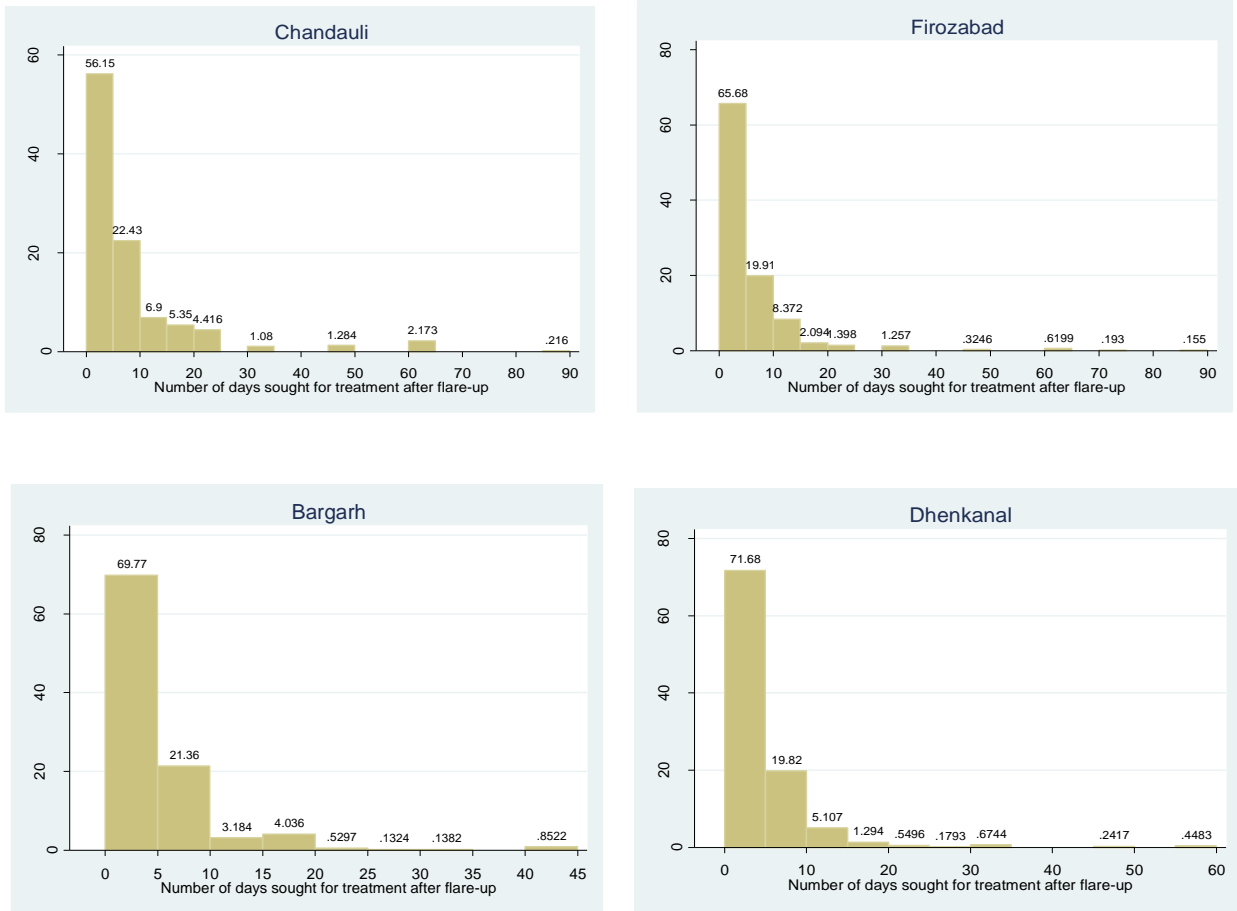
The sequence of visits to health service providers by various socio-economic and demographic attributes are presented in Appendix 4.8. The largest proportion of patients preferred visiting private health care service providers, followed by public facilities across rural/urban locations, gender, and Monthly per Capita Expenditure (MPCE) quartiles. It was observed that even amongst those who went for a second visit, the highest preference was for private health care facilities.

#### 4.3.8. Time Lag in Seeking Treatment after a Recent Flare-up

Around 72 per cent of the patients sought treatment in Dhenkanal district within five days of the recognition of their acute condition. The duration from the recognition of

the condition to treatment was shorter in the other three districts, and shorter in Odisha as compared to Uttar Pradesh (Figure 4.14).

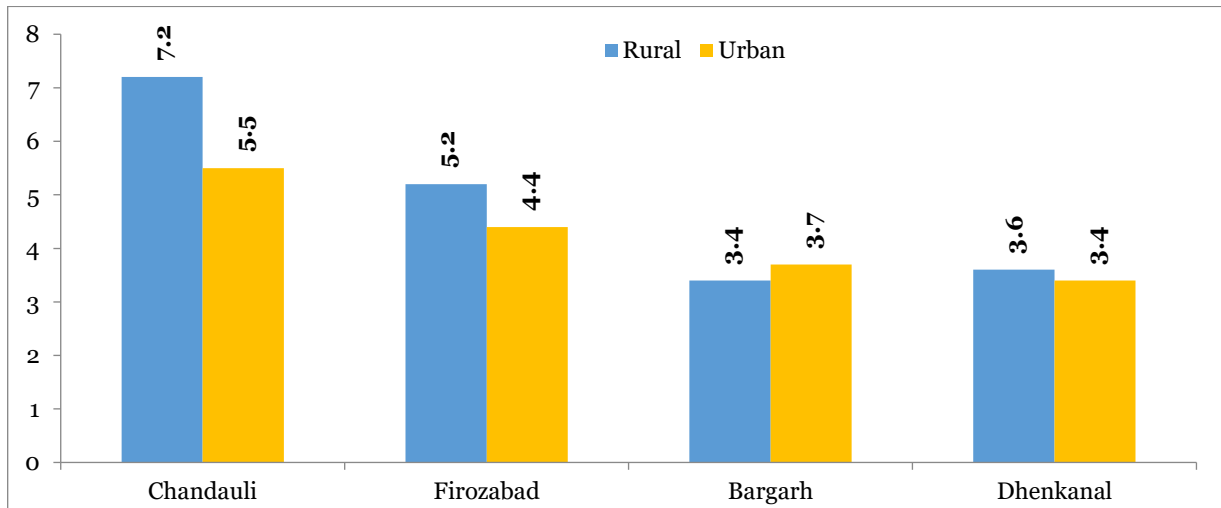
**Figure 4.14: Average Duration between Flare-up and Seeking Treatment from the First Health Care Provider by District in Days**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.  
 Note: Duration is provided only for those who sought treatment.

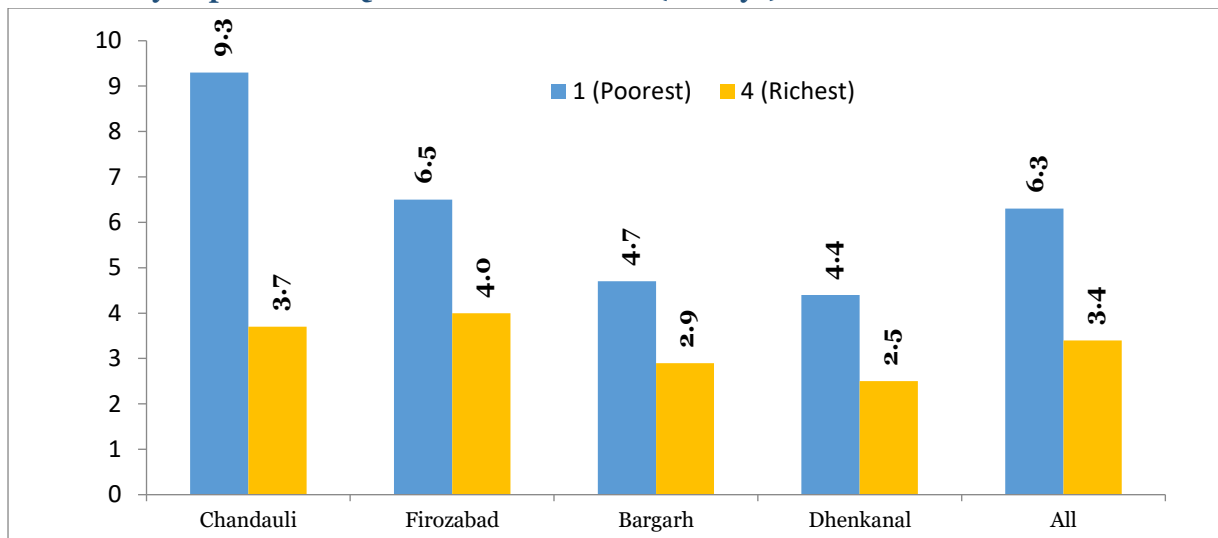
The average duration between the beginning of the episode and the first visit to the provider was longer for patients living in rural areas (especially in the two districts of Uttar Pradesh) (Figure 4.15). Figure 4.16 also shows that the lag between the start of the episode and the first visit to the health care provider was higher for poorer patients.

**Figure 4.15: Average Duration between Beginning of the Episode and First Visit to the Provider by Place of Residence and District (in Days)**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Figure 4.16: Average Duration between Start of the Episode and First Visit to the Provider by Expenditure Quartiles and District (in Days)**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

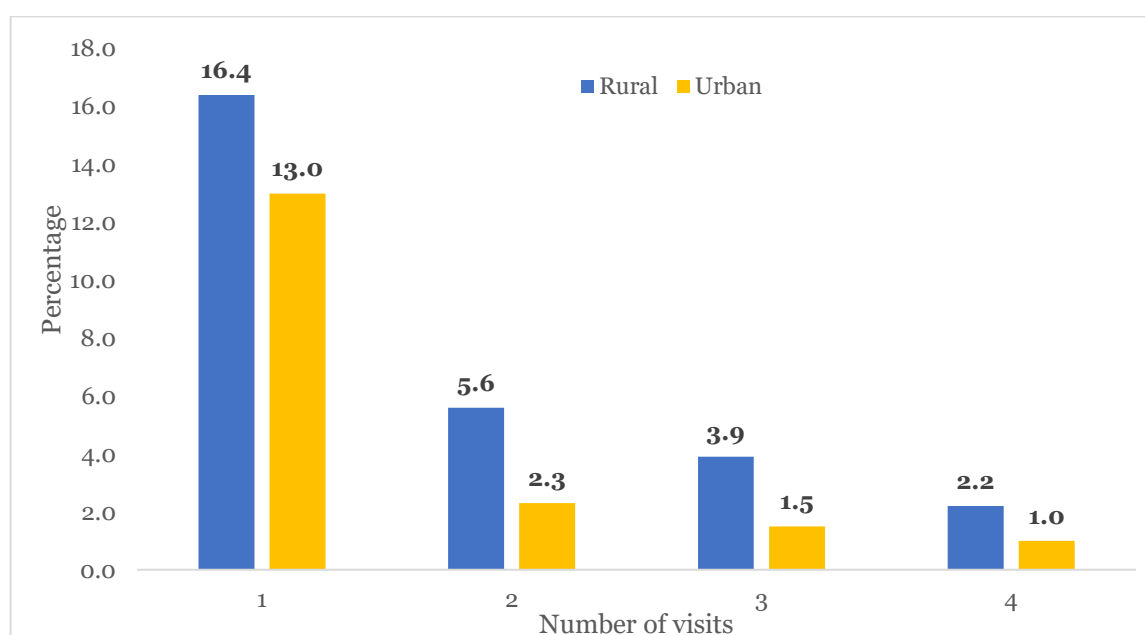
Appendix 4.9 provides additional information on the average duration between the start of the illness episode and first visit to a healthcare provider by socio-economic and demographic characteristics. The average lag between the start of the episode and treatment visit is longer among the SC/ST population groups as compared to others. However, gender and occupational status were not associated with the lag in seeking health care, which was associated with educational attainment (as higher educational attainment is linked to shorter lags), income status (higher income is associated with shorter lags), and household size (smaller households imply shorter lags).

### 4.3.9. Exiting from the Treatment

This section highlights the proportion of patients who recovered and hence exited from treatment following their first or subsequent visits to the healthcare provider of their choice.

Rate of recovery: About 21 per cent of the sample of patients with chronic respiratory conditions who sought treatment, reported having recovered, with 15.7 per cent recovering after consulting the first provider. The recovery rate fell sharply with the extension of the treatment-seeking pathway (Figure 4.17). A higher proportion of rural patients reported having recovered (22.1 per cent) as compared to patients from urban areas (16.0 per cent).

**Figure 4.17: Proportion of Patients Recovered by *Place* of Residence and Number of Visits**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Table 4.7 reports the proportion of patients who recovered, by district and number of provider visits. Dhenkanal had the highest (26.1per cent) recovery rate and Firozabad the lowest recovery rate (16.1 per cent) among patients following treatment. The proportion of recovered patients is higher among those who sought care from chemists and other (including traditional) health care providers, possibly due to the severity of the episode being milder among such patients.

**Table 4.7: Proportion of Patients Recovered by Number of Visits and Districts**

Recovery Status after Visiting Health Care Provider					
	First	Second	Third	Fourth	All visits
All	15.7	5.0	3.4	1.9	21.1
Districts					
Chandauli	16.4	7.0	5.2	2.1	25.1
Firozabad	11.8	2.0	1.8	1.4	16.1
Bargarh	11.2	2.8	4.0	2.6	17.2
Dhenkanal	23.7	9.9	4.5	2.3	26.1

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 4.10 provides additional details on the proportion of patients who reported recovering from the episode, by district and socio-economic characteristics. No major differences in the recovery rate were observed across gender, social groups, occupational categories, and age. The share of patients reporting recovery increased with educational attainment and monthly per capita expenditure. Finally, the proportion of recovered patients was higher for smaller households (having five or fewer members) as compared to large households (size greater than five members).

Table 4.8 reports district-wise details on status that is, whether they exited the pathway by doing nothing /resorting to self-care and or medication or went back to the same healthcare provider or changed the healthcare provider. Findings have been provided for the first and each successive round of treatment. The proportion of patients exiting the healthcare pathway is the highest as compared to those who stayed on. This was observed after all the three visits. The share of persons exiting the pathway increased with each subsequent visit (45.6, 61.1, and 75.1 per cent after first, second, and third visits, respectively). The proportion of patients switching their providers fell drastically from 22.6 per cent after the first treatment to 3.4 per cent after the third treatment. The proportion of patients dropping out of the treatment was higher in the two districts of Odisha while the proportion of those switching providers was higher in the two districts of Uttar Pradesh.

**Table 4.8: Status (Exiting/Repeating Visit to the Same Healthcare Provider/Switching Healthcare Provider) of Patients after the First and/or Subsequent Visits to the Health Care Provider by Districts (%)**

All	After First Visit			After Second Visit			After Third Visit		
	Nothing/ Self-care/ Medication	Repeat Visit	Switching The Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider
	45.6	31.9	22.6	61.1	29.9	9.1	75.1	21.4	3.4
Districts									
Chandauli	40.8	31.2	28.0	55.8	27.3	16.9	68.8	22.6	8.6
Firozabad	20.2	56.8	23.0	37.1	53.4	9.5	58.6	37.4	4.0
Bargarh	73.9	5.2	20.9	90.6	6.0	3.4	96.9	2.5	0.5
Dhenkanal	65.7	14.8	19.5	79.8	12.4	7.9	89.5	9.2	1.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Note: The denominator pertains to the total number of persons making successive visits to health care providers.

Appendix 4.11 reveals that the proportion of patients doing nothing/resorting to self-care or self-medication and switching health care providers was higher in the rural areas than in the urban areas. Among the patients who sought care from formal sources of health care providers (either public or private), a higher proportion reported a switch of health care provider, while among those seeking care from informal sources like chemists and others, a higher proportion of patients either did nothing or resorted to self-care and self-medication. The patients who sought care from the private health care providers accounted for the highest share of those who switched health care providers. There are no major variations across gender, social groups, occupation, and age categories. The proportion of patients doing nothing/resorting to self-care/self-medication decreased with a rise in the levels of education, with levels of education having an almost negligible effect on the switching of health care providers. The proportion of patients doing nothing or resorting to self-care and self-medication and switching health care providers decreased with a rise in MPCE and was higher for the smaller households, while the proportion of patients switching their health care provider was higher for the larger households.

#### 4.3.10. Key Findings from Health-seeking Pathway Analysis

Following are the significant findings of the study based on the analysis of the health-seeking pathways:

- It was observed that 87 per cent of the respondents with an acute episode sought treatment. The major reasons cited by those who did not seek treatment were their preference for self-medication or their decision to wait for recovery without medication, and/or lack of money.
- Older patients and those from urban locations (as opposed to those from rural areas) had the chronic condition for longer periods in all the districts except Dhenkanal. Of the 87.1 per cent who sought treatment, 33.6 per cent visited public health care providers and 53.5 per cent visited private health care providers, with
- Pradesh.
- Most (79.1 per cent) patients seeking care made one visit to the health care provider. Only 1.8 per cent of the patients visited four health care providers. The proportion of patients visiting more than two health care providers was higher in Uttar Pradesh than in Odisha.
- More than half of the patients sought care from private health care providers during their first visit. Most of these patients visited private health care providers during their subsequent visits as well.
- The average lag between the start of the episode and the first treatment visit was smaller in Odisha than in Uttar Pradesh, and was longer for patients in rural areas as compared to urban residents.
- Patients who sought care from formal sources, either public or private health care providers, during the first visit exhibited a higher rate of switching as compared to

those who sought care from informal providers like chemists and others during their first visit. Among those seeking care from informal sources, a higher proportion of patients exited the health care pathway.

#### 4.4. Out-of-pocket Spending

The phenomenon of OOP spending for health services influences affordability of health care, and can, in turn, influence the decision to seek care, the choice of health care provider, and the lag between the start of an illness and treatment. Households with poor economic conditions are less likely to seek formal medical care for their illness than those belonging to a higher economic status; and there is considerable literature showing that the inability to pay for health services is a major factor in determining the utilisation of health services (Saito et al. 2014; Oyibo 2011; Nyonator and Kutzin 1999). Inappropriate health-seeking behaviour, that is, seeking healthcare from chemists, traditional healers, and family members, or getting no treatment at all, not surprisingly, are associated with poor health outcomes, and increased morbidity and mortality (Selvaraj et al. 2014; Beran et al. 2015; Ghoshal et al. 2016).

The tendency of people to refrain from seeking care or obtaining inappropriate care is an issue of concern, and so also is the financing of payments for health services that are not covered by some form of subsidy or insurance. The available estimates suggest that the burden of health expenditure has pushed large numbers of people towards impoverishment (Xu et al. 2006; Kumar et al. 2015). Low levels of health insurance coverage and the unavailability of subsidised public healthcare services are major contributing factors for these effects (Dilip and Duggal 2002). Financing health services via the sale of assets can affect household non-medical consumption in the short run, and lead to loss of income in the longer run (Morduch 1995; Dilip and Duggal 2002) and rural households are more likely to borrow money than the urban households (Mock et al. 2003).

We first estimate the OOP cost of treatment for patients with chronic respiratory condition in the study sample. Second, we report estimates of the measures of catastrophic OOP payment for health care for households, and the methods that households used to finance their OOP expenditure.

##### 4.4.1. Cost of Treatment

The study collected information on the OOP cost of treatment incurred when patients sought care. The average costs of treatment for all visits are reported in Table 4.9. The table shows that household OOP expenses for treatment were higher in Uttar Pradesh than in Odisha. Moreover, OOP expenses for treatments were higher among urban patients than their rural counterparts. Despite the lower absolute level of spending, the shares of OOP spending in household expenditures were higher in rural than in



urban areas. Among the four districts, the sub-sample of patients in Chandauli reported the highest share of OOP in household spending (3.7 per cent) whereas those in Dhenkanal reported the lowest share of OOP spending in total household expenditures (1.9 per cent).

**Table 4.9: Average OOP Expenditure and Its Share in the Total Household Expenditure by District**

Districts	Average Treatment Cost of All the Last Four Visits (in Rs.)			Percentage share of OOPE to the Total Household Expenditure		
	Rural	Urban	All	Rural	Urban	All
Chandauli	4843	4901	4849	3.8	3.5	3.7
Firozabad	3932	4349	4060	3.2	2.6	3.0
Bargarh	2687	2595	2677	2.9	2.1	2.8
Dhenkanal	2469	2800	2508	2.0	1.4	1.9
All	3409	3943	3508	2.9	2.4	2.8

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

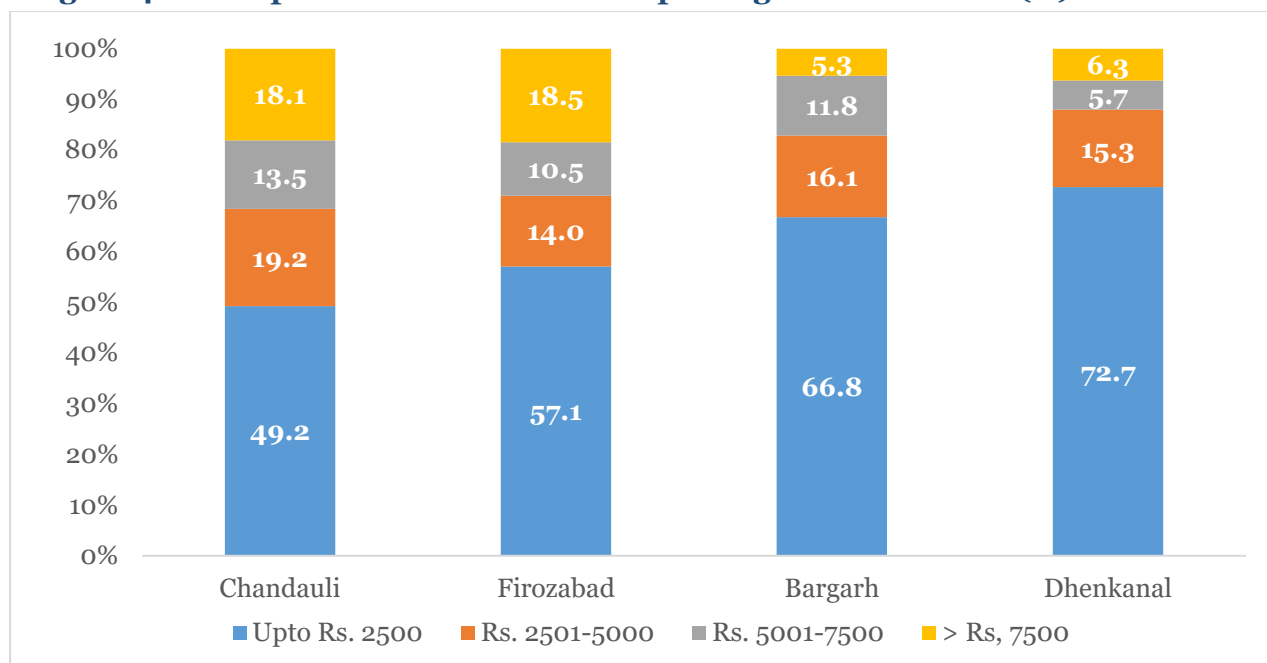
Given the highly skewed distribution of the number of visits by patients, unsurprisingly, the expenses incurred during the first visit dominated the share of OOP treatment costs: about 72 per cent of the OOP spending was incurred on the first visit, with an additional 20 per cent incurred on the second visit. This could be because a majority of the respondents (79.1 per cent, as seen in Figure 4.13) made only one visit. The share of the cost of the first visit was higher in Odisha than in Uttar Pradesh (4.10).

**Table 4.10: Share of Treatment Cost as a Percentage of the Total Cost by Different Visits**

Districts	Share of Treatment Cost as a Percentage of the Total Cost by Different Visits			
	1 <sup>st</sup> Visit	2 <sup>nd</sup> Visit	3 <sup>rd</sup> Visit	4 <sup>th</sup> Visit
Chandauli	62.1	19.8	12.9	5.2
Firozabad	72.6	22.3	4.0	1.1
Bargarh	79.2	18.4	2.4	0.0
Dhenkanal	78.8	15.3	4.4	1.5
All	72.3	19.8	5.9	2.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

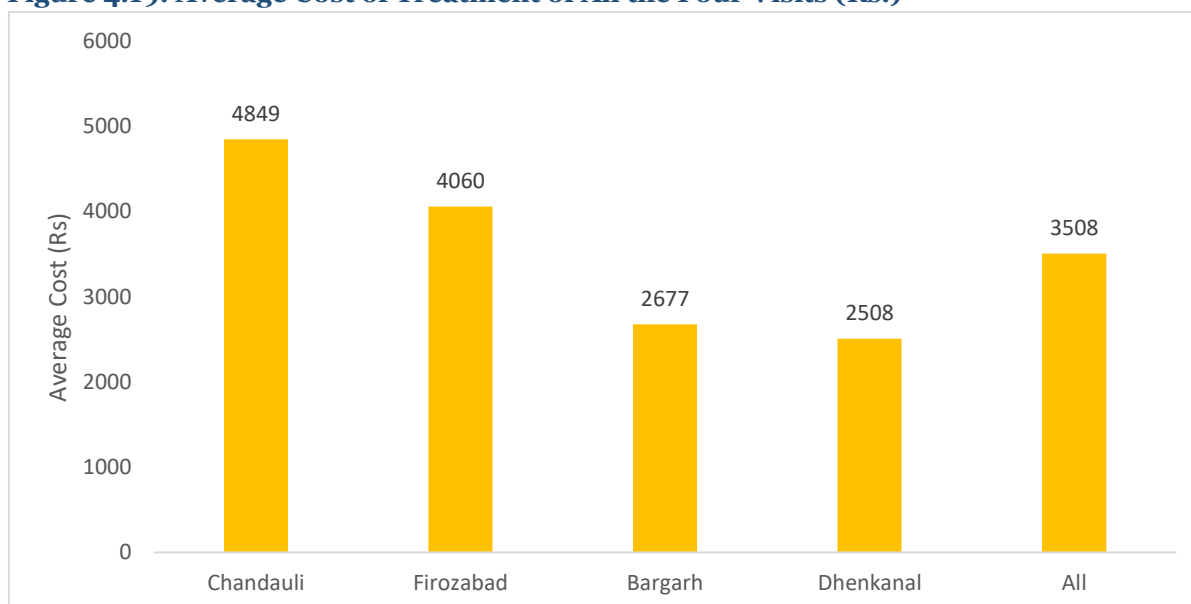
When broken down by the distribution of OOP expenditure per visit, between two-thirds and three-quarters of the households in the Bargarh and Dhenkanal districts in the sample spent less than Rs. 2,500 for their care, a considerably greater share than among households in the two Uttar Pradesh districts. (Figure 4.18). Correspondingly, the proportion of households spending more than Rs. 7,500 (top of our range of spending) was higher in the districts of Uttar Pradesh (at around 18 per cent) than in Odisha (at around 6 per cent).

**Figure 4.18: Proportion of Households Reporting Treatment Cost (%)**

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

The average cost of treatment for all the four visits was found to be higher in Uttar Pradesh as compared to the two districts of Odisha (Figure 4.19). Additional information on the mean OOP cost of treatment for all the visits (combined) and its association with household characteristics, including by the type of provider, is given in Appendix 4.12. Among the more salient findings, the cost of treatment for the male respondents was higher in the Chandauli and Bargarh districts, and higher among the female respondents in Firozabad and Dhenkanal. Moreover, with the exception of Chandauli, the district-level average cost of treatment was higher for those in the age group of 46-60 years relative to those in the other age groups.

The study also found that the average cost of treatment increased with the duration of illness, and that the average cost of treatment was lower among SC/ST patients than among patients from the OBC and General groups. The treatment costs increased with higher household economic status, as indicated by the per capita expenditure quartile; however, no clear association could be discerned between OOP spending and educational attainment, at least from the district-level data. Finally, expenditures (referring to the sum of all the visits) on private care were twice as high as those incurred while seeking care in the public sector.

**Figure 4.19: Average Cost of Treatment of All the Four Visits (Rs.)**

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Table 4.11 reports on the distribution of out of pocket treatment expenses by type of provider. Whether in Odisha or in UP, private providers are the main driver of out of pocket expenses in our sample of patients. However, the share of spending on private providers is considerably larger in the two UP districts, than in Bargarh and Dhenkanal in Odisha.

**Table 4.11: Distribution of Treatment Expenses by the Type of Provider and Districts**

Districts	Public	Private	Chemist	Traditional/Other	All
Chandauli	9.3	89.2	0.8	0.7	100.0
Firozabad	5.8	92.2	1.2	0.9	100.0
Bargarh	37.8	59.9	0.9	1.4	100.0
Dhenkanal	25.5	69.4	2.6	2.4	100.0
All	15.1	82.3	1.3	1.2	100.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

#### 4.4.2. Catastrophic Health Expenditure Estimates

Household OOP expenditure on healthcare is designated as catastrophic in the literature if it exceeds a given proportion of the household income or expenditure. Catastrophic Health Expenditure (CHE) is defined as constituting a sufficiently large proportion of a household budget to threaten a substantial reduction in that household's customary standard of living (Berki 1986). Similarly, some others define healthcare expenditure as catastrophic if it exceeds 10 per cent of a household's total annual expenditure, arguing that healthcare expenditure on this scale typically requires the sacrifice of consumption goods, possibly including basic goods (Wagstaff

and Doorslaer 2004; Russell 1996). An alternative approach is to define catastrophic expenditure in terms of a household's ability to pay without sacrificing basic goods consumption. Thus, healthcare expenditure may be defined as catastrophic if it exceeds 40 per cent of the household non-food expenditure (Kawabata and Carrin 2002; Xu et al. 2003; Garg and Karan 2009). Both sets of approaches have been adopted to estimate the catastrophic health expenditure of the households.

Using a single threshold to construct an estimate of catastrophic health spending is usually inadequate because the impact of health care expenditure varies across different population groups and by household standards of living. Thus, this report provides estimates of catastrophic medical spending for multiple thresholds (10–30 per cent) of non-food spending. We have also assessed how CHE estimates would vary if only the expenses incurred for the first provider treatment were considered versus if the total treatment cost of all visits were accounted for.

Aggregate household expenditures were estimated from information on spending on food and non-food items gathered during the household survey. For food items, the survey recall period was 30 days. Non-food items were divided into two categories: routine and non-routine. Details on routine expenditure for items like education, routine health care, house rent, instalments of housing loan, servant, cook, driver, sweeper, cooking fuel, electricity charges, toiletries and cosmetics, and phone charges were based on a recall period of 12 months. For non-routine items like clothes and footwear, white goods and furniture, housing (purchase/construction/maintenance), one-time/large expenses on education/health, social functions/recreation, religious function, and consumer durables, information was also obtained using a one-year recall period.

Detailed expenditures on drugs and medicines, consultation fees, hospital bed charges, cost of transport for the treatment, and daily living costs, including food and lodging for the escorts of the ailing household member who is suffering from a chronic breathing problem, were gathered in a separate section of the survey. For this study, household health care expenditure was defined as the sum of the OOP expenditures incurred on these items.

Table 4.12 provides an overview of CHE (using total household expenditure as the base) estimates, across districts and by household characteristics. The data show that 4.3 per cent of the households incurred healthcare expenses on the first healthcare provider consulted by the patient with a chronic respiratory condition which exceeded 10 per cent of the aggregate household expenditure. This proportion rose to 8.2 per cent if all the treatment visits along the pathway were included. Dhenkanal district reported the lowest rate of CHE under this criterion (5.3 per cent), and Chandauli (11.1 per cent) reported the highest.

**Table 4.12: Share of Households Spending More Than 10 per cent of the Total Expenses on Treatment by Districts**

All	On First Treatment Cost	On Total Treatment Cost (% Households)
	(% Households)	
	4.3	8.2
Districts		
Chandauli	3.5	11.1
Firozabad	5.0	9.4
Bargarh	5.9	7.5
Dhenkanal	2.9	5.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Additional results presented in Appendix 4.13 indicate that urban households spent more on healthcare than their rural counterparts for the first treatment, though no major rural-urban spending differences were seen with respect to the total treatment expenditures incurred by the patient.

When estimates of CHE with respect to the thresholds of non-food expenditure were considered, about 16 per cent of the households reported spending more than 10 per cent of their total non-food expenditure on treatment for the chronic respiratory condition (Table 4.13). Estimated CHE is the highest for Bargarh (18.6 per cent) under this measure, and the lowest is for Dhenkanal (13.8 per cent).

**Table 4.13: Percentage of Households Spent on Treatment as a Percentage of the Total Household Non-food Expenditure by First visit and All Four Visits**

	Percentage Households Spend on Treatment of the First Visit at Different Threshold Levels				Percentage Households Spend on Treatment of all the Four Visits at Different Threshold Levels			
	Catastrophic Thresholds				Catastrophic Thresholds			
	>10 per cent	>20 per cent	>30 per cent	>40 per cent	>10 per cent	>20 per cent	>30 per cent	>40 per cent
All	16.1	5.4	2.4	1.3	22.7	9.0	5.2	3.0
Districts								
Chandauli	17.8	4.4	2.3	1.6	25.3	12.0	7.9	4.4
Firozabad	15.8	4.7	2.1	1.0	25.3	8.8	5.9	3.0
Bargarh	18.6	9.2	3.6	2.4	24.0	11.5	4.6	3.7
Dhenkanal	13.8	4.3	2.0	0.9	16.7	5.7	3.0	1.6

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Bivariate analyses also found that the share of households experiencing CHE under this measure was higher for rural households, for larger households, for households belonging to the OBC and General categories, and for poorer households (Appendix 4.14). As noted earlier, an increase in the number of treatment visits was associated with a rise in the share of health spending in the total household expenditures; and accounting for all visits (instead of just the first visit) doubles the CHE estimate.

### 4.4.3. Financing Strategies

Households typically adopt a variety of coping strategies to finance their healthcare expenses, including using current income, drawing upon savings, and consumption of non-medical items, asset sales, and borrowing from moneylenders (Desai 2009; Dercon 2002; Flores et al. 2008). Some of these financing methods are defined as ‘distress financing’, the reliance on which is likely to adversely affect long-term household economic outcomes. Poor and marginalised populations appear to face the greatest risk of distress financing for healthcare (Binnendijk et al. 2012; Dasgupta and Mukherjee 2021; Pannarunothai and Mills 1997; Ghosh 2011).

Table 4.14 delineates the financing strategies adopted by the households to meet the treatment costs associated with acute episodes of chronic respiratory conditions. The data suggest that the two most frequently used sources of finance for health spending are household savings and borrowing. Insurance and asset sales as a financing strategy were used by only a few households.

**Table 4.14: Financing Strategies to Meet Treatment Costs by District (% households)**

Districts	Savings	Borrowed (from Relatives/Moneylender/Health Care Provider)	Insurance	Others (Sale Jewellery/Property; Other)
Chandauli	96.0	47.4	0.3	1.0
Firozabad	96.5	13.3	0.0	1.1
Bargarh	96.3	31.8	0.6	0.0
Dhenkanal	97.8	25.1	0.2	1.5
All	96.7	25.8	0.2	1.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Health Insurance:** India has recently seen a sharp increase in publicly funded hospital insurance schemes, such as Pradhan Mantri Jan Arogya Yojana (PM-JAY) and in the case of Odisha, the Biju Swasthya Kalyan Yojana that was introduced in 2018. Partly because these schemes were relatively newly introduced at the time of the survey, their coverage was far from universal, in both Uttar Pradesh and Odisha. Less than 10 per cent of the households reported being covered by any insurance scheme in Uttar Pradesh. Households in Odisha, on the other hand, reported a much higher insurance coverage, including 48 per cent in Bargarh and 55 per cent in Dhenkanal. However, there is some evidence of mis-targeting of this scheme, as the coverage rates in Odisha were quite high, even among the top expenditure quartiles (Table 4.15). Other forms of both public and private insurance also exist, but these cover a relatively smaller segment of the sample households.

**Table 4.15: Type of Health Insurance Coverage by Districts and Per Capita Expenditure Quartile (% Households)**

	Private	Government	RSBY/Arogyashri/ BSKY	No insurance	All
All	1.1	4.4	29.7	64.9	100.0
Districts					
Chandauli	1.1	1.6	8.9	88.5	100.0
Firozabad	1.5	3.4	4.6	90.5	100.0
Bargarh	0.9	4.1	47.7	47.4	100.0
Dhenkanal	0.8	6.8	54.8	37.6	100.0
Per Capita Expenditure Quartile					
Quartile1	0.4	2.9	34.8	61.9	100.0
Quartile2	1.0	3.6	32.4	63.0	100.0
Quartile3	0.6	3.5	27.1	68.8	100.0
Quartile4	2.3	7.5	24.1	66.1	100.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

#### 4.4.4. Salient Findings of Analysis of OOP Spending

Following are some of the significant findings emanating from the analysis of OOP spending by the surveyed households in the two States:

- Household OOP spending on treatment was higher in Uttar Pradesh than in Odisha, and patients living in urban areas reported higher levels of OOP spending than those from rural areas.
- Expenses incurred during the first visit accounted for almost four-fifths of the treatment expenditures over the full treatment pathway.
- Most OOP spending was incurred on private healthcare providers. However, the share of OOP expenditures incurred on public sector healthcare providers in Odisha was relatively higher (more than 25 per cent) as compared to that in Uttar Pradesh.
- Catastrophic spending rates (using thresholds from the total household expenditure) are typically larger for urban households (relative to rural households) when expenses on the first visit are considered; but no major differences were observed between the two groups when OOP expenses for the full treatment pathway were accounted for. Catastrophic spending rates for poorer households were higher than for their richer counterparts.
- The estimated catastrophic spending rate using 10 per cent thresholds based on the total household non-food expenditure was 6 per cent; the CHE rates under this measure were higher for rural households, for larger-sized households, and for poor households.



#### 4.5. Factors Influencing Provider Choice

Some key factors likely to influence provider choice are presented in this section. It is well appreciated that access to high (technical) quality care, including accessibility and effectiveness, is far from the reality in developing countries like India. For instance, a key driver of accessibility and effectiveness is the (un) availability of formally trained healthcare providers (Das et al. 2016; Mohanan et al. 2016). This is especially crucial in rural areas of India, where people commonly approach informal health facilitators, who are not in a position to provide good quality care; and public care options are often limited (Rohde and Viswanathan 1995; Banerjee et al. 2004). Albeit, medical qualification does not necessarily translate into medical knowledge, and medical knowledge does not guarantee high quality of healthcare services.

This study did not collect information on the technical indicators of quality, focusing instead on patients' rationale for their choice of provider and on additional quality-relevant information commonly discussed in the literature. The variables gathered to get a better understanding of the patients' health care provider choices included factors such as proximity, reputation, price, personal experience, staff qualification, and recommendation by relatives.

##### 4.5.1. Evaluation of Health Care Service

In order to gain a deeper understanding of the patients' assessment of the quality of providers available in the area, the survey collected information on patients' perceptions on health care services from different types of providers. Table 4.16 reports responses on service quality ratings provided by respondents in the four districts. These show that an overwhelming proportion of the respondents (typically 90 per cent or higher) rated private services as 'good' to 'excellent' in all the four districts. Interestingly, there were differences between the respondents in Uttar Pradesh and those in Odisha with respect to public sector providers, with 74.6 per cent of the respondents in Bargarh and 90.3 per cent in Dhenkanal rating public services ranging from good to excellent as compared to corresponding figures of 52.6 per cent in Chandauli and 61.5 per cent in Firozabad. One disturbing finding was that more than one-fourth of the respondents who visited public health care facilities rated them as poor. At the district level, 47.4 per cent of the respondents in Chandauli and 38.6 per cent in Firozabad rated the public health care services as poor. This indicates that Uttar Pradesh needs special focus in revamping its health care services.

**Table 4.16: Respondent Ratings of Public and Private Providers by District (% Households)**

District	Excellent		Good		Poor	
	Public	Private	Public	Private	Public	Private
Chandauli	15.3	16.0	37.3	75.7	47.4	8.4
Firozabad	8.5	22.1	53.0	73.3	38.6	4.6
Bargarh	9.8	7.2	80.5	92.6	9.7	0.6
Dhenkanal	7.9	10.2	66.7	88.3	25.5	1.5
Total	9.6	16.9	65.0	78.8	25.5	4.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

#### 4.5.2. Factors Determining the Choice of Health Facilities

Appendix 4.15 presents the percentages of respondents who rated the various factors that played a key role in their decision to choose a particular health facility for their first visit. The total column presents a general idea of what a respondent considers the most important factors. Good reputation of the facility (65.8 per cent), proximity (58.4 per cent), and inexpensiveness (49.0 per cent) were the three most important considerations for the whole sample. The data was examined for respondents by districts and also by the facility types they visited, which is discussed below.

Among the respondents who chose public facilities, 80.2 per cent were influenced by the availability of drugs. This was more so in the districts of Bargarh (90.6 per cent) and Dhenkanal (81.5 per cent). Inexpensiveness (72.6 per cent) and proximity (71.7 per cent) were two other important factors influencing their choice. Among those who chose private facilities, 76.7 per cent did so because of the good reputation of the facilities. This was an important factor across all the four districts. Although the next two most important considerations were proximity and good personal experience, only 47-48 per cent of the respondents mentioned these factors. Similarly, among those who opted for 'Other' facilities, about 65 per cent did so because of proximity. A little less than half of the respondents going to the 'Other' facilities said that for them, inexpensiveness was an important factor. At the overall district level, the most important factor for Chandauli (61.4 per cent) and Firozabad (68.5 per cent) was good reputation. For respondents in Bargarh (70.1 per cent) and Dhenkanal (66.7 per cent), the key deciding factor was proximity.

A more granular analysis of the data revealed that the qualification of staff was an important consideration for the respondents in Bargarh in the choice of both public and private facilities. Familiarity with the facility because of relatives/friends working there and recommendations from relatives were not important considerations for a majority of the respondents.

### 4.5.3. Salient Findings from Analysis of Quality of Health Care Facilities

This section tries to capture the quality of health care services through a patient's experience about the perceived quality of care and the key factors affecting their choice of health care facilities. Following are some of the findings based on the results of this analysis:

- A majority of the respondents categorised both public and private health facilities as good. About 10 per cent found the public facilities to be excellent and approximately 17 per cent had a similar opinion about private facilities.
- More than 25 per cent of the respondents said that public health facilities were of poor quality.
- Overall, good reputation of the facility (65.8 per cent), proximity (58.4 per cent), and inexpensiveness (49.0 per cent) were the three most important considerations for the respondents.
- Familiarity with the facility because of relatives/friends working there and recommendations from relatives were not important considerations for a majority of the respondents.

## APPENDICES

**Appendix 4.1: Status of Treatment after Fourth Visit-All Sample (1889)**

Districts	No Treatment	Recovered	Nothing	Self-care	Repeat Visit	Sought a Different Provider	Total
All	12.9	21.0	20.5	29.4	14.0	2.2	100.0
Place of Residence							
Rural	14.2	22.1	21.2	27.4	13.0	2.1	100.0
Urban	6.5	15.7	17.2	39.0	19.1	2.4	100.0
Gender							
Male	11.7	21.1	20.5	29.4	15.5	1.8	100.0
Female	14.5	20.8	20.5	29.5	12.1	2.6	100.0
Age Categories (Years)							
Up to 45	13.3	23.1	20.6	31.7	9.6	1.7	100.0
46-60	12.9	20.8	19.2	27.5	16.5	3.2	100.0
60 and above	12.7	19.6	21.6	29.5	15.0	1.6	100.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.2: Average Duration of Chronic Respiratory Conditions (in Years)**

	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
All	6.7	5.9	6.3	7.4	6.6
Place of Residence					
Rural	6.8	5.9	6.1	7.3	6.6
Urban	5.4	6.0	7.5	7.8	6.4
Gender					
Male	6.1	5.7	6.3	7.6	6.4
Female	7.3	6.3	6.2	7.1	6.7
Age Categories (Years)					
Up to 45	6.1	5.0	4.9	6.1	5.6
46-60	6.7	5.7	6.5	7.7	6.6
60 and above	7.2	6.5	7.2	8.1	7.2

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.3: Proportion of Adult Patients Not Seeking Treatment after a Flare-up during the Last One Year by Socio-economic and Demographic Attributes (%)**

All	Waiting for Auto-recovery	Illness Not Severe Enough	Got Better	Self-care/ Medication	Not Enough Money	Other
	12.2	9.5	1.27	65.9	10.8	0.3
Place of Residence						
Rural	11.8	9.3	0.4	66.6	11.6	0.4
Urban	16.8	11.6	10.0	58.9	2.7	0.0
Gender						
Male	13.5	13.3	1.3	62.1	9.8	0.0
Female	10.9	5.4	1.3	69.9	11.8	0.7
Social Groups						
SC/ST	9.6	12.7	1.1	64.1	12.6	0.0
OBC/Gen	13.3	8.2	1.4	66.7	10.0	0.5
Educational Categories						
Illiterate	15.9	5.6	2.1	60.5	14.7	1.1
Matric	11.2	7.9	1.0	69.9	9.9	0.0
Higher Secondary+	7.2	30.5	0.0	58.4	3.9	0.0
Occupational Categories						
Worker	16.2	15.8	0.0	60.5	7.5	0.0
Non-worker	9.9	5.7	2.0	69.1	12.7	0.5
Monthly Per Capita Expenditure Quartiles						
Quartile 1 (Poorest)	13.2	9.7	0.4	71.1	5.8	0.0
Quartile 2	17.5	3.4	0.4	68.5	10.2	0.0
Quartile 3	7.1	20.0	1.8	56.8	14.2	0.0
Quartile 4 (Richest)	9.1	5.6	3.4	64.1	16.1	1.8
Household size						
Up to 5 Members	10.6	10.5	0.9	63.6	13.9	0.5
More than 5	15.9	7.0	2.2	71.3	3.6	0.0
Age Categories (Years)						
Up to 45	15.9	6.5	0.7	63.3	13.0	0.6
46-60	14.6	19.1	1.2	57.3	7.8	0.0
60 and Above	7.3	3.2	1.8	75.6	11.8	0.4

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.4: Proportion of Adult Population with a Flare-up That Sought Treatment during the Last One Year by Socio-economic and Demographic Attributes (%)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	All
All	90.1	98.8	89.5	72.8	87.1
Gender					
Male	88.6	98.9	90.2	74.2	88.3
Female	91.8	98.5	88.5	71.3	85.5
Social Groups					
SC/ST	92.4	99.2	86.2	73.8	87.1
OBC/General	88.4	98.7	91.3	72.4	87.1
Educational Categories					
Illiterate	93.2	98.5	91.2	71.9	89.6
Up to Matric	87.5	99.2	88.2	73.5	85.4
Higher Secondary+	87.6	98.4	93.4	70.5	87.0
Occupational Categories					
Worker	86.6	99.1	93.2	71.3	87.4
Non-worker	92.0	98.6	86.8	73.6	87.0
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	92.9	98.4	83.2	63.0	83.2
Quartile 2	93.3	98.4	90.4	75.4	87.0
Quartile 3	83.8	99.4	93.8	75.1	88.4
Quartile 4 (Richest)	90.5	98.9	90.2	77.4	89.9
Household Size					
Up to 5 Members	88.5	98.8	90.1	73.1	85.1
More than 5 Members	91.4	98.8	87.2	72.0	90.2
Age Categories (Years)					
Up to 45	92.8	98.1	91.8	74.4	86.7
46-60	83.1	99.6	89.5	72.4	87.2
60 and above	93.2	98.3	87.5	71.7	87.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.5: Proportion of Patients Who Received First Treatment by Type of Healthcare Service Provider during the Last One Year by Socio-economic and Demographic Attributes (%)**

	Public	Private	Chemist	Traditional	Other
All	33.6	53.5	8.1	3.9	0.9
Gender					
Male	34.8	52.3	7.9	4.6	0.4
Female	31.9	55.1	8.5	2.8	1.7
Social Groups					
SC/ST	36.1	52.3	6.2	3.5	2.0
OBC/General	32.6	54.0	9.0	4.0	0.5
Educational Categories					
Illiterate	31.6	55.8	8.8	2.0	1.8
Matric	36.5	50.4	8.3	4.6	0.2
Higher Secondary+	26.1	61.0	4.8	7.0	1.0
Occupational Categories					
Worker	36.5	50.2	8.1	4.9	0.3
Non-worker	31.8	55.6	8.2	3.2	1.3
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	37.1	51.4	6.1	4.3	1.1
Quartile 2	32.9	51.3	11.1	3.8	1.0
Quartile 3	35.1	52.7	8.4	3.6	0.2
Quartile 4 (Richest)	29.5	58.6	6.8	3.8	1.4
Household Size					
Up to 5 Members	37.5	49.0	9.0	3.5	1.0
More than 5 Members	28.0	59.9	7.0	4.3	0.8
Age Categories (Years)					
Up to 45	31.9	54.1	9.2	4.3	0.6
46-60	30.4	56.0	8.9	4.0	0.7
60 and above	37.6	50.9	6.7	3.4	1.4

Source: NCAER-NOSSAL 4IS Health Survey, 2019.



**Appendix 4.6: Proportion Of Patients Who Visited Number of Health Care Providers for Treatment after a Flare-up during the Last One Year by Socio-economic and Demographic Attributes (%)**

	One	Two	Three	Four
All	79.1	15.8	3.3	1.8
Place of Residence				
Rural	78.0	16.4	3.8	1.8
Urban	84.1	13.0	1.0	1.9
Gender				
Male	79.0	16.3	3.2	1.6
Female	79.3	15.1	3.5	2.1
Education Categories				
Illiterate	75.9	17.8	3.8	2.5
Matric	81.1	14.7	2.8	1.5
Higher Secondary+	81.6	13.8	3.9	0.7
Occupational Categories				
Worker	78.4	16.4	4.5	0.7
Non-worker	79.6	15.4	2.5	2.5
Monthly Per Capita Expenditure Quartiles				
Quartile 1 (Poorest)	80.9	13.5	3.4	2.2
Quartile 2	78.9	17.3	2.4	1.4
Quartile 3	76.7	16.7	3.8	2.8
Quartile 4 (Richest)	80.1	15.5	3.5	0.9
Household Size				
Up to 5 Members	81.8	14.8	2.6	0.8
More than 5 Members	75.3	17.2	4.2	3.2
Age Categories (Years)				
Up to 45	80.0	15.5	3.3	1.2
46-60	78.3	15.7	3.9	2.1
60 and Above	79.3	16.0	2.7	2.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.7: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Last One Year Who Sought Treatment by Districts (%)**

Districts	Visits	Public			Private			Chemist			Other		
		Public	Private	Other	Public	Private	Other	Public	Private	Other	Public	Private	Other
Individual Districts													
Chandauli	First	24.7			66.4			4.9			4.0		
	Second	19.7	75.6	4.7	30.8	65.2	4.1	25.9	24.9	49.2	0.0	100.0	0.0
	Third	47.1	52.9	0.0	19.2	76.4	4.4	0.0	0.0	100.0	0.0	100.0	0.0
	Fourth	25.1	74.9	0.0	13.6	86.4	0.0	0.0	0.0	100.0	0.0	100.0	0.0
Firozabad	First	18.0			70.9			8.2			2.9		
	Second	16.7	83.3	0.0	10.3	82.2	7.6	0.0	78.6	21.4	0.0	100.0	0.0
	Third	0.0	100.0	0.0	0.0	80.9	19.1	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	100.0	0.0	10.0	65.8	24.26	0.0	0.0	0.0	0.0	0.0	0.0
Bargarh	First	60.4			29.5			4.4			5.6		
	Second	37.5	54.8	7.7	25.3	60.4	14.3	0.0	0.0	100.0	47.91	39.75	12.34
	Third	50.5	20.9	28.6	22.0	78.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
	Fourth	28.4	0.0	71.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dhenkana	First	41.7			38.6			12.5			7.2		
	Second	31.4	50.8	17.8	25.4	70.8	3.9	100.0	0.0	0.0	50.06	17.9	32.04
	Third	7.5	54.0	38.5	30.7	55.5	13.86	0.0	0.0	0.0	0.0	0.0	100.0
	Fourth	0.0	100.0	0.0	43.2	56.8	0.0	0.0	0.0	0.0	100.0	0.0	0.0
All													
All	First	33.6			53.5			8.1			4.8		
	Second	28.6	62.7	8.7	19.2	74.2	6.5	24.8	48.3	26.9	34.9	47.7	17.4
	Third	21.1	53.2	25.7	14.1	75.5	10.4	0.0	0.0	100.0	18.5	56.4	25.1
	Fourth	14.9	67.6	17.6	14.7	74.6	10.7	0.0	0.0	100.0	30.8	69.2	0.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.8: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Last One Year Who Sought Treatment by Socio-economic and Demographic Attributes (%)**

Visits	Public			Private			Chemist			Other			
	Public	Private	Other	Public	Private	Other	Public	Private	Other	Public	Private	Other	
Place of Residence													
Rural	First	34.7			52.4			7.9			4.9		
	Second	30.9	60.2	8.9	20.4	74.2	5.5	20.9	50.8	28.3	39.4	40.9	19.7
	Third	24.8	47.8	27.4	14.4	74.4	11.3	0.0	0.0	100.0	18.5	56.4	25.1
	Fourth	21.2	53.7	25.1	15.2	72.1	12.8	0.0	0.0	100.0	30.8	69.2	0.0
Urban	First	28.4			58.1			9.3			4.1		
	Second	7.7	85.1	7.3	14.0	74.5	11.5	100.0	0.0	0.0	0.0	100.0	0.0
	Third	5.9	75.3	18.8	11.1	89.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Fourth	0.0	100.0	0.0	12.4	87.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gender													
Male	First	34.8			52.3			7.9			5.0		
	Second	34.2	58.9	6.9	20.3	74.3	5.3	14.9	63.3	21.8	39.7	55.1	5.2
	Third	19.8	46.0	34.2	11.7	75.6	12.8	0.0	0.0	100.0	24.7	75.3	0.0
	Fourth	11.5	59.4	29.1	10.1	81.4	8.6	0.0	0.0	100.0	0.0	100.0	0.0
Female	First	31.9			55.1			8.5			4.5		
	Second	21.7	67.4	10.9	17.6	74.1	8.2	46.7	15.2	38.1	26.6	34.9	38.5
	Third	23.3	66.3	10.4	16.4	75.5	8.2	0.0	0.0	100.0	0.0	0.0	100.0
	Fourth	20.0	80.0	0.0	18.3	69.4	12.3	0.0	0.0	0.0	100.0	0.0	0.0
Monthly Per Capita Expenditure Quartiles													
Quartile 1 (Poorest)	First	37.1			51.4			6.1			5.3		
	Second	28.2	67.5	4.3	11.2	83.4	5.4	52.3	0.0	47.7	60.4	30.7	8.9
	Third	40.5	59.5	0.0	6.2	79.9	13.9	0.0	0.0	100.0	0.0	0.0	0.0
	Fourth	0.0	53.4	46.6	7.5	67.0	25.5	0.0	0.0	100.0	0.0	0.0	0.0
Quartile 2	First	32.9			51.3			11.1			4.8		
	Second	28.8	62.2	9.0	16.4	76.8	6.8	0.0	0.0	0.0	0.0	25.9	74.1
	Third	0.0	100.0	0.0	25.0	67.8	7.2	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Quartile 3	First	35.1			52.7			8.4			3.8		
	Second	40.6	53.7	5.7	35.4	64.2	0.5	18.3	60.6	21.1	41.0	59.0	0.0
	Third	31.4	29.8	38.8	13.9	76.3	9.7	0.0	0.0	100.0	0.0	100.0	0.0
	Fourth	100.0	0.0	0.0	18.5	73.6	7.9	0.0	0.0	0.0	0.0	100.0	0.0
Quartile 4 (Richest)	First	29.5			58.6			6.8			5.2		
	Second	12.1	71.8	16.1	13.0	73.6	13.5	18.0	59.8	22.2	0.0	100.0	0.0
	Third	3.5	67.5	29.0	12.8	77.4	9.8	0.0	0.0	0.0	42.4	0.0	57.6
	Fourth	0.0	100.0	0.0	40.7	59.3	0.0	0.0	0.0	0.0	100.0	0.0	0.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.9: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Socio-economic and Demographic Attributes (in Days)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	All
All	7.0	5.0	3.4	3.6	4.6
Gender					
Male	7.7	5.0	3.6	3.6	4.8
Female	6.2	5.0	3.1	3.6	4.5
Social Groups					
SC/ST	8.0	4.9	3.5	4.2	5.2
OBC/General	6.2	5.0	3.4	3.4	4.4
Educational Categories					
Illiterate	9.5	5.5	3.7	3.7	5.7
Matric	5.7	4.7	3.5	3.5	4.1
Higher Secondary+	2.1	3.8	2.4	3.6	3.1
Occupational Categories					
Worker	9.1	5.4	3.1	3.8	5.1
Non-worker	5.9	4.7	3.7	3.5	4.4
Household Size					
Up to 5 Members	6.1	4.1	3.3	3.5	3.9
More than 5 Members	7.7	5.7	3.7	4.0	5.7
Age Categories (Years)					
Up to 45	5.1	5.3	3.3	4.1	4.4
46-60	9.0	5.5	2.9	3.8	5.1
60 and Above	7.1	4.4	4.0	2.9	4.4

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.10: Proportion of Patients Who Recovered after Different Number of Visits to Health Care Providers for Treatment during the Last One Year by Socio-economic and Demographic Attributes (%)**

	Recovery Status after Visiting Health Care Provider				
	First	Second	Third	Fourth	All Visits
All	15.7	5.0	3.4	1.9	21.1
Place of Residence					
Rural	16.4	5.6	3.9	2.2	22.1
Urban	13.0	2.3	1.5	1.0	16.0
Gender					
Male	15.3	4.7	3.7	2.2	21.2
Female	16.3	5.3	3.1	1.6	20.9
Social Groups					
SC/ST	16.2	5.8	3.8	1.2	21.7
OBC/General	15.5	4.7	3.3	2.2	20.8
Educational Categories					
Illiterate	13.2	4.8	3.2	1.8	19.2
Matric	17.5	4.0	3.3	2.3	21.5
HS+	16.8	10.7	5.2	0.2	25.8
Occupational Categories					
Worker	14.8	5.3	3.1	2.6	20.8
Non-worker	16.3	4.8	3.6	1.5	21.2
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	17.9	3.9	3.8	2.2	21.4
Quartile 2	17.4	5.1	3.4	0.6	21.5
Quartile 3	13.7	6.0	3.2	3.1	21.1
Quartile 4 (Richest)	14.0	4.8	3.4	2.0	20.2
Household Size					
Up to 5 Members	15.5	6.3	3.8	2.4	21.9
More than 5 Members	16.1	3.0	3.0	1.3	19.9
Age Categories (Years)					
Up to 45	17.2	6.8	3.2	1.8	23.1
46-60	15.0	5.9	3.2	1.8	20.9
60 and above	15.3	2.9	3.8	2.2	19.8

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Note: The denominator in the above calculation is the total number of persons suffering from chronic respiratory conditions who sought treatment from any health care provider after the flare-up in their health condition.

**Appendix 4.11: Proportion of Patients Exiting and Switching the Treatment after Visiting the Health Care Provider by Socio-economic and Demographic Attributes (%)**

All	After First Visit			After Second Visit			After Third Visit		
	Nothing/ self care/ Medication	Repeat Visit	Switching the Provider	Nothing/ Self care/ Medication	Repeat Visit	Switching the Provider	Nothing/ self-care/ Medication	Repeat Visit	Switching the Provider
	45.6	31.9	22.6	61.1	29.9	9.1	75.1	21.4	3.4
Place of Residence									
Rural	46.8	29.3	23.9	62.6	28.0	9.4	76.0	20.6	3.4
Urban	40.4	42.8	16.9	54.9	37.5	7.7	71.8	24.7	3.6
Type of Health Care Provider									
Public	53.2	20.5	26.4	71.3	21.1	7.6	84.9	13.0	2.2
Private	37.7	39.3	23.0	51.9	36.6	11.5	66.7	29.1	4.3
Chemist	59.2	33.9	6.9	73.5	25.4	1.1	92.0	5.4	2.7
Other	62.1	22.7	15.2	74.8	20.4	4.9	79.5	16.7	3.8
Gender									
Male	43.9	33.8	22.3	58.8	32.1	9.2	74.1	23.2	2.7
Female	47.9	29.2	22.9	64.2	26.8	9.0	76.5	19.1	4.5
Social Groups									
SC/ST	48.2	29.4	22.4	65.2	25.4	9.4	76.3	20.1	3.5
OBC/General	44.6	32.8	22.6	59.4	31.6	9.0	74.7	21.9	3.4
Educational Categories									
Illiterate	37.7	37.1	25.3	55.6	34.6	9.8	72.4	24.0	3.7
Matric	51.7	27.6	20.8	66.9	24.7	8.4	78.9	17.8	3.3
Higher Secondary+	46.7	32.8	20.5	52.7	37.7	9.7	66.1	30.7	3.2
Occupational Categories									
Worker	44.0	33.2	22.8	61.1	29.3	9.5	74.1	23.2	2.7
Non-worker	46.6	31.0	22.4	61.0	30.2	8.8	75.8	20.3	3.9
Monthly Per Capita Expenditure Quartiles									
Quartile 1 (Poorest)	50.8	28.0	21.2	67.5	22.6	9.9	81.5	14.5	4.0
Quartile 2	45.2	30.5	24.3	59.7	31.8	8.6	77.3	19.9	2.8
Quartile 3	45.7	30.7	23.6	59.2	29.6	11.2	72.4	23.1	4.6
Quartile 4 (Richest)	41.3	37.7	21.0	58.5	34.7	6.9	69.9	27.6	2.5
Household Size									
Up to 5 Members	53.3	27.0	19.7	69.6	23.5	6.9	80.4	17.4	2.3
More than 5	34.5	38.8	26.7	49.1	38.7	12.2	67.9	27.1	5.0
Age Categories (Years)									
Up to 45	48.4	28.3	23.3	67.7	23.0	9.3	82.0	15.4	2.6
46-60	41.1	35.8	23.1	56.0	34.5	9.5	69.8	25.3	5.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Note: The denominator is the total persons making successive visits to health care providers.

**Appendix 4.12: Average Cost of Treatment of All the Four Visits (in Rs.) by Socio-economic and Demographic Attributes (%)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	All
<b>Gender</b>					
Male	5212	3782	2889	2188	3432
Female	4461	4542	2395	2859	3608
<b>Age Categories (Years)</b>					
Up to 45	3663	4519	2749	1874	3089
46-60	4720	4184	2984	2980	3745
60 and above	5891	3727	2360	2679	3603
<b>Duration of the Disease</b>					
Up to 2 Years	3214	3032	2618	3440	3048
2-5 Years	4695	3334	2749	2562	3250
More than 5 Years	5719	5691	2656	2133	3996
<b>Occupation Categories</b>					
Worker	4294	3469	2794	2267	3143
Non-worker	5135	4439	2584	2638	3732
<b>Social Groups</b>					
SC/ST	4524	3515	2242	2254	3180
OBC/General	5108	4202	2902	2597	3639
<b>Per Capita Expenditure Quartiles</b>					
Quartile 1 (Poorest)	3876	3560	1921	1371	2805
Quartile 2	4110	3874	2589	2376	3165
Quartile 3	5102	3968	2872	2554	3577
Quartile 4 (Richest)	7264	4637	3281	3636	4459
<b>Level of Education</b>					
Illiterate	4916	4088	2795	2936	3838
Matric	5235	4179	2527	2268	3303
Higher Secondary+	3560	3354	3309	2824	3274
<b>Household Size</b>					
Up to 5 members	4154	3649	2731	2242	2995
More than 5 Members	5413	4378	2456	3257	4245
<b>Service Providers</b>					
Public	2520	2865	2051	1967	2241
Private	6180	4883	4660	4085	4974

Source: NCAER-NOSSAL 4IS Health Survey, 2019.



**Appendix 4.13: Percentage of Households That Reported Spending More Than 10% on Treatment as a Percentage of the Total Household Expenditure by Socio-economic and Demographic Attributes**

All	On First Treatment Cost (% Households)	On Total Treatment Cost (% households)
	4.3	8.2
Place of Residence		
Rural	4.0	8.3
Urban	5.7	7.9
Household Size		
Up to 5 Members	5.4	8.2
More than 5 Members	2.8	8.3
Social Groups		
SC/ST	2.6	5.4
OBC/General	5.1	9.4
Per Capita Expenditure Quartiles		
Quartile 1 (Poorest)	5.0	11.6
Quartile 2	3.5	6.5
Quartile 3	4.6	8.7
Quartile 4 (Richest)	4.4	6.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.14: Percentage of Households Spent on Treatment as a Percentage of the Total Household Non-food Expenditure - by Socio-economic and Demographic Attributes**

	Percentage of Households Spend on Treatment of the First Visit at Different Threshold Levels				Percentage of Households Spend on Treatment of all the Four Visits at Different Threshold Levels			
	Catastrophic Thresholds				Catastrophic Thresholds			
	>10 per cent	>20 per cent	>30 per cent	>40 per cent	>10 per cent	>20 per cent	>30 per cent	>40 per cent
All	16.1	5.4	2.4	1.3	22.7	9.0	5.2	3.0
Place of Residence								
Rural	16.9	6.2	2.7	1.5	23.8	10.3	5.9	3.2
Urban	12.5	1.8	1.0	0.5	18.0	3.4	2.2	2.1
Household Size								
Up to 5 Members	19.2	6.2	2.9	1.6	23.8	8.7	4.8	3.0
More than 5 Members	11.7	4.3	1.7	0.9	21.2	9.4	5.8	2.9
Social Groups								
SC/ST	14.8	3.7	1.9	1.3	20.4	7.6	4.5	2.5
OBC/General	16.6	6.1	2.6	1.4	23.7	9.6	5.5	3.2
Per Capita Expenditure Quartiles								
Quartile 1 (Poorest)	19.6	7.8	3.6	2.8	27.3	14.8	9.0	5.8
Quartile 2	16.1	6.2	2.3	1.2	24.6	9.2	4.8	2.5
Quartile 3	17.9	5.2	2.1	0.7	24.9	8.9	4.8	2.5
Quartile 4 (Richest)	11.1	2.4	1.6	0.8	14.2	3.5	2.4	1.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 4.15: Key Deciding Factors for Choosing Health Care Providers (in %) by District**

	Proximity				Good Reputation			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	61.1	58.5	60.1	59.3	39.9	70.8	51.4	61.4
Firozabad	48.2	38.7	64.3	43.3	46.9	77.1	48.1	68.5
Bargarh	80.0	66.1	70.1	74.9	73.6	83.8	51.1	74.3
Dhenkanal	80.9	51.9	65.9	66.7	54.2	78.2	31.8	59.1
All	71.7	48.3	65.3	58.4	57.5	76.7	42.0	65.8
	Inexpensive				Good Personal Experience			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	63.6	48.9	49.5	52.6	37.4	49.7	46.5	46.4
Firozabad	75.6	34.3	72.0	45.9	22.9	39.5	5.3	32.7
Bargarh	77.9	39.3	60.2	64.7	73.0	80.3	35.6	71.4
Dhenkanal	69.0	15.1	28.0	40.1	53.8	46.2	9.9	42.2
All	72.6	34.1	49.2	49.0	52.1	47.2	16.4	44.9
	Qualification of Staff				Availability of Drugs			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	21.1	12.8	2.0	13.9	60.0	38.4	25.4	42.6
Firozabad	0.0	4.4	0.0	3.1	73.0	21.7	15.4	30.2
Bargarh	65.4	70.4	10.5	61.4	90.6	23.9	22.3	64.1
Dhenkanal	31.4	42.4	3.9	30.2	81.5	7.6	26.8	42.2
All	35.4	20.5	3.4	23.3	80.2	22.6	22.4	41.9
	Relative/Friends Works There				Recommended by Relatives			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	2.6	1.1	2.1	1.6	6.1	3.7	2.1	4.1
Firozabad	0.0	1.7	1.7	1.4	3.2	7.0	3.3	5.9
Bargarh	1.0	4.3	0.7	2.0	4.0	6.4	3.0	4.6
Dhenkanal	2.7	9.2	6.1	5.9	3.9	13.1	12.6	9.2
All	1.6	3.3	3.4	2.8	4.1	7.4	7.0	6.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.



## Chapter 5

# Gynecological Problems of Women: Healthcare Use Pathways, Out-of-pocket Spending and Service Quality

In this chapter, the characteristics of treatment pathways of women with gynaecological problem are assessed via:

- i. The time between the first appearance of symptoms and the time treatment was sought
- ii. The number and types of healthcare providers visited
- iii. The order in which healthcare providers were consulted, including the number of times patients switched between healthcare providers
- iv. Total visits to health care providers; and
- v. The point of exit from treatment-seeking.

This chapter also reports the findings on the households' out-of-pocket (OOP) spending on healthcare for women with gynaecological problems, including expenditures incurred over the full treatment pathway for the most recent acute episode related to the condition.

The quality of health care was also assessed from the standpoint of the respondents and indicated by perceptions about the quality of health care services received.

Section 5.1 describes is a description of the sampling procedure and household characteristics. It also provides the details of the respondents. The remainder of this chapter is organised into four sections. Section 5.2 includes background details such as the demographic and socio-economic profiles of the households (having women with gynaecological problems), including their housing characteristics. Section 5.3 reports findings on treatment-seeking behaviour, including different elements of treatment 'pathways' of the respondent during the one year preceding the date of the survey. Section 5.4 discusses the household's OOP spending on healthcare. Section 5.5. provides results from analyses of the survey data on the quality of healthcare services of different healthcare providers, as perceived by the survey respondents, including the differences between public and private healthcare providers, and by levels of care.

### 5.1. Sampling and Household Characteristics

The findings reported in this chapter are based on a survey of 1,738 individuals from an equivalent number of households sampled from four districts, and are representative at the district level. The sample of households included at least one woman who had been suffering from gynaecological complaints during the year

preceding the survey with a the focus being on the survey questions on health care use and expenditure incurred by one of the individuals who reported gynaecological problems.

These households were spread across 397 villages and 119 urban blocks in the four districts. Out of total sample households, 76.7 per cent were from rural areas (ranging from 59.0 per cent of the total in Firozabad to 91.9 per cent in Bargarh) and 23.3 per cent were from urban areas (ranging from 8.1 per cent of the total in Bargarh to 41.0 per cent in Firozabad). The district-wise number of selected sample households is given in Table 5.1.

**Table 5.1: District-wise Number of Selected Households by District and Place of Residence**

Districts/States	Rural	Urban	All
Chandauli	325	79	404
Firozabad	300	167	467
Bargarh	366	78	444
Dhenkanal	352	71	423
All	1,343	395	1,738

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

The distribution of the sample by social group, religion, and household size is given in Table 5.2. A majority of the households belonged to the Other Backward Classes (OBC) and General (66 per cent) categories while the remaining 34 per cent were from the SC/ST communities. Most of the SC/ST households were from Chandauli (44.3 per cent) while a lesser number of them were from Firozabad (24.5 per cent).

The members of most households were Hindus in all the four districts (ranging from 84.2 per cent in Firozabad to 100 per cent in Dhenkanal), followed by Muslims and Others (ranging from zero in Dhenkanal to 15.8 per cent in Firozabad). It should be mentioned that: a) the selected households belonged to a specific category, that is, households having at least one woman who had been suffering from a chronic gynaecological problem over the one year preceding the survey, and b) the religion and caste classifications were based on the respondent's self-identification.

As regards the household size, out of the total selected households, 42 per cent had more than five members, with this household size being the most prevalent in both Chandauli (62.2 per cent) and Firozabad (59 per cent), as compared to Bargarh and Dhenkanal (around 13 per cent each). It may be noted that in Uttar Pradesh, the average size of the household was 6.7 whereas in Odisha, it was 4.1.

The district with the highest percentage share of households in the highest expenditure quartile<sup>9</sup> was Firozabad (29.4 per cent), followed by Dhenkanal (29.2 per cent). In

<sup>9</sup>The distribution is based on total selected households and its per capita expenditure quartile.

contrast, in the other two districts, less than one-fifth of the households fell in the highest expenditure quartile, whereas 38.6 per cent of the total households fell in the poorest quartile in Chandauli.

**Table 5.2: Distribution of Selected Households By Socio-economic Characteristics across Districts**

	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
<b>Social Groups</b>					
SC/ST	44.3	24.5	42.6	30.9	34.0
OBC/General	55.7	75.5	57.4	69.1	66.0
All	100.0	100.0	100.0	100.0	100.0
<b>Religion</b>					
Hindu	90.2	84.2	99.4	100.0	91.3
Muslim/Others	9.8	15.8	0.6	0.0	8.7
All	100.0	100.0	100.0	100.0	100.0
<b>Household Size</b>					
Up to 5 Members	37.8	41.0	86.7	86.4	58.0
More than 5 Members	62.2	59.0	13.3	13.6	42.0
All	100.0	100.0	100.0	100.0	100.0
<b>Per Capita Expenditure Quartile</b>					
Quartile 1 (Poorest)	38.6	16.2	25.7	24.3	24.1
Quartile 2	21.4	22.2	32.0	27.1	25.3
Quartile 3	21.8	32.2	23.7	19.4	26.4
Quartile 4 (Richest)	18.2	29.4	18.6	29.2	24.3
All	100.0	100.0	100.0	100.0	100.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Survey Respondents:** The household questionnaire was administered to the individual who was the most knowledgeable about the ailing person's disease and the treatment that took place during the one year preceding the survey besides other household information related to income and expenditure (details are given in Chapter 2). It was observed that in 83.7 per cent of the total households, the ill persons themselves were the respondents of the survey. Another 16.3 per cent were either mothers or grandmothers or mothers-in-law, or sisters/sisters-in-law or daughters/daughters-in-law or other relatives of the ill person. These ratios were almost similar across all the four districts of the two States.

## 5.2. Housing and Individual Characteristics

The study in this section addresses two themes: First, it describes the household's standard of living observed through some basic amenities and assets present in the household such as ownership of house, type of house, electricity, sanitation facilities, drinking water facilities and purification, and a variety of household consumer durable

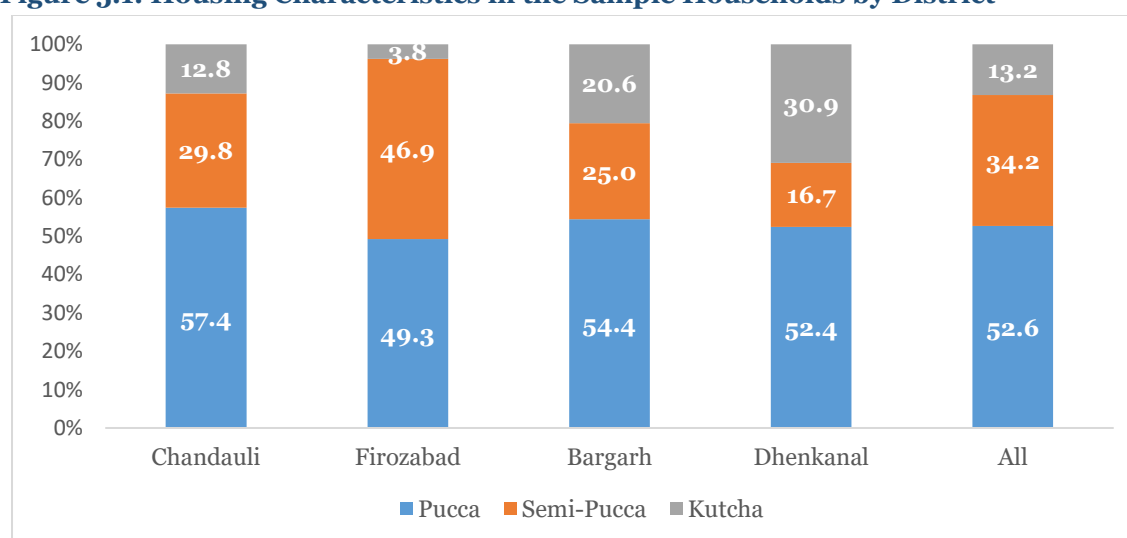


items as wealth indicators. The second section focuses on the profile of the selected (ailing) women suffering from gynaecological problems.

### 5.2.1. Housing Characteristics

Ownership and Type of House: Figure 5.1 shows that 97 per cent of the households were staying in their own houses, and this finding was consistent across all the four districts surveyed. According to the type of household structure<sup>10</sup> (pucca, semi-pucca and kutcha), the districts in Odisha had a higher proportion of kutcha houses compared to those in Uttar Pradesh.

Figure 5.1: Housing Characteristics in the Sample Households by District



Source: NCAER-Nossal 4IS health survey, 2019.

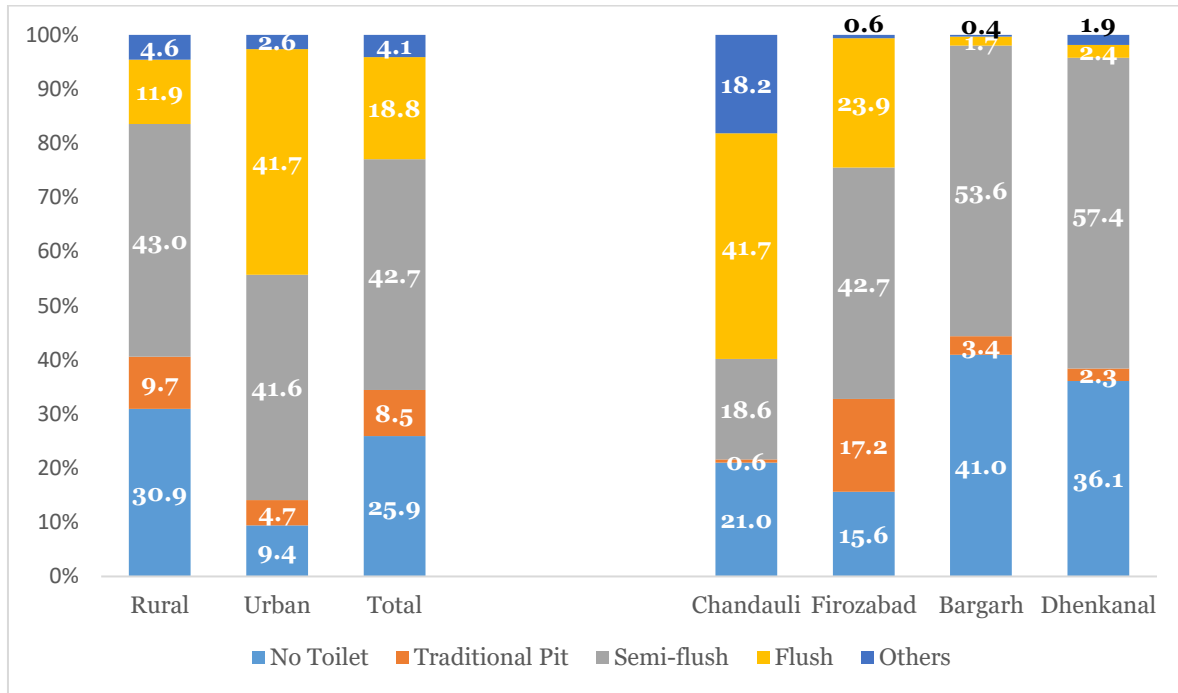
Access to Electricity: About 97 per cent of the rural, 99 per cent of the urban, and 97 per cent of the total households had access to electricity. About 98 per cent of the households in the Dhenkanal and Firozabad districts had access to electricity whereas the districts of Chandauli and Bargarh showed 95 per cent and 97 per cent accessibility, respectively. Therefore, it is evident that there was not much of a gap in accessibility to electricity among the four districts and across rural-urban areas.

Access to Sanitation Facilities: The data in the Figure 5.2 shows that about one-fourth of the households did not have any toilet facilities and the rural households (31 per cent) suffered more than urban households (9.4 per cent) due to the unavailability of toilets. Across the four districts, around 40 per cent of the households in Bargarh and Dhenkanal did not have any toilet facilities. More than half of the households in the two other districts of Odisha had semi-flush toilet facilities. On the other hand, in Firozabad district, 42.7 per cent of the households were using semi-flush toilet

<sup>10</sup> Based on the construction material of the walls and roofs of the houses.

facilities, followed by flush toilet systems (24 per cent) and in Chandauli, 42 per cent of the households had flush toilet facilities whereas 21 per cent had no toilet facilities.

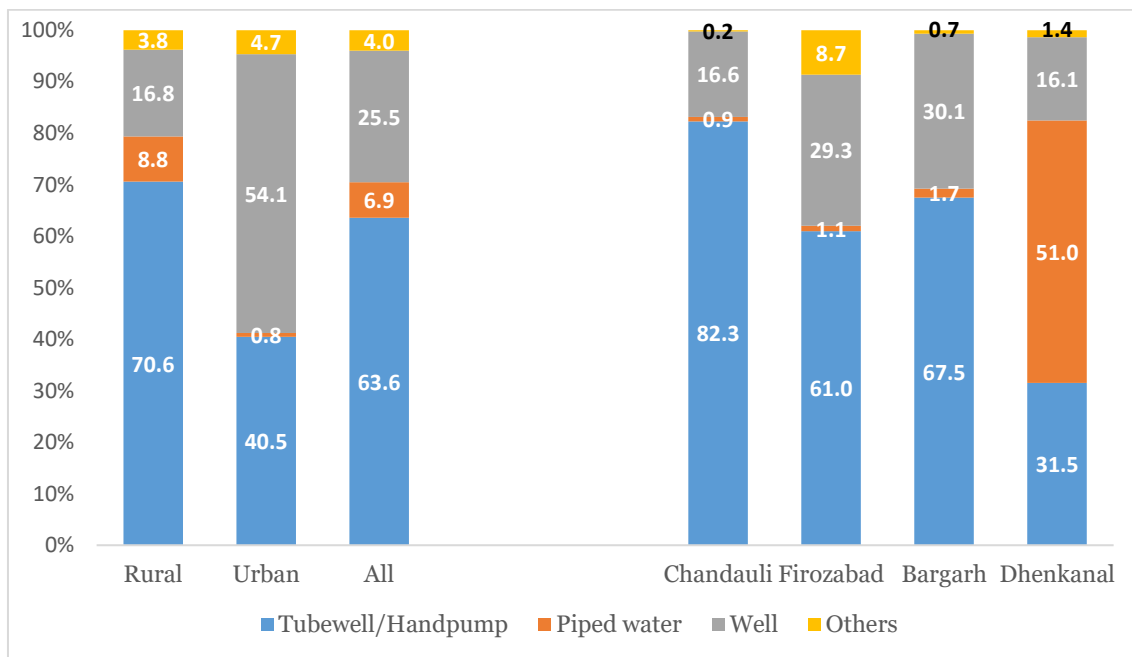
**Figure 5.2: Percentage Distribution of Households by Type of Toilet Facilities by District and Place of Residence**



Source: NCAER-Nossal 4IS health survey, 2019.

**Drinking Water Sources and Treatment:** The following two types of information were gathered on drinking water: (i) the sources of drinking water, and (ii) the treatment process, that is, how the households were making the water safe for drinking, indicating that the households were conscious about the quality and safety of the potable water available to them. Figure 5.3 shows the percentage distribution of households by their source of drinking water by district and rural-urban locations. It is found that the usage of tube well/hand pump are more in The figure shows a higher usage of tubewells/hand pumps among rural households (71 per cent) as compared to the urban households (40.5 per cent). Interestingly, households obtained drinking water more from wells (54 per cent) and tubewells/hand pumps in comparison to using piped water (0.8 per cent). The district-wise data shows that except for Dhenkanal, households in all the other three districts were dependent on tube wells/hand pumps for drinking water, and in Dhenkanal, 51 per cent of the households used piped water.

**Figure 5.3: District-wise Percentage Distribution of Households by Source of Drinking and Place of Residence**



Source: NCAER-Nossal 4IS Health Survey, 2019.

Almost 90 per cent of the total households were consuming water directly from the source, which means that the households were not treating their water before drinking. The data reveals that though there was in general low prevalence of the practice of treating water before consumption in every district, Firozabad and Dhenkanal deserve special mention. About 12 per cent and 5 per cent of the households in Firozabad were using earthen storage pots and water filter for filtration, respectively, while in Dhenkanal, 7 per cent and 5 per cent of the households were using cloth for straining and water filter, respectively.

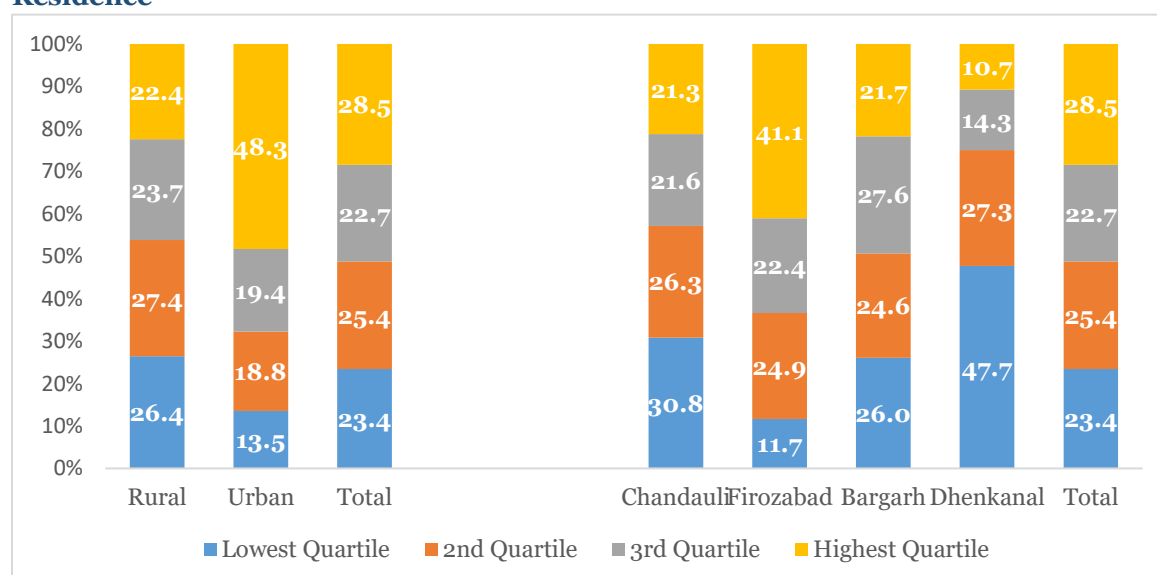
The above figures depict the district-wise variations and rural-urban differences separately for each facility. However, for further study, the three indicators, viz., access to toilet facilities, safe drinking water, and electricity have been considered altogether. Access to basic amenities is imperative for a standard quality of life and it should be the basic right for any individual. Table 5.3 focuses on a large section of the households that still lack these basic household amenities, especially in rural areas (12 per cent). Urban households (50 per cent) were found to be comparatively better off in terms of accessibility to these amenities, and enjoyed a better quality of life than the rural areas. Therefore, these numbers highlight the poor condition of the household environment and the need for proper implementation of policies by the government to ensure better and more equitable access to these facilities, especially in the rural areas of Uttar Pradesh and Odisha.

**Table 5.3: Proportion of Households Having Three Basic Facilities by Districts and Place of Residence**

District	Rural	Urban	All
Chandauli	7.1	57.2	14.4
Firozabad	11.8	47.5	26.4
Bargarh	17.3	57.2	20.5
Dhenkanal	7.8	60.8	13.0
All	12.0	50.2	20.9

Source: NCAER-Nossal 4IS health survey, 2019.

**Wealth index:** This study also collected information on household goods with the housing amenities in order to understand the household's standard of living and to portray the wealth index with these indicators. Figure 5.4 represents the wealth quartiles<sup>11</sup> showing rural-urban diversity and district-wise comparisons in Uttar Pradesh and Odisha. Around 50 per cent of the urban households belonged to the highest wealth quartile. On the other hand, almost 53 per cent of the rural households fell under the two lowest quartiles. Variations among the districts show that Firozabad had the maximum proportion of households (41.1 per cent) with the highest wealth quartiles, while Dhenkanal had the highest percentage of households falling under the lowest household wealth quartiles (47.7 per cent).

**Figure 5.4: Share of Households across Wealth Quartiles by Districts and Place of Residence**


Source: NCAER-Nossal 4IS health survey, 2019.

<sup>11</sup> Households are given scores based on the number and kinds of consumer goods they own, ranging from a television to a bicycle or car, and housing characteristics such as toilet facilities. These scores are derived by using principal component analysis. Overall, the wealth quartiles are compiled by assigning the household score, ranking each household by its score, and then dividing the distribution into four equal categories, each comprising 25 per cent of the households.

### 5.2.2. Profile of Women with Gynaecological Problems

Table 5.4 provides information on the profile of ill women who self-reported that the gynaecological problems they faced during the one year preceding the survey were severe enough to regularly disrupt their daily activities or compel them to seek treatment. The data shows that more than 30 per cent of the ailing women fell under the age cohorts of less than 25 years and 31-45 years both in total as well as by district. With an increase in age (more than 45 years) the proportion of self-reporting among ailing women also decreased.

About 72 per cent of the ailing women in the sample were married, 57 per cent of them had completed matriculation, and 20 per cent had opted for higher education. In the case of Uttar Pradesh, most of the ill women fell under the illiterate category whereas in Odisha, a majority of them had completed their matriculation exams. Almost 90 per cent of the ailing women were non-workers in total and across districts, and only 7 per cent were working.

**Table 5.4: Profile of Ill Persons by Socio-economic Characteristics across Districts (% Distribution)**

	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
Age Category (Years)					
Less than 25	37.6	24.9	36.2	35.2	31.6
25-30	21.0	32.5	28.0	22.0	27.8
31-45	36.7	36.6	34.2	39.1	36.3
More than 45	4.7	6.0	1.6	3.7	4.3
Marital Status					
Married	72.6	77.2	66.2	69.7	72.5
Unmarried	27.4	22.8	33.8	30.3	27.5
Educational Qualifications					
Illiterate	25.8	36.8	6.5	8.5	23.2
Matric	51.9	42.4	77.3	73.5	57.3
Higher Secondary+	22.3	20.8	16.2	18.0	19.5
Occupational Status					
Worker	3.3	10.2	6.7	4.4	7.3
Non-worker	96.7	89.8	93.3	95.6	92.8

Source: NCAER-Nossal 4IS Health Survey, 2019.

### 5.3. Healthcare Pathways

Health-seeking behaviour is a complex decision-making process, more so in the case of gynaecological conditions suffered by women in middle- and low-income countries. As discussed in Chapter One, the mere acceptance of a disease involves stigmatisation in society, especially for young and poor women. Treatment-seeking pathways are further mired by ignorance of the illness and lack of awareness of treatment options, which pushes women patients into the usurious grip of quacks and providers of

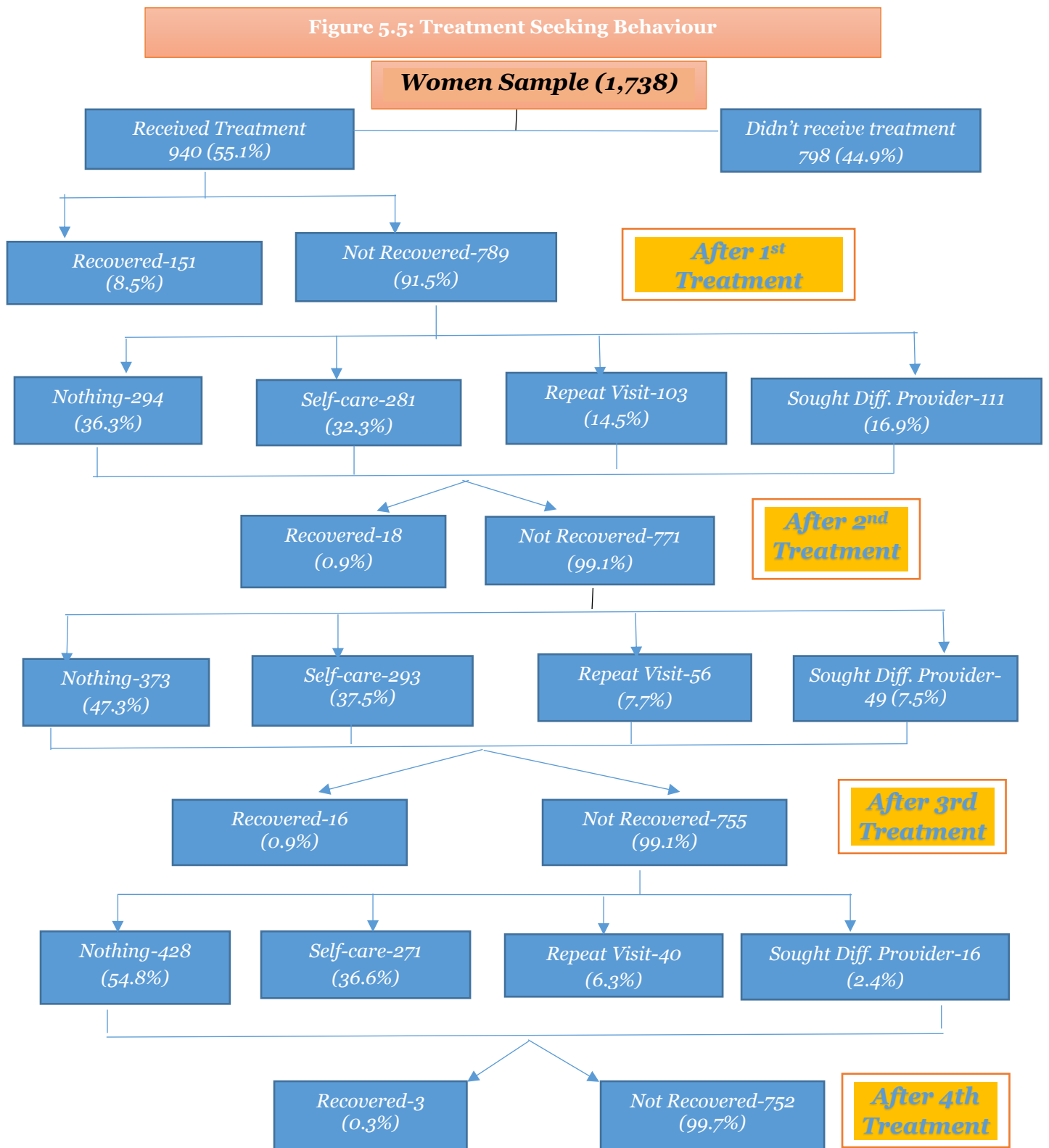
alternative modes of treatment with dubious effectiveness. Moreover, any delay in seeking treatment for gynaecological conditions is usually longer and proves to be expensive. The main aspects of health seeking behaviour being discussed in this section are similar to those in Chapter Four. This section elaborates the status of treatment-seeking by women who suffer from common gynaecological conditions. The specific questions explored were as follows:

- Following the initial recognition of the acute episode, was any health provider consulted?
- What was the first source of treatment?
- What was the length of time from identification of the health problem till the choice of the first treatment?
- How many providers were consulted during the episode?
- What was the sequencing of providers who were consulted during the episode (that is, who was consulted first, who was consulted second, and so forth)?
- How (or why) did the patient exit treatment? What factors affected this choice?

### 5.3.1. Number of Visits and Distribution of Patients

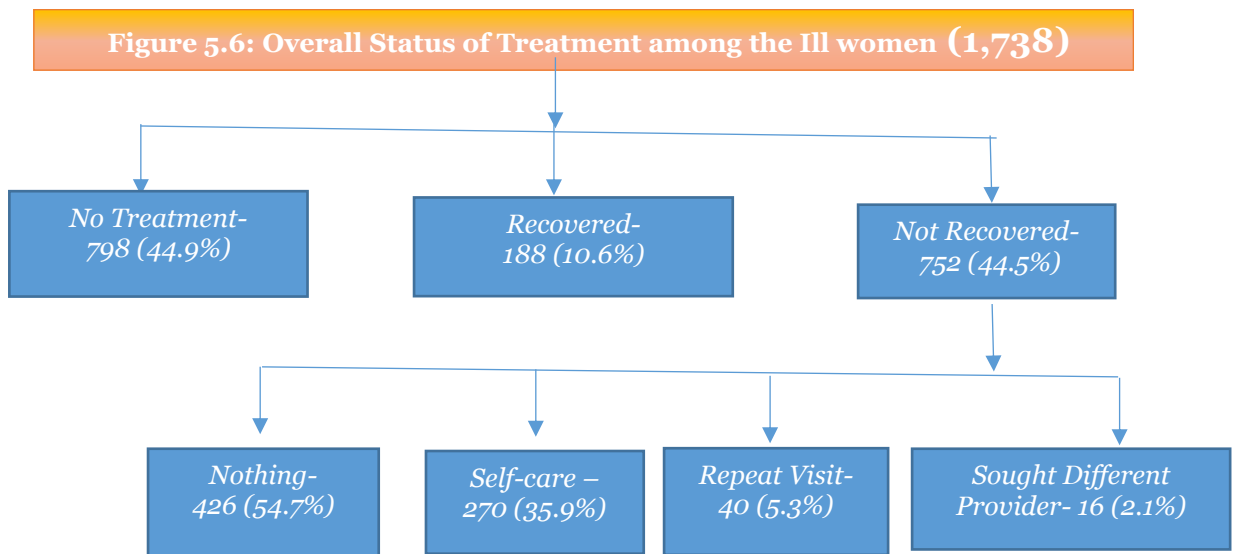
Figures 5.5 and 5.6 present a brief overview of the status of treatment starting from 'sought treatment' to 'exited treatment'.

Figure 5.5 reiterates that a sample of 1,738 women with common gynaecological problems was chosen from the selected four districts of Uttar Pradesh and Odisha. About 55 per cent of the women received treatment from a healthcare provider and 8.5 per cent of the women who sought treatment recovered after their first visit. The percentage of recovered patients fell sharply in the subsequent visits. Among the women who did not recover after their first visit, 68.6 per cent did nothing or resorted to self-care/self-medication. The proportion of such women patients increased in the subsequent visits, touching 91.4 per cent after their third visit and only 8.6 per cent of the women continued taking treatment either from the same health care provider or from a different one.



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Figure 5.6 sums up the final status of women patients after their four visits. While 44.9 per cent of them did not even go in for treatment, only 10.6 per cent of them recovered and 44.5 per cent could not recover.

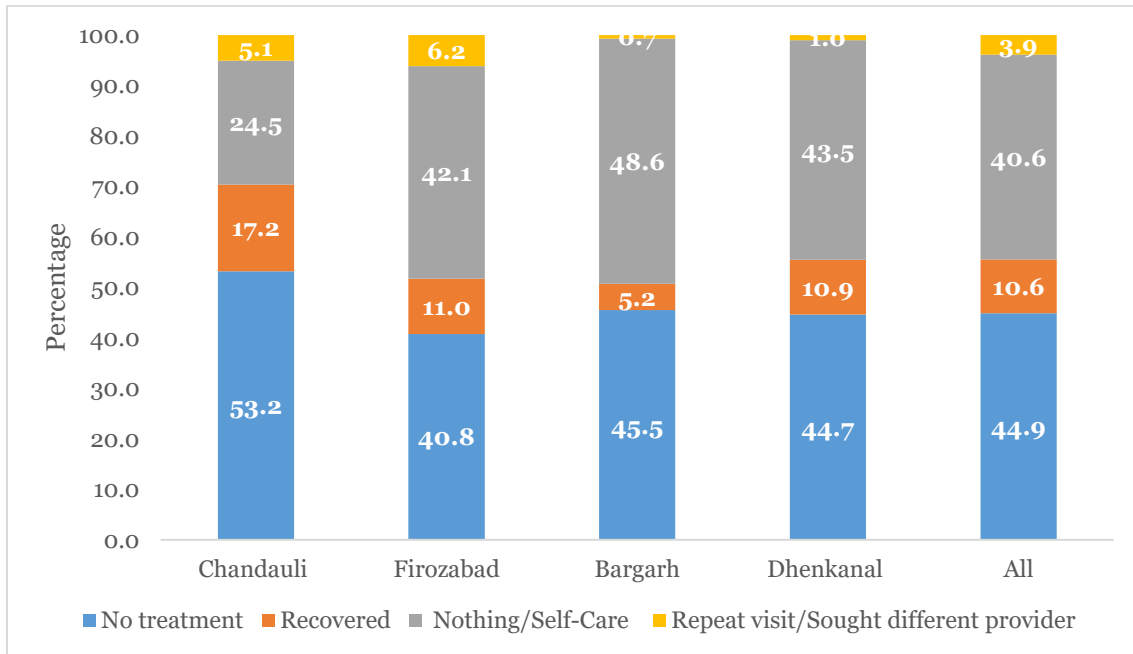


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

sampled districts. Chandauli had the highest proportion (53.2 per cent) and Firozabad the lowest proportion (40.8 per cent) of women not seeking treatment after a flare-up in their condition. Chandauli also had the highest (17.2 per cent) and Bargarh the lowest (5.2 per cent) proportions of women reporting recovery from a flare-up in their condition. About 41 per cent of the women either did nothing or resorted to self-care after seeking treatment from at least one health care provider. Bargarh had the highest proportion (48.5 per cent) of such women who made premature and undesirable exits from the treatment pathways. A very small proportion of the women continued their treatment either from the same health care provider or from a different one.



Figure 5.7: Status of Treatment after All Four Visits by District

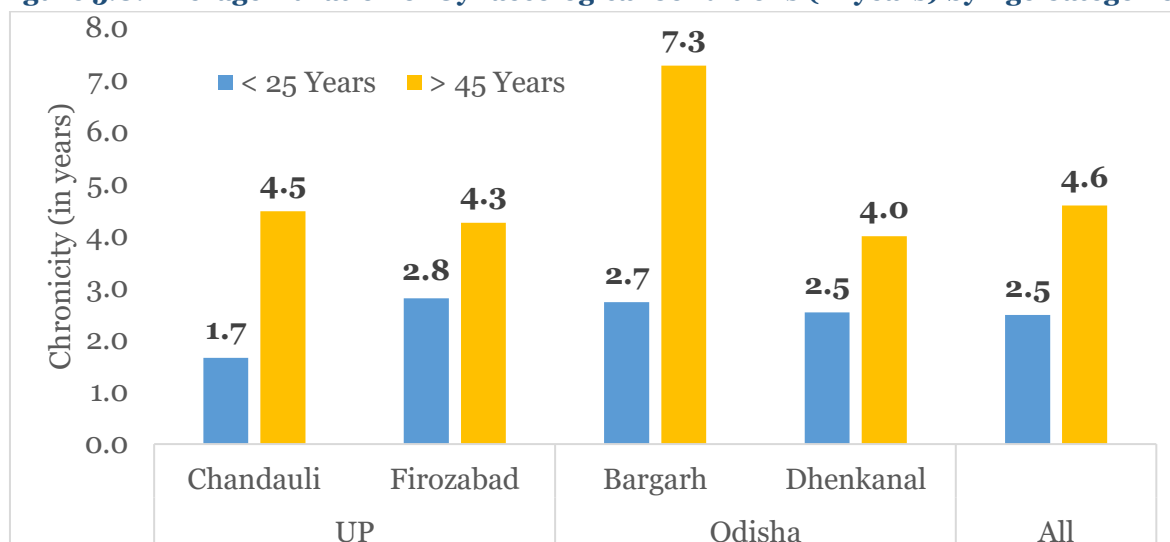


Source: NCAER-Nossal 4IS health survey, 2019.

Appendix 5.1 further elaborates the latest status of women with gynaecological conditions by other socio-demographic variables. The proportion of women not seeking treatment after a flare-up in their gynaecological conditions was slightly higher among women living in the rural areas, unmarried women, and women who were below 25 years of age. There were no other noticeable variations across these socio-demographic dimensions.

### 5.3.2. Length of Time Spent with Gynaecological Problems

The average duration of illness for women below the age of 25 years was as low as 2.5 years whereas the same for women above the age of 45 years was 4.6 years (Figure 5.8). In the lower age group the duration was highest in Firozabad (2.8 years) and Bargarh (2.7 days). In the upper age category average duration of illness ranged between 4.0 to 4.5 years for all the districts barring Bargarh which was an outlier (7.3 years).

**Figure 5.8: Average Duration of Gynaecological Conditions (in years) by Age Categories**

Source: NCAER-Nossal 4IS Health Survey, 2019.

The impact of socio-economic factors on the duration of common gynaecological conditions is not distinctively linear. In the sampled districts, the average duration was 3.4 years, with the lowest duration (2.6 years) recorded in Chandauli, and the highest (3.8 years) in Firozabad. The average duration of common gynecological conditions was lower for unmarried women and also for those living in rural areas (except in the district of Chandauli). The lower duration of illness for unmarried women may be due to their relatively younger age. There are no major variations among social groups (Appendix 5.2).

### 5.3.3. Reasons for Not Seeking Treatment

Table 5.5 highlights the reasons for not seeking treatment among women after a flare-up in their gynaecological conditions. Almost 64 per cent of the women waited for auto-recovery, while 12.9 per cent cited lack of money as the main reason for refraining from seeking treatment. 'Waiting for auto-recovery' was cited as the main reason across four districts, while a higher proportion of women in the two districts of Odisha reported lack of money as a hindrance than in Uttar Pradesh. For 18.6 per cent of the women in Dhenkanal, the highest in all the districts, self-care was also a reason for not seeking treatment. Appendix 5.3 indicates that lack of money was a considerable hurdle for a higher proportion of women living in rural areas, married women, those belonging to the SC/ST population, those with lower levels of education and monthly per capita income, and those from smaller-sized households. A higher proportion of urban women living in urban areas, those who were unmarried, belonging to the OBC/General populations, with higher levels of education and monthly per capita incomes, and belonging smaller-sized households wait for auto-recovery.

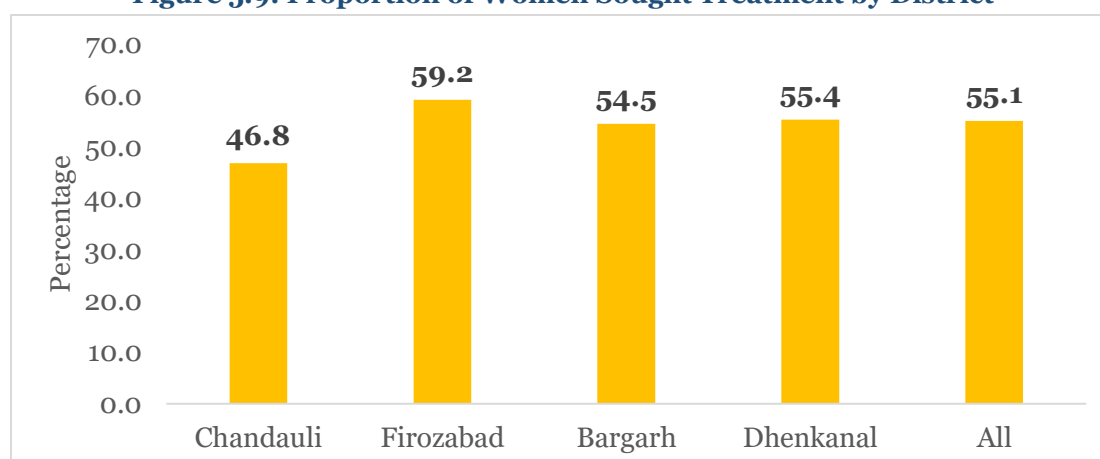
**Table 5.5: Proportion of Women Not Seeking Treatment after a Flare-up during the Preceding One Year by Districts (%)**

	Wait for Auto-recovery	Illness Not Severe Enough	Got Better	Self-care	Not enough Money	Other
All Districts	63.8	10.6	3.6	6.1	12.9	3.0
Chandauli	59.6	14.6	12.9	0.8	8.1	4.2
Firozabad	66.2	14.1	0.4	5.6	9.8	4.0
Bargarh	69.6	5.4	1.7	5.7	17.0	0.5
Dhenkanal	51.3	4.1	0.0	18.6	22.7	3.3

Source: NCAER-Nossal 4IS Health Survey, 2019.

### 5.3.4. Consultation Status after Flare-up

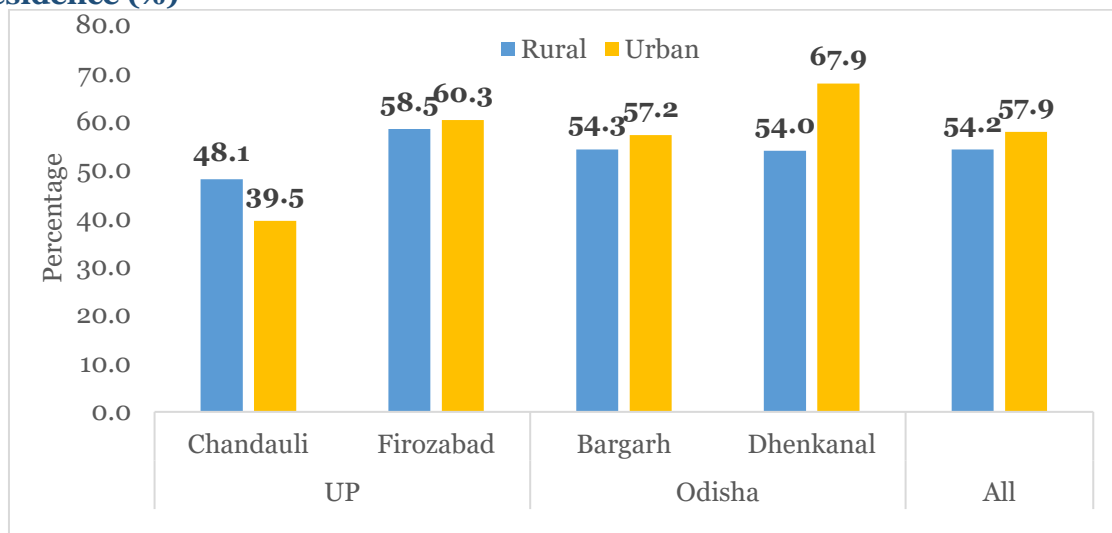
The study also collected data on whether the suffering women sought treatment or not, and the reasons for not seeking treatment cited by them. Figure 5.9 shows the proportion of women seeking treatment after a flare-up in their gynaecological conditions. It may be recalled that 55.1 per cent of the women sought treatment with little inter-district variations, with the lowest proportion (46.8 per cent) being in Chandauli and the highest (59.2 per cent) in Firozabad. Barring Chandauli, a marginally higher proportion of women living in urban areas in the other three districts sought treatment.

**Figure 5.9: Proportion of Women Sought Treatment by District**

Source: NCAER-Nossal 4IS Health Survey, 2019.

Figure 5.10 shows that for the three districts, namely, Firozabad, Bargarh, and Dhenkanal, the proportion of patients seeking treatment was higher among urban as compared to rural patients.

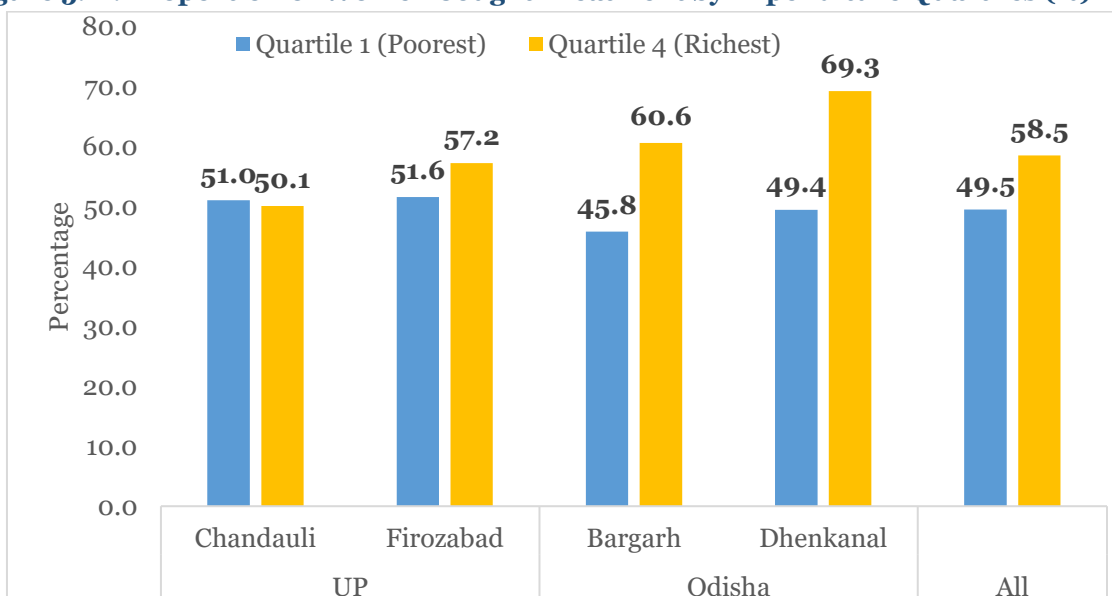
**Figure 5.10: Proportion of Women Sought Treatment by District and Place of Residence (%)**



Source: NCAER-Nossal 4IS Health Survey, 2019.

No differences were observed in the share of patients seeking treatment across the different quartiles in Uttar Pradesh, but the share of patients seeking treatment increased with a rise in monthly per capita expenditure (MPCE) in Odisha (Figure 5.11). Chandauli was an exception in the case of the MPCE quartiles as well (as in the case of place of residence). A slightly higher share (51 per cent) of the poorest women visited a healthcare provider after the flare-up as compared to women belonging to the highest MPCE quartile (50.1 per cent).

**Figure 5.11: Proportion of Women Sought Treatment by Expenditure Quartiles (%)**



Source: NCAER-Nossal 4IS Health Survey, 2019.

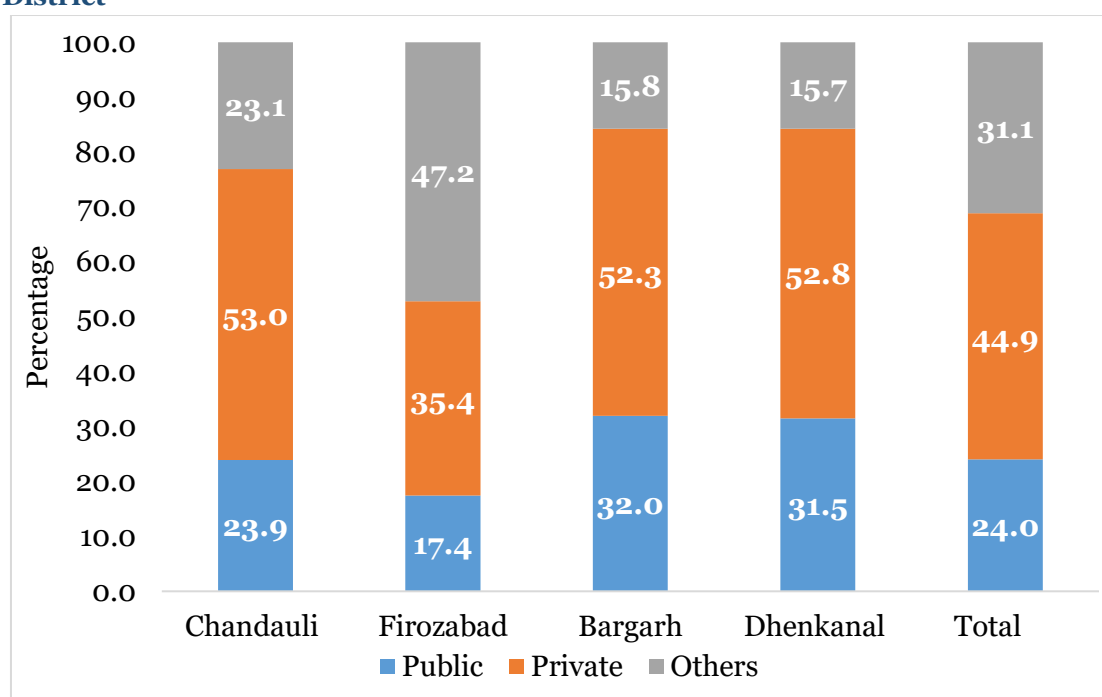
Appendix 5.4 shows the consultation status of women by other socio-economic and demographic variables. The impact of other socio-economic variables is such that

among the women who sought treatment, a larger proportion were those with higher levels of education and monthly per capita incomes, belonging to the OBC/General social groups, and those who were married. The proportion of women seeking treatment increased slightly with age. There was a negligible impact of occupational status and size of the household on the women seeking treatment.

### 5.3.5. Type of Service Provider at the First Consultation

Figure 5.12 shows the type of first health care service provider consulted by the ailing women. A majority of the women (44.9 per cent) consulted private health care providers. The proportion of women visiting public health care providers was higher in Odisha than in Uttar Pradesh. In Firozabad district, the highest proportion of women as well as a significantly large proportion of women among the sampled districts (39 per cent) visited traditional health care providers.

**Figure 5.12: Share of First Source of Treatment by Type of Healthcare Service Provider by District**



Source: NCAER-Nossal 4IS Health Survey, 2019.

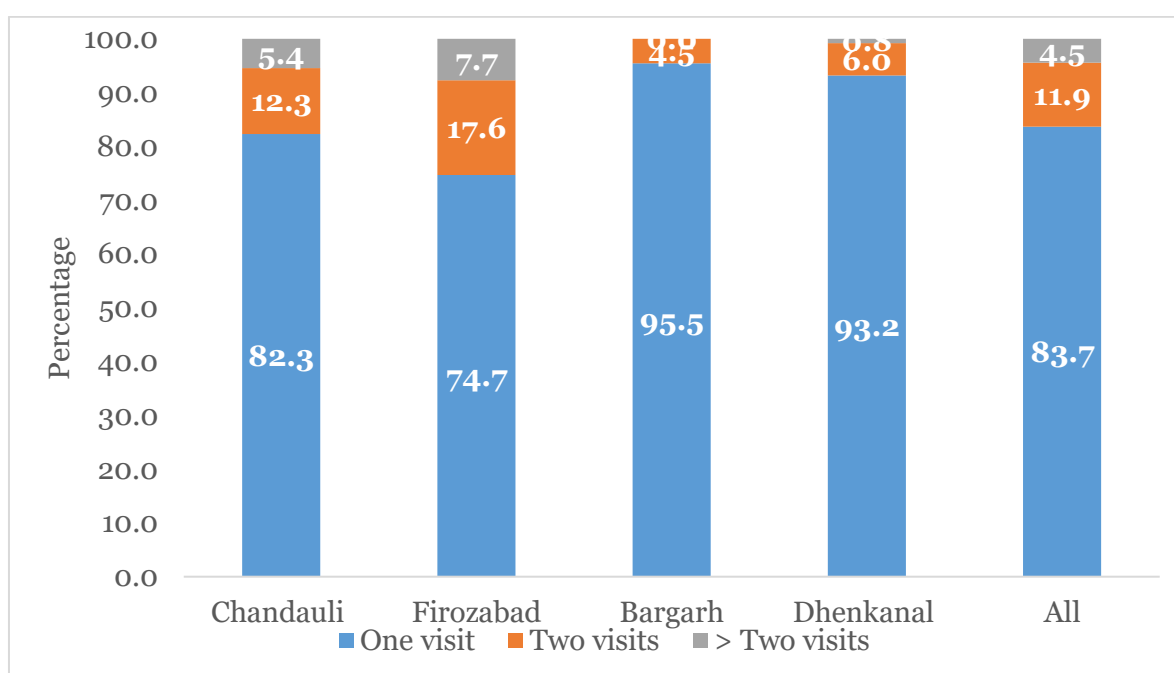
Appendix 5.5 shows proportion of patients who consulted different types of health care providers. A higher proportion of women consulted private health care providers, especially those living in rural areas, who were married, belonged to higher order social groups (OBC/General categories), were more educated, had higher monthly per capita incomes, and fell in the non-working occupational category. With an increase

in age, especially after 45 years, the proportion of women consulting private health care providers declined.

### 5.3.6. Number of Providers Consulted

Figure 5.13 shows the proportion of patients visiting different numbers of health care providers in the four sampled districts. Almost 84 per cent of the treatment-seeking women visited just one health care provider and 11.9 per cent visited two health care providers. Only 0.9 per cent of the women visited four health care providers. A higher proportion of women in the two districts of Odisha visited just one health care provider as compared to the two districts of Uttar Pradesh.

**Figure 5.13: Distribution of Patients by Number of Providers Visited by District**



Source: NCAER-Nossal 4IS Health Survey, 2019.

Appendix 5.6 further elaborates the proportion of women visiting different numbers of health care providers across socio-economic and demographic attributes. A higher proportion of women from rural areas (86.1 per cent) visited just one health care provider than those living in urban areas (76.2 per cent). The proportion of women visiting one health care provider increased with higher levels of education and decreased with a rise in monthly per capita income. A higher proportion of working women or those from smaller households visited just one health care provider. There was negligible influence of the marital status and age of women on their decision regarding the number of health care providers visited.

Table 5.6 shows the average number of health care providers consulted by socio-economic and demographic attributes. The average number of health care providers consulted was 1.2, with the number being slightly lower in the two districts of Odisha (1.1) than the two districts of Uttar Pradesh (1.3). Women living in the rural areas consulted fewer health care providers except in the districts Chandauli and Bargarh. Women with higher monthly per capita incomes consulted a larger number of health care providers, especially in Uttar Pradesh. There was no significant impact of marital status and age of women on the number of health care providers consulted by them.

**Table 5.6: Average Number of Health Care Providers Consulted during the Preceding Last One Year for Treatment by Socio-economic and Demographic Attributes (Numbers)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	Total
All	1.3	1.3	1.1	1.1	1.2
Place of Residence					
Rural	1.3	1.3	1.1	1.1	1.2
Urban	1.1	1.4	1.0	1.1	1.3
Marital Status					
Married	1.2	1.3	1.1	1.1	1.2
Unmarried	1.4	1.4	1.0	1.1	1.2
Age Categories (Years)					
Below 25	1.3	1.3	1.1	1.1	1.2
25-30	1.1	1.4	1.1	1.1	1.0
31-45	1.2	1.3	1.0	1.1	1.2
Above 45	1.5	1.3	1.0	1.0	1.2
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	1.2	1.2	1.1	1.1	1.1
Quartile 2	1.4	1.3	1.0	1.1	1.2
Quartile 3	1.2	1.4	1.1	1.0	1.3
Quartile 4 (Richest)	1.4	1.3	1.1	1.1	1.3

Source: NCAER-Nossal 4IS Health Survey, 2019.

### 5.3.7. Sequencing of Providers

Appendix 5.7 shows the sequencing of providers, that is, the zigzag pattern in the treatment-seeking pathways up to four visits after the women's visits to a particular type of health care. Almost 50 per cent of the women visited private health care providers and only 24 per cent visited public health care providers. About 23 per cent of the women also preferred other types of health care providers. More than 50 per cent of the women visited private providers in all the districts except Firozabad (35.4 per cent). Firozabad recorded the highest proportion (39.5 per cent) of women visiting "Other" types of health care providers. The two districts of Odisha had higher proportions of women visiting public health care providers than those in Uttar Pradesh. In subsequent visits, the women who visited public health care providers and sought further treatment, primarily consulted private health care providers in all the

four sampled districts. The women who consulted private health care providers during their first visit, persisted with them in Odisha, but spread to public, private, and other types of health care providers in Uttar Pradesh. The women who sought treatment from chemists and other types of health care providers also mainly consulted private health care providers during their subsequent visits in all the sampled districts.

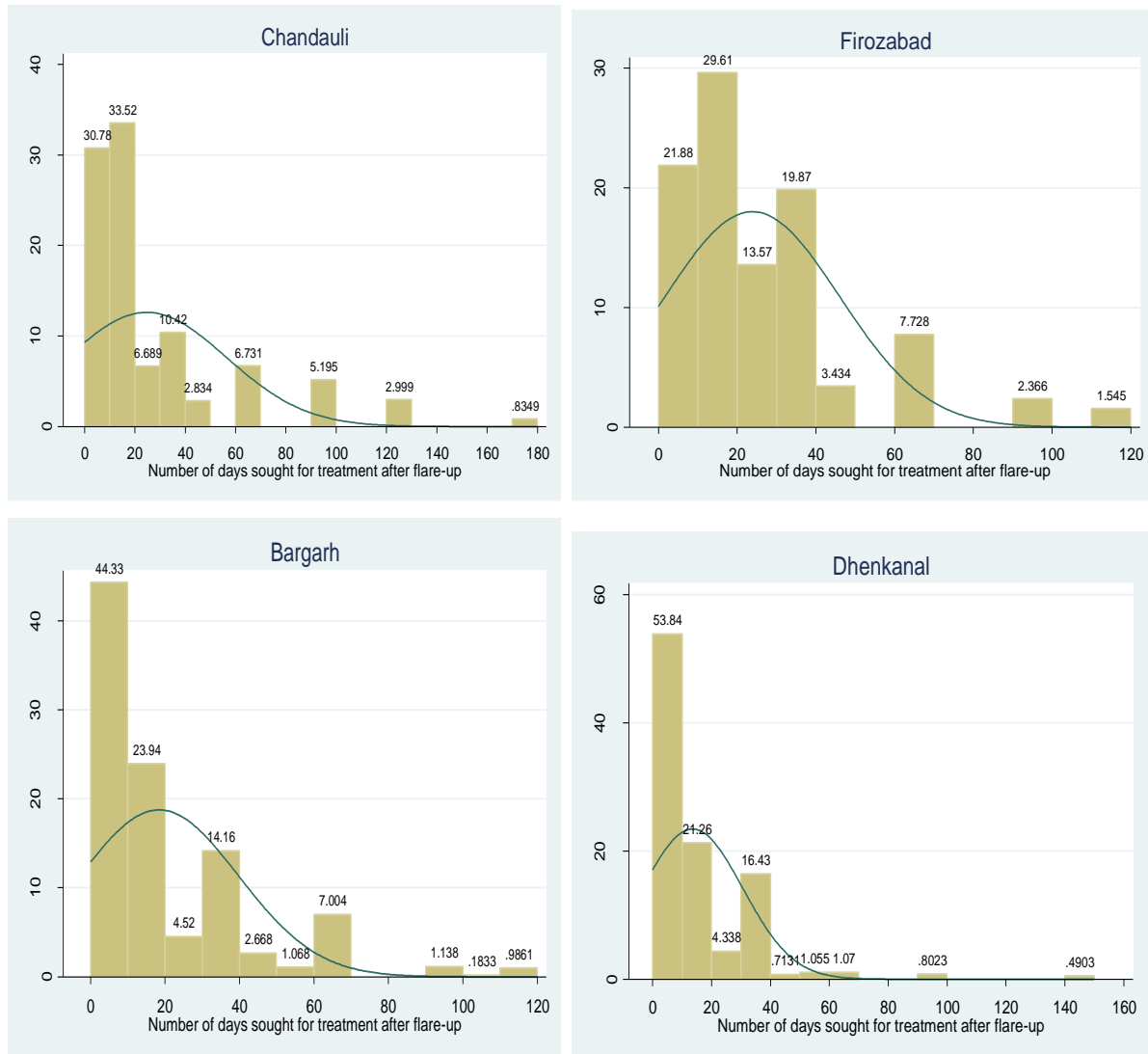
Appendix 5.8 shows the sequencing of visits by socio-economic and demographic attributes. A higher proportion of women living in the rural areas (48.6 per cent) consulted private sector providers than their urban counterparts. Interestingly, a larger proportion of women in the urban areas consulted other types of health care providers than those in the rural areas (30.7 per cent versus 20.8 per cent). A higher proportion of married women consulted private health care providers than unmarried women. The proportion of women consulting private health care providers increased with a rise in MPCE, while correspondingly, the proportion of women consulting public health care providers decreased. There was almost no effect of the MPCE quartiles on the proportion of women consulting “Other” types of health care providers.

### **5.3.8. Time Lag in Seeking Treatment after a Recent Flare-up**

The distribution of time lag in seeking treatment by the number of days taken between the flare-up experienced by the women and when they finally sought treatment is shown in Figure 5.14. In the two districts of Odisha, women sought treatment earlier than their counterparts in the two districts of Uttar Pradesh. The proportion of women seeking treatment within 10 days of the flare-up was 53.8 per cent in Dhenkanal and 44.3 per cent in Bargarh as compared to corresponding figures of 30.8 per cent in Chandauli and 21.9 per cent in Firozabad. The tail of the distribution was longer in the graphs for the two districts of Uttar Pradesh than those for the two districts of Odisha.



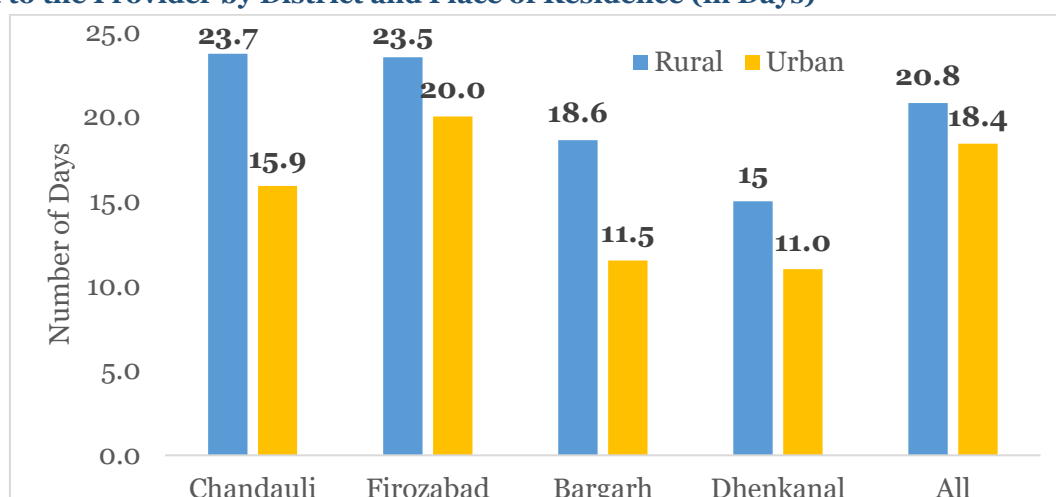
**Figure 5.14: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by District (in Days)**



Source: NCAER-Nossal 4IS Health Survey, 2019.

Figure 5.15 shows the average duration between the flare-up of common gynaecological conditions among the ailing women and treatment sought by them from the first health care provider. On an average, it took 20.2 days for a woman in the four sampled districts to access a health care provider after a flare-up in her gynaecological condition, which renders her immobile at least for a day. The delay was higher in the two districts of Uttar Pradesh than those in Odisha. The women living in urban areas accessed health care providers slightly earlier (18.4 days) than their rural counterparts (20.8 days) in all the sampled districts.

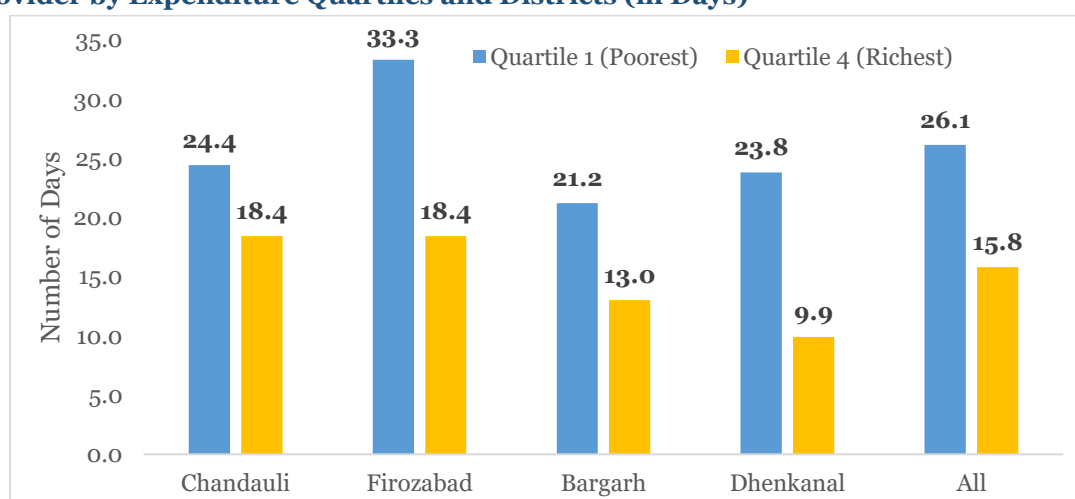
**Figure 5.15: Average Duration between the Beginnings of the Illness Episode and First Visit to the Provider by District and Place of Residence (in Days)**



Source: NCAER-Nossal 4IS Health Survey, 2019.

The level of income has an inverse relationship with the duration of delay in seeking treatment (Figure 5.16). On an average, people falling under the lowest quartile in the four districts took almost ten additional days, with the total amounting to 26.1 days, to seek help as compared to those in the richest category who took 15.8 days to do so. Patients in Uttar Pradesh took longer to seek medical help as compared to those in Odisha across MPCE quartiles.

**Figure 5.16: Average Duration between the Start of the Episode and First Visit to the Provider by Expenditure Quartiles and Districts (in Days)**



Source: NCAER-Nossal 4IS Health Survey, 2019.

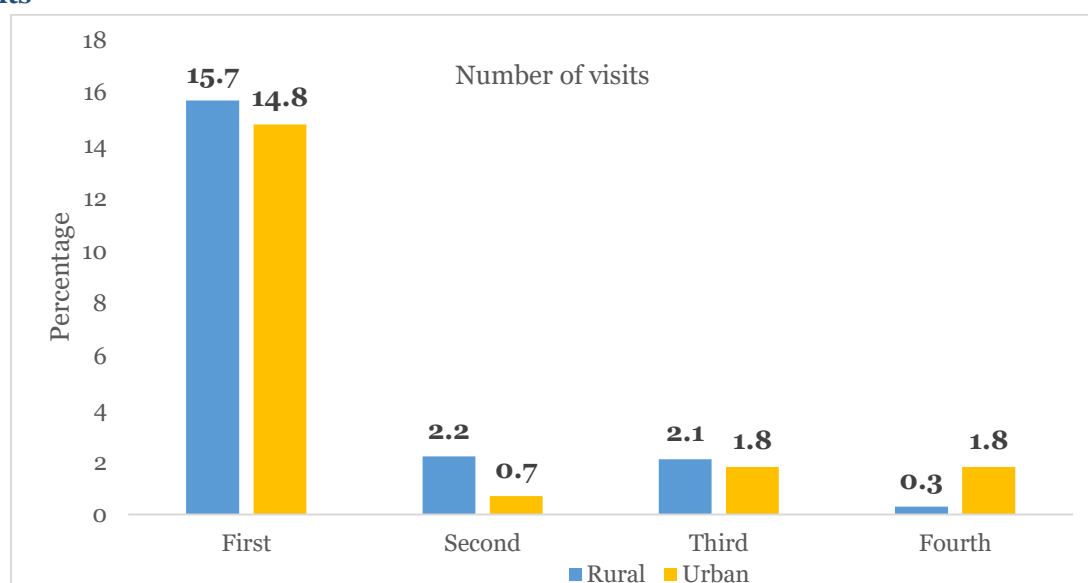
Appendix 5.9 shows that married women, who consulted a health care provider 21.1 days after the first episode of illness, tended to defer seeking treatment longer than their unmarried counterparts, who took 17.5 days to do so. However, the scenario in Dhenkanal was the opposite, with married women taking 13.4 days and unmarried

women taking 17.3 days to visit their health care providers after the first episode of illness, though this district had the lowest figure for the average duration of delay among the sampled districts. The women from SC/ST populations had longer delays (22 days) in seeking treatment in the three districts except Chandauli. Education appeared to influence the health care-seeking behaviour of women in a desired direction. Women with higher levels of education, tended to have shorter delays in seeking health care by a significant margin. While illiterate women had delays of 29.8 days, women with education of higher secondary and above levels had delays of just 10.3 days. The occupational status of women did not influence their delay in seeking care in a significant way, yet working women had shorter delays (18.1 days) as compared to non-working women (20.4 days). Women living in smaller households had shorter delays than those in larger households. The average delay in seeking care appeared to increase with the increasing age of women.

### 5.3.9. Exiting from Treatment

This section highlights the proportion of patients who recovered and hence exited following their first or subsequent visits to the healthcare provider chosen by them.

**Rate of Recovery:** To recall, only 10.6 per cent of the women with gynaecological issues (including all the women, even those who did not seek treatment) recovered. However, among the women who sought treatment, 15.5 per cent recovered after their first visit. The recovery rate fell sharply with extension of the treatment pathways (Figure 5.17). In the first three visits, a higher percentage of rural women recovered as compared to those living in urban areas. However, after the fourth visit, though on an average, fewer patients (0.7 per cent) recovered, the proportion of the recovered women was higher for urban as compared to rural women (1.8 per cent).

**Figure 5.17: Proportion of Patients Recovered by Place of Residence and Number of Visits**


Source: NCAER-Nossal 4IS Health Survey, 2019.

Table 5.7 shows that Chandauli has the highest recovery rate of 17.2 per cent, while Bargarh has the lowest at only 5.2 per cent. Among the women seeking treatment, the highest recovery rate after their first visit was observed in Chandauli (31.8 per cent).

**Table 5.7: Proportion of Patients Who Recovered by the Number of Visits and District**

	Recovery Status after Visiting Health Care Provider				
	First	Second	Third	Fourth	All visits
All	15.5	1.9	2.1	0.7	10.6
<b>Districts</b>					
Chandauli	31.8	3.7	3.7	0.0	17.2
Firozabad	14.3	1.9	2.1	1.0	11.0
Bargarh	7.2	0.6	1.3	0.8	5.2
Dhenkanal	15.8	2.7	1.9	0.0	10.9

Source: NCAER-Nossal 4IS Health Survey, 2019.

Note: The denominator in the above calculation is the total number of persons suffering from chronic respiratory conditions who sought treatment from any health care provider after the flare-up in their health condition.

Appendix 5.10 reveals that there is no prominent effect of place of residence, marital status, social groups, and educational and age categories on the recovery rate of women. The recovery rate increased for women in the highest per capita expenditure quartile as compared to those in the lowest quartile. The women in larger households had a higher recovery rate.

Table 5.8 shows the proportion of patients exiting and switching the treatment after visiting health care providers. After their first visit, 68.6 per cent of the women resorted to self-care or did nothing to address their health problem. The proportion of women doing nothing or resorting to self-care increased with an increase in the number of visits. About 17 percent of the women who sought treatment switched their health care providers after their first visit, while 14.0 per cent persisted with the same type of health care provider. The proportion of women doing nothing or resorting to self-care after their first visit was higher in the two districts of Odisha, at 92.6 per cent in Bargarh and 80.8 per cent in Dhenkanal than in the two districts of Uttar Pradesh, at 55.8 per cent in Chandauli and 53.7 per cent in Firozabad. Although the proportion of women doing nothing or resorting to self-care increased with an increase in the number of visits, the gap between the districts of Odisha and those of Uttar Pradesh, despite narrowing, persisted. The proportion of women who repeated a visit to the same health care provider or switched the provider was higher in the two districts of Uttar Pradesh than in the two districts of Odisha. It may be recalled that the proportion of women consulting public health care providers was higher in Odisha than in Uttar Pradesh.

**Table 5.8: Status (Exiting/Repeating Visit to the Same Healthcare Provider/Switching Healthcare Provider) of Patients after the First and/or Subsequent Visit to the Health Care Provider by Districts (%)**

	After First Visit			After Second Visit			After Third Visit		
	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider
All	68.6	14.5	16.9	84.8	7.7	7.5	91.4	6.3	2.4
<b>Districts</b>									
Chandauli	55.8	20.9	23.2	70.7	14.8	14.5	82.9	10.2	6.9
Firozabad	53.7	20.5	25.9	77.8	10.4	11.8	87.4	9.9	2.7
Bargarh	92.6	3.2	4.2	98.9	1.1	0.0	98.6	0.8	0.7
Dhenkanal	80.8	12.7	6.6	92.6	5.5	1.9	97.7	1.7	0.6

Source: NCAER-Nossal 4IS Health Survey, 2019.

Note: The denominator is the total persons making successive visits to health care providers.

Appendix 5.11 reveals that a higher proportion of women living in rural areas did nothing or resorted to self-care as compared to those living in urban areas. However, a greater proportion of the women from urban areas switched their health care providers. There are negligible variations by marital status, social groups, and occupational status. The proportion of women switching health care providers decreased with rising levels of education. With a rise in monthly per capita expenditure, the proportion of women doing nothing or resorting to self-care decreased and the incidence of switching of the health care provider increased. A higher proportion of women from larger households were found to switch health care

providers. The proportion of women doing nothing or resorting to self-care also decreased with age.

### 5.3.10 Key Findings from Health-seeking Pathway Analysis

This chapter has analysed the status of treatment-seeking by women who suffer from common gynaecological conditions. The other attributes discussed in the chapter relate to the duration of the disease, type and number of provider/s consulted, reasons for not seeking treatment, sequencing of visits to different types of health care providers and exit from treatment-seeking pathways. The salient findings of this chapter are as follows:

- About 55 per cent of the women received treatment from a healthcare provider and 8.5 per cent of the women who sought treatment recovered after their first visit. The percentage of recovered patients fell sharply during subsequent visits. Among the women who did not recover in their first visit, 68.6 per cent did nothing or resorted to self-care/self-medication. The proportion of such women patients increased in subsequent visits, reaching 91.4 per cent after their third visit, and only 8.6 per cent of the women continued taking treatment either from the same health care provider or from a different one.
- Chandauli had the highest proportion (53.2 per cent) and Firozabad the lowest proportion (40.8 per cent) of women who did not seek treatment after a flare-up in their condition. Chandauli also reported the highest (17.2 per cent) proportion of women reporting recovery after a flare-up in their gynaecological conditions whereas Bargarh reported the correspondingly lowest figure of 5.2 per cent.
- The proportion of women not seeking treatment after a flare-up in their gynaecological conditions was slightly higher for women living in the rural areas, unmarried women, and women below 25 years of age.
- The average duration of common gynaecological conditions was lower for unmarried women and also for those living in rural areas (except in the district of Chandauli). In the case of unmarried women, this could be because they were relatively younger than the other women surveyed.
- Among women who did not seek treatment even after experiencing a flare-up in their gynecological condition, almost 64 per cent waited for auto-recovery, while 12.9 per cent cited lack of money as the main reason for not seeking treatment.
- A majority of the women (44.9 per cent) consulted private health care providers for their first consultation. There was a higher preference for public health care providers amongst women in Odisha. Almost 84 per cent of the women who sought treatment visited just one health care provider while 11.9 per cent visited two health care providers. Only 0.9 per cent of the women consulted four health care providers.
- The time lag in seeking treatment was lower in the two districts of Odisha than in the two districts of Uttar Pradesh. It took 20.2 days, on an average, for a woman in

the four sampled districts to access a health care provider after a flare-up in her gynaecological condition that rendered her immobile for at least a day.

- After their first visit, 68.6 per cent of the women did nothing or resorted to self-care while the proportion of such women increased with an increase in the number of visits. A higher proportion of women living in rural areas did nothing or resorted to self-care as compared to those in urban areas.
- A higher proportion of women from urban areas switched their health care provider. There were negligible variations by marital status, social groups, and occupational status.

#### 5.4. Out-of-pocket Spending

Increasing healthcare cost is one of the major public health challenges in low- and middle-income countries like India. In some cases, almost three quarters of the healthcare expenditure is borne by the household itself (Alam and Tyagi 2009). India's health expenditure to GDP ratio constitutes 1 per cent (2015-16) and out-of-pocket (OOP) amounts to 65 per cent, which is among the highest rates globally (WHO 2016; World Bank 2018<sup>12</sup>). This OOP spending has a severe impact on the lower income households as it affects their normal spending patterns and consequently their daily living. Since poor health and chronic ailments among the household members take a heavy toll on the household's OOP expenditure, it often pushes the affected households below the threshold poverty level and towards impoverishment (NSS 2015). Every year, an estimated 32-39 million people fall into poverty because of high healthcare spending and face financial catastrophe (Kastor and Mohanty 2018). As discussed in Chapter One, the health-seeking behaviour is largely shaped by health-related social costs (stigma) and cultural customs in the society (Khanna et al. 2005). The shame of illness, especially among women with gynaecological problems, also adversely affects the patient's willingness to seek treatment, choice of the provider, and decision-making. The stigma associated with illness has an indirect but negative impact on public health (Weiss et al. 2006), leading to a delay in diagnosis and poorer treatment prognosis, thus also proving to be expensive in terms of the treatment eventually sought, as delay may result in failure of preventive measures and increased possibility of other risk factors in chronic conditions (Van Brakel 2006). Women with gynaecological conditions also experience stigma from healthcare workers, and hence, the attitude of the healthcare provider changes the health-seeking behaviour of the patient (Rani and Bonu 2003; Khan and Fatima, 2014; Bhatti & Fikree, 2002). Thus, such women patients mostly either wait for auto recovery, or resort to self-care/self-medication through interaction with the informal healthcare sector.

The extent of disease-specific financial burden due to inpatient or outpatient care is poorly researched in India. Most of the research articles cover OOP expenditure,

<sup>12</sup> Current Health Expenditures. Data, IBRD, IDA; The World Bank, New York (2018); Available at: <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=IN>, Accessed 07-01-2021



catastrophic health expenditure, and impoverishment only for a selected aspect and not for all non-communicable diseases. Therefore, this section of the study attempts to assess OOP expenditure, catastrophic health expenditure, financing strategies to cope with OOP expenditure, and health insurance schemes among households where women were found to suffer from gynaecological ailments in the Chandauli and Firozabad districts of Uttar Pradesh and the Bargarh and Dhenkanal districts of Odisha.

#### 5.4.1. Cost of Treatment

This chapter concentrates on the cost of treatment across the last four visits made by the patient to the healthcare providers, as given in Table 5.9. According to the survey among the four districts, the two districts of Odisha reported a higher total average cost of gynaecological treatment than the two districts of Uttar Pradesh. In Dhenkanal, the same trend was witnessed for both rural and urban areas, but respondents from the urban areas of Chandauli district in Uttar Pradesh reported a higher average treatment cost for the last visit. The treatment cost was higher in rural than in urban areas in all the four districts. The percentage share of OOP expenditure to the total household expenditure was higher in rural areas (1.2 per cent) in comparison to urban areas (0.8 per cent). The Dhenkanal district (2.2% and 2.3%) of Odisha reported the highest percentage share of total and rural OOP expenditure among the four districts, at 2.2 per cent and 2.3 per cent, respectively.

**Table 5.9: Average OOP Expenditure and Its Share in the Total Household Expenditure by District**

Districts	Average Treatment Cost of All the Last Four Visits (in Rs.)			Percentage Share of OOP Expenditure to the Total Household Expenditure		
	Rural	Urban	All	Rural	Urban	All
Chandauli	2487	2219	2454	1.1	0.6	1.0
Firozabad	1677	1431	1574	0.7	0.7	0.7
Bargarh	2661	1744	2582	2.0	1.2	1.9
Dhenkanal	3175	3524	3218	2.3	1.8	2.2
All	2354	1644	2180	1.2	0.8	1.1

Source: NCAER-Nossal 4IS Health Survey, 2019.

In Table 5.10, the share of treatment cost for each visit to the total treatment cost indicates that 87 per cent of the total OOP expenditure was spent on the first visit, followed by 11 per cent on the second visit for all the four districts. The cost incurred during the first visit as compared to the cost incurred on subsequent visits was higher in both the districts of Odisha.

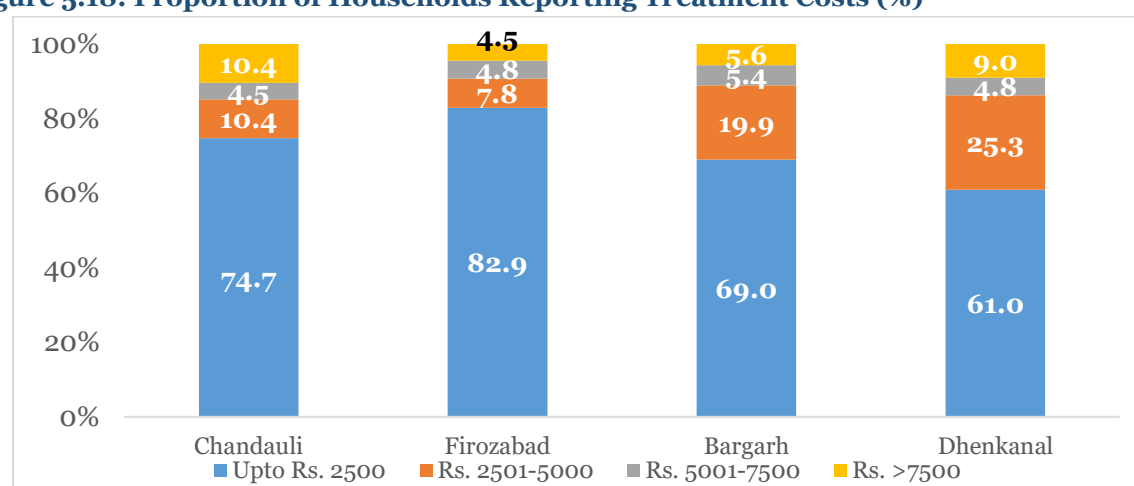


**Table 5.10: Share of Treatment Cost as Percentage of Total Cost by Different Visits**

Districts	Share of Treatment Cost as a Percentage to the Total Cost by Different Visits			
	1 <sup>st</sup> Visit	2 <sup>nd</sup> Visit	3 <sup>rd</sup> Visit	4 <sup>th</sup> Visit
Chandauli	82.3	13.4	3.0	1.3
Firozabad	74.9	21.3	2.3	1.5
Bargarh	97.2	2.8	0.0	0.0
Dhenkanal	93.3	5.6	1.1	0.0
All	86.5	11.2	1.5	0.7

Source: NCAER-Nossal 4IS Health Survey, 2019.

Figure 5.18 shows that patients in the Chandauli district of Uttar Pradesh and the Dhenkanal district of Odisha were spending more on the treatment of their gynaecological problems than their counterparts in the other two districts. With the distribution of associated treatment costs, both the districts of Uttar Pradesh showed a higher proportion of low-cost treatment (up to Rs. 2,500) as compared to the other districts of Odisha. It was found that 75 per cent and 83 per cent of the households in the Chandauli and Firozabad districts of Uttar Pradesh, respectively, spent, on an average, Rs. 2,500 for their treatment, whereas 10 per cent of the households in Chandauli and 9 per cent in Dhenkanal reported higher OOP expenditure on healthcare treatment.

**Figure 5.18: Proportion of Households Reporting Treatment Costs (%)**


Source: NCAER-Nossal 4IS Health Survey, 2019.

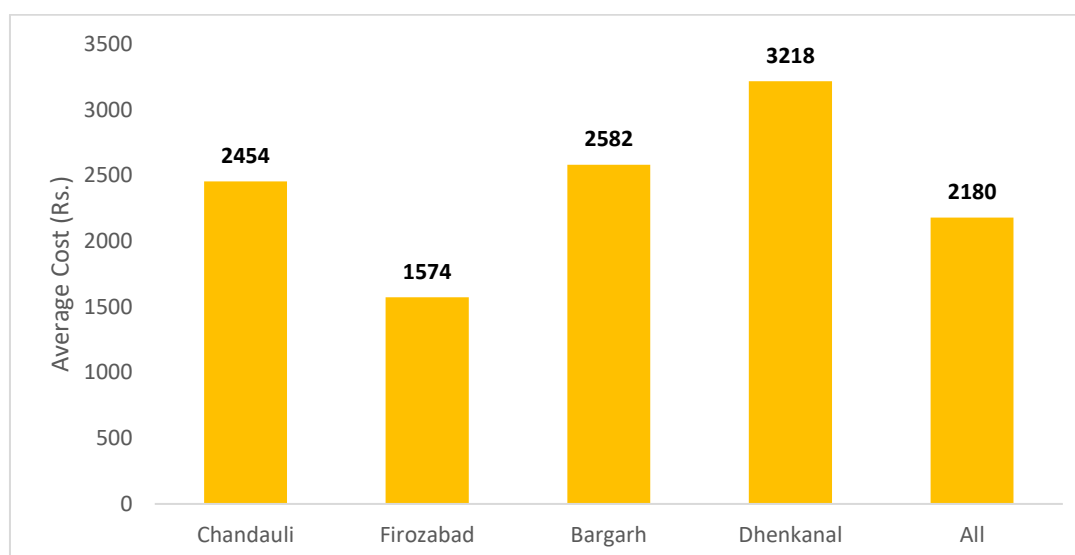
The average cost of treatment for all the four episodes of visits to the healthcare providers across different patients and household backgrounds, including the type of provider, has been discussed below (see Figure 5.19). The total average cost of treatment was highest in Dhenkanal district, followed by the Bargarh, Chandauli, and Firozabad districts. Appendix 5.12 shows that, except for Bargarh, with an increase in age, that is, in women patients above 45 years of age, the treatment of gynaecological problems led to higher OOP expenditure in all the districts. The level of awareness about gynaecological health was lower among women below 18 years of age as

compared to their older counterparts (Singh et al. 2019). In this case too, apart from the Bargarh district of Odisha, all the other districts shows accelerated average treatment costs.

An analysis of the cost of treatment over occupation categories shows that the average costs were higher for the non-worker group than for working women in all the districts except Dhenkanal. This analysis also shows that except for Dhenkanal, the average cost of treatment was lower among the OBC and General categories than among the SC/ST social groups. An examination of the average cost of treatment across the per capita quartiles highlighted an increase in treatment costs with a rise in household expenditure except in Bargarh district, which shows that households belonging to the Quartile 3 wealth category were spending more on healthcare providers. As regards the total of all the districts, for the education category, patients having attained higher education (Higher Secondary+) sought more help from the healthcare provider, and hence, the average treatment costs also increased. The prevalence of reproductive tract infection and vaginal discharge was lower among educated women and those who had knowledge of their ailment than among illiterate women (Guntoory et al. 2017; Singh 2019).

Households with more than five members incurred lower treatment costs as compared to households with a maximum of five members. The reason for this finding could be that with an increase in the number of household members, the probability of according importance to the health of the each family member decreases.

The average cost of treatment was observed to be higher in private healthcare facilities than in public ones. Women incurred substantial costs on drugs, travel, and indirect costs when they sought healthcare treatment from public or private health institutions (Rani and Bonu 2003; Bhatia et al. 1997).

**Figure 5.19: Average Cost of Treatment for All the Four Visits (in Rs.)**

Source: NCAER-Nossal 4IS Health Survey, 2019.

The distribution of total treatment costs according to the type of providers, as depicted in Table 5.11, shows that the share of treatment costs incurred on consultation with private health care providers was about 70 per cent. The districts of Dhenkanal (77 per cent), followed by Chandauli (76 per cent), reported higher shares of spending on gynaecological treatment, especially in the private health sector.

**Table 5.11: Distribution of Treatment Expenses by the Type of Provider and District**

Districts	Public	Private	Chemist	Traditional/Other	All
Chandauli	14.8	75.9	2.1	6.4	0.8
Firozabad	24.6	64.4	2.7	8.3	0.0
Bargarh	26.9	67.9	0.6	4.6	0.0
Dhenkanal	19.9	76.6	0.6	2.8	0.2
All	22.7	69.7	1.6	5.8	0.2

Source: NCAER-Nossal 4IS Health Survey, 2019.

#### 5.4.2. Catastrophic Health Expenditure Estimates

Table 5.12 provides an overview of Catastrophic Health Expenditure (CHE) for the first treatment across the four districts of Uttar Pradesh and Odisha. The CHE has been analysed with respect to the total household expenditure. In total, around 6.4 per cent of the households were spending more than 10 per cent of the total household expenditure on the first treatment for gynaecological problems among women and 7.1 per cent of the total treatment cost incurred on all four visits to the health care providers. Bargarh reported the highest percentage cost incurred on the first visit (12.2 per cent) and the total (12.8 per cent) treatment cost, and Firozabad reported the lowest corresponding figures, at 1.6 and 2.4 per cent, respectively.

Women from rural households spent more on their first visits (8.2 per cent of the total) and on the total treatment (9 per cent) including all the four visits. It is evident that women belonging to smaller households, and the SC/ST social groups, and those from the poorest background were more likely to incur higher first and total treatment costs (Appendix 5.13).

**Table 5.12: Share of Households Spending More Than 10% of the Total Expenses on Treatment by Districts**

	On First Treatment Cost (% Households)	On Total Treatment Cost (% Households)
All	6.4	7.1
Districts		
Chandauli	7.0	7.3
Firozabad	1.6	2.4
Bargarh	12.2	12.8
Dhenkanal	11.3	11.9

Source: NCAER-Nossal 4IS Health Survey, 2019.

As regards the total non-food household expenditure, around 13.4 per cent and 15.6 per cent of the households spent more than 10 per cent of the total household non-food expenditure on treatment during both the first and total visits, respectively (Table 5.13). The proportion of households spending more than 10 per cent of their total non-food expenditure on treatment was higher for the households in Bargarh district as compared to the other districts.

Appendix 5.14 shows that rural and SC/ST households, background, with up to five members, from the first and second economic quartiles also spent more than 10 per cent of their total household non-food expenditure on treatment costs for both the first and total visits to the healthcare provider, respectively. With an increase in the number of visits for gynaecological treatment, the proportion of health expenditure to total the household expenditure also increased for each and every socio-economic parameter.

**Table 5.13: Percentage of Households Spent on Treatment as a Percentage of the Total Household Non-food Expenditure by First visit and All Four Visits**

Background Characteristics	Percentage Households Spend on Treatment of the First Visit at Different Threshold Levels				Percentage Households Spend on Treatment of all the Four Visits at Different Threshold Levels			
	Catastrophic Thresholds				Catastrophic Thresholds			
	>10%	>20%	>30%	>40%	>10%	>20%	>30%	>40%
All	13.4	5.7	3.3	2.0	15.6	6.3	3.7	2.6
Districts								
Chandauli	13.8	7.1	3.2	0.9	16.6	7.9	4.1	3.1
Firozabad	3.2	0.9	0.6	0.6	5.9	1.8	1.0	0.6
Bargarh	25.9	10.6	7.1	4.4	26.5	10.5	7.1	5.0
Dhenkanal	23.3	11.3	5.2	3.8	26.3	12.0	6.1	4.3

Source: NCAER-Nossal 4IS Health Survey, 2019.

### 5.4.3. Financing Strategies

Lack of health insurance compels households to resort to multiple coping options, especially in the form of informal mechanisms such as borrowing from moneylenders or from random sources, thereby dragging the household into financial indebtedness (Morduch 1995; Kruk et al. 2009). Distress financing of healthcare expenditure entails borrowing and selling of household assets that accelerates financial suffering, changes in the consumption patterns of the household members and loss of income (Sangar et al. 2020; Joe 2015; Dilip and Duggal 2002).

Table 5.14 portrays information on the financing strategies used by households to meet their treatment costs. Around 88 per cent of the households were found to be dependent on their household savings, followed by borrowing from relatives/moneylenders/healthcare provider due to their low insurance coverage.

Households in Firozabad showed a higher incidence of using savings (89 per cent), while those in Chandauli showed the lowest (76 per cent). Less than 2 per cent of the households used insurance as a mode of meeting the treatment cost for their gynaecological ailments.

**Table 5.14: Financing Strategies to Meet Treatment Costs (% Households) by District**

Districts	Savings	Borrowed (from Relatives/Moneylender /Health Care Provider)	Insurance	Others (Sale Jewellery/Property; Other)
Chandauli	75.9	20.0	1.6	2.5
Firozabad	95.2	3.7	0.3	0.8
Bargarh	89.2	10.4	0.0	0.4
Dhenkanal	80.3	18.4	0.0	1.3
<b>All</b>	<b>88.1</b>	<b>10.5</b>	<b>0.4</b>	<b>1.0</b>

Source: NCAER-Nossal 4IS Health Survey, 2019.

**Health Insurance:** The concept of Universal Health Coverage (UHC) arose out of global concern for OOP expenditure, especially in developing countries, to provide “Health for All”. Despite this broad vision, at the unit level, it has depended on State-funded insurance schemes and has not focused on improving the health quality and equity aspects. The dichotomy resulting from uneven distribution of insurance enrolment in rural and urban areas has led to major questions on the usage of these insurance schemes in times of need (Jehu-Appiah et al. 2011; Acharya et al. 2012). Poor coverage of health insurance and adoption of distress financial strategies by households that incur OOP spending can push them into catastrophic situations and impoverishment (Dilip and Duggal 2002).

Our survey shows that almost half of the total households in Odisha were covered under health insurance schemes, such as Rashtriya Swasthya Bima Yojana (RSBY)/Arogyashri/Biju Swasthya Kalyan Yojana (BSKY), whereas a majority of the households in Uttar Pradesh had no insurance (Table 5.15). The main reason for this could be that the Odisha government’s decision to use health insurance schemes such as BSKY) and RSBY for providing free health services to everyone, irrespective of

economic status, social group, and residence from the sub-centre level to the district headquarter hospital level, with annual health coverage of Rs. 5 lakh per family and Rs. 7 lakh for women members of the family.

Overall, about 19 per cent of the households in all the four districts reported being covered under RSBY/Arogyashri/BSKY, and 76 per cent had no insurance, while almost 100 per cent of the households were not covered under any insurance scheme in both the districts of Uttar Pradesh. The government insurance schemes including the Central Government Health Scheme (CGHS) and Employee State Insurance (ESI) covered 4 per cent of the households whereas the extent of private insurance coverage was around 2 per cent in all the four districts. While poorer households were covered more under the RSBY/Arogyashri/BSKY schemes, richer households were subsidised by government and private health insurance schemes.

**Table 5.15: Type of Health Insurance Coverage by Districts and Per Capita Expenditure Quartile (% Households)**

	Private	Government	RSBY/Arogyashri/BSKY	No Insurance	All
All	1.8	3.9	18.7	75.6	100.0
Districts					
Chandauli	0.0	0.8	0.4	98.8	100.0
Firozabad	1.4	4.7	3.0	90.9	100.0
Bargarh	3.2	3.6	43.3	49.9	100.0
Dhenkanal	3.4	7.1	48.5	41.1	100.0
Per Capita Expenditure Quartile					
Quartile1	0.5	0.7	25.2	73.6	100.0
Quartile2	1.8	2.3	23.8	72.1	100.0
Quartile3	2.2	5.3	14.3	78.2	100.0
Quartile4	2.8	7.3	11.5	78.4	100.0

Source: NCAER-Nossal 4IS Health Survey, 2019.

#### 5.4.4. Salient Findings from Analysis of OOP Spending

The treatment cost was higher in rural than in urban areas in all the four districts. The percentage share of OOP expenditure to the total household expenditure was higher in rural areas (1.2 per cent) in comparison to urban areas (0.8 per cent). Among all the four districts, the Dhenkanal district of Odisha reported the highest percentage share of the total and rural OOP expenditures of 2.2 per cent and 2.3 per cent, respectively. Following are some of the other salient findings emerging from the analysis of the OOP spending by households in the four districts under study:

- The distribution of the total treatment costs according to the type of providers displayed showed that the private share of treatment costs was about 70 per cent. Dhenkanal (77 per cent), followed by Chandauli (76 per cent), reported a higher share of spending on gynaecological treatment, especially in the private health sector.

- Around 6.4 per cent of the households were spending more than 10 per cent of the total household expenditure on the first treatment for gynaecological problems among women, and 7.1 per cent of the total treatment cost incurred on all the four visits to health care providers. Bargarh reported the highest percentage cost on the first visit (12.2 per cent) and the total treatment cost (12.8 per cent) while Firozabad correspondingly reported the lowest.
- Around 88 per cent of the households were dependent on their household savings, followed by borrowings from relatives/moneylenders/healthcare provider for medical expenses due to their low insurance coverage.
- Almost half of the total households in Odisha were covered under various health insurance schemes, including RSBY, Arogyashri, and BSKY) as compared to a negligible number in Uttar Pradesh. The main reason for this was the widespread implementation of these schemes by the Odisha government for households in the State.

### 5.5. Factors Influencing Provider Choice

The growing demand for healthcare utilisation, accelerated costs of treatment, availability of limited resources, and varied clinical practices with the aim of optimising patient care have increased the interest of researchers in quantifying and improvising the quality of care especially in developing countries. It is quite difficult to define 'quality' as it is subjective, intangible, heterogeneous, and immeasurable (Taylor and Cronin, 1994; Tucker and Adams, 2001; Walter and Jones, 2001). According to the World Health Organisation, quality of care can be defined as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes. It is based on evidence-based professional knowledge and is critical for achieving universal health coverage."<sup>13</sup> As the goal of achieving 'Health for All' proceeds, it is important to value the quality of health services. WHO suggests three key components for quality of care in their conceptual framework- Effectiveness, Safety, and Public-centred, which will help the patients with health services benefits like reducing waiting time (Timely), providing same health facilities irrespective of gender, ethnicity, geographical location, and socio-economic backgrounds (Equitable), and integration of health services and maximising the benefits of available resources with less wastage (Efficiency). The Sustainable Development Goals (SDGs) of the UN lay stress on the quality of healthcare to achieve Universal Health Coverage (UHC), where every year 5.7-8.4 million deaths occur in low- and middle-income countries due to the poor quality of health services and under-utilisation of the health system (WHO 2020). In an Iranian study model, the main attributes of the quality of care were conceptualised as Tangible and Intangible, within which Environment was tangible, and empathy, efficiency, effectiveness, and efficacy were seen as the intangible impacts the dimensions of quality of care (Mosadeghrad 2012).

<sup>13</sup> [https://www.who.int/health-topics/quality-of-care#tab=tab\\_1](https://www.who.int/health-topics/quality-of-care#tab=tab_1) Accessed on 1 March 2021.



Improvement in the quality of healthcare services, affordable cost of treatment, and increase in productivity will enhance the institutional and organisational performance of the health system and will satisfy its long-term demand–supply relationships (Parasuraman et al. 1985; Rohlin et al. 2002; Snoj and Mumel 2002; Lee et al. 2006; Corbin and Strauss; 2014). Researchers opine that the actual improvement happens with the involvement of the patients’ perceptions, which impact the patients’ health-seeking behaviour, and their choice of healthcare providers, including the utilisation of services, issues that are relatable to them, enabling the possibilities to meet their expectations, and providing information to the government and policymakers to bring about improvements for the future (Sharma and Narang, 2011).

This chapter assesses the perception of women suffering from gynaecological problems about the quality of healthcare services in both the urban and rural areas of four districts in Uttar Pradesh and Odisha, and the perceived knowledge of women regarding their menstrual health issues. Their treatment-seeking behaviour and the respective health service quality can be analysed through multiple quantitative indicators, including the perceived reasons for choosing the healthcare service provider.

### 5.5.1. Evaluation of Health Care Service

The first sub-section in this section discusses the quality of care during the first visit. The type of providers has been classified as Public, Private, and Others. In our study, the information that has been collected depicts the perceptions of women suffering from chronic gynaecological problems and their choices in seeking treatment. Table 5.16 depicts the experiences and understanding of the healthcare services by respondents, with relatively fewer respondents categorising both public and private facilities as ‘excellent’ or ‘poor’. Most patients are satisfied with both types of healthcare facilities and have described 89 per cent of the public and 84 per cent of the private facilities as ‘Good service’. A higher proportion of the respondents in the districts of Dhenkanal (91 per cent) and Firozabad (88 per cent) reported satisfaction with public health care services whereas, out of all the districts, patients from Bargarh rated the quality of both public and private health facilities as ‘good’. A relatively higher proportion of respondents had a poor opinion of the quality of services provided by the public providers (4.7 per cent), on the whole, and in Dhenkanal (8 per cent) and Chandauli (7.2 per cent) at the district level.



**Table 5.16: Respondent Ratings of Public and Private Providers by District (% Households)**

Districts	Excellent		Good		Poor	
	Public	Private	Public	Private	Public	Private
Chandauli	8.9	8.8	79.2	79.2	7.2	1.7
Firozabad	10.6	18.9	87.8	78.3	1.6	2.9
Bargarh	0.0	3.5	94.9	95.3	5.1	1.2
Dhenkanal	1.5	10.2	90.6	83.4	7.9	5.0
Total	5.2	11.0	89.3	84.4	4.7	2.4

Source: NCAER-Nossal 4IS Health Survey, 2019.

### 5.5.2. Factors Determining the Choice of Health Facilities

In this section, the reasons for the choice of health care provider have been categorised as: ‘proximity’, ‘good reputation’, ‘inexpensive’, ‘good personal experience’, ‘qualification of staff’, ‘relatives/friends work there’, and ‘recommended by relatives’.

The results presented in Appendix 5.15 reveal that there were no overwhelmingly compelling factors for choosing healthcare providers. For instance, the most important factors were the good reputation and proximity of the healthcare facility, but the proportions of respondents who rated them as important were only 53.1 per cent and 50.1 per cent, respectively.

An assessment of the data by the type of health care facilities showed that in case of those who preferred public facilities, 78.7 per cent considered the qualification of staff, 60.6 per cent factored in the reputation of the facility, while 53.4 per cent chose it for its inexpensiveness. In choosing private facilities, a majority of the 65.1 per cent of the respondents cited the reputation of the healthcare facility as the key determining factor. Among those who chose “other” facilities, proximity to the health care facility (55 per cent) and its inexpensiveness (52.8 per cent) were rated as the important factors affecting their choice.

The district-wise findings revealed that for respondents in Chandauli, the reputation of the facility (66.8 per cent) and proximity (59.4 per cent) were the two most popular considerations. A little more than half of the respondents in Firozabad said that inexpensiveness was a key consideration for them. For the respondents in Bargarh, the reputation of the facility (69.8 per cent), proximity (58.3 per cent), qualification of the staff (51.5 per cent), and (good) personal experience (50.2 per cent) were the key deciding factors. Finally, for 67.5 per cent of the respondents in Dhenkanal, the reputation of the facility was a major consideration in their choice.

The respondents from Firozabad also considered factors such as the availability of drugs as important while choosing public health facilities (57.1 per cent). Having relatives/friends working in the facility and/or the recommendations of relatives were not important deciding factors for a large proportion of the respondents.

### 5.5.3. Salient Findings from Analysis of the Quality of Health Care Facilities

This section captures the quality of health care services based on the patients' experiences regarding the perceived quality of care and the key factors affecting their choice of health care facilities. Following are the key results in this context:

- Relatively fewer respondents categorised both public and private facilities as “excellent” or “poor”. Most patients were satisfied with both types of healthcare facilities and a majority of the respondents perceived 89 per cent of the public and 84 per cent of the private facilities as offering a ‘good service’.
- Across all the districts, 65 per cent of the respondents preferred private healthcare providers for their good reputation, with the corresponding figure for public facilities being 61 per cent.
- Around 55 per cent of the patients preferred the ‘Other’ category of healthcare providers due to the proximity of the latter from their homes.
- About 79 per cent of the patients across all the districts opted for public healthcare facilities because of the higher qualification of the health care staff in these facilities. However, the response rate for this preference was lower among patients in Firozabad and Chandauli.
- Public facilities were preferred more due to their affordability, proximity to the residence of the respondent, and good reputation.
- The preferences for public and private facilities were not drastically different from each other in overall estimation, but patients from Bargarh of Odisha preferred private facilities for good personal experience.
- Having friends/relatives working in the facility and the recommendation of relatives did not have any significant influence on the patients' healthcare-seeking behaviour across the four districts.

## APPENDICES

## Appendix 5.1: Status of Treatment after the Fourth Visits-All sample (1,738)

	No Treatment	Recovered	Nothing	Self-care	Repeat Visit	Sought Different Provider	Total
All	44.9	10.6	24.3	16.3	2.8	1.1	100.0
Place of Residence							
Rural	45.8	10.6	25.6	14.7	2.5	0.8	100.0
Urban	42.1	10.6	20.2	21.6	3.7	1.8	100.0
Marital Status							
Married	42.3	11.0	25.8	16.2	3.5	1.1	100.0
Unmarried	51.8	9.5	20.4	16.4	1.0	0.9	100.0
Age Categories (Years)							
Below 25	48.8	10.4	24.6	14.1	1.1	1.0	100.0
25-30	42.3	9.3	23.0	19.9	3.6	1.9	100.0
31-45	43.8	11.7	24.3	16.1	3.6	0.6	100.0
Above 45	43.1	11.2	31.3	10.4	3.9	0.0	100.0

Source: NCAER-Nossal 4IS Health Survey, 2019.

## Appendix 5.2: Average Duration of Common Gynaecological Conditions (in Years)

	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
All	2.6	3.8	3.6	3.4	3.4
Place of Residence					
Rural	2.6	3.6	3.5	3.5	3.3
Urban	2.4	4.0	3.8	3.4	3.8
Marital Status					
Married	3.0	4.0	4.0	3.7	3.8
Unmarried	1.6	3.0	2.7	2.9	2.6
Social Groups					
SC/ST	2.7	4.2	3.7	3.2	3.5
OBC/General	2.5	3.6	3.5	3.6	3.4

Source: NCAER-Nossal 4IS Health Survey, 2019.

**Appendix 5.3: Proportion of Women Not Seeking Treatment after a Flare-up during the Preceding One Year by Socio-economic and Demographic Attributes (%)**

	Waiting for Auto-recovery	Illness Not Severe Enough	Got Better	Self-care	Not Enough Money	Other
All	63.8	10.6	3.6	6.1	12.9	3.0
Place of Residence						
Rural	62.2	10.6	3.9	5.8	14.5	3.0
Urban	69.4	10.7	2.6	7.2	7.2	3.0
Marital Status						
Married	60.5	11.8	3.6	5.7	15.2	3.2
Unmarried	71.0	8.1	3.5	7.0	8.0	2.5
Social Groups						
SC/ST	56.5	13.0	4.9	4.5	19.8	1.4
OBC/General	68.2	9.2	2.8	7.0	8.8	3.9
Educational Categories						
Illiterate	61.3	13.2	2.7	4.6	15.7	2.4
Matric	64.2	8.9	3.8	5.8	13.9	3.4
Higher Secondary+	66.1	12.9	3.8	8.9	5.8	2.5
Occupational Categories						
Worker	66.5	11.3	0.0	7.6	11.7	3.0
Non-worker	63.6	10.6	3.9	6.0	13.0	3.0
Monthly Per Capita Expenditure Quartiles						
Quartile 1 (Poorest)	58.2	9.5	6.8	5.7	16.2	3.6
Quartile 2	61.8	8.8	2.5	8.4	16.5	2.0
Quartile 3	67.5	11.9	2.6	5.8	8.8	3.4
Quartile 4 (Richest)	68.6	12.6	2.0	4.4	9.7	2.8
Household Size						
Up to 5 Members	64.5	8.7	2.6	6.9	15.3	2.0
More than 5 Members	62.9	13.2	5.0	5.0	9.7	4.3
Age Categories (Years)						
Below 25	70.4	7.7	5.1	6.5	7.0	3.3
25-30	59.3	13.1	2.2	6.9	15.5	3.1
31-45	60.0	11.1	3.1	4.9	18.0	2.9
Above 45	69.9	16.1	4.0	8.5	1.5	0.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.4: Proportion of Women with a Flare-up Who Sought Treatment during the Preceding One Year by Socio-economic And Demographic Attributes (%)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	Total
All	46.8	59.2	54.5	55.4	55.1
Place of Residence					
Rural	48.1	58.5	54.3	54.0	54.2
Urban	39.5	60.3	57.2	67.9	57.9
Marital Status					
Married	50.0	59.4	60.8	57.7	57.7
Unmarried	38.5	58.8	42.2	50.0	48.2
Social Groups					
SC/ST	43.4	58.4	52.5	42.7	51.0
OBC/General	49.5	59.5	56.0	61.0	57.2
Educational Categories					
Illiterate	53.8	54.6	48.7	49.6	53.7
Up to Matric	41.5	60.3	55.3	54.5	54.3
Higher Secondary+	51.2	65.3	53.3	61.6	59.0
Occupational Categories					
Worker	54.7	56.2	55.8	60.1	56.2
Non-worker	46.6	59.6	54.4	55.1	55.0
Monthly Per capita Expenditure					
Quartiles					
Quartile 1 (Poorest)	51.0	51.6	45.8	49.4	49.5
Quartile 2	38.6	68.1	53.3	39.3	54.6
Quartile 3	44.8	58.8	60.7	64.2	57.4
Quartile 4 (Richest)	50.1	57.2	60.6	69.3	58.5
Household Size					
Up to 5 Members	48.8	58.6	56.5	54.4	55.8
More than 5 Members	45.6	59.7	41.6	61.4	54.1
Age Categories (Years)					
Below 25	44.6	55.2	50.6	54.7	51.2
25-30	47.2	61.1	58.3	54.8	57.7
31-45	48.5	60.9	54.5	55.9	56.2
Above 45	50.3	55.4	77.0	58.8	56.9

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.5: Proportion of Patients Who Received First Treatment by Type of Healthcare Service Provider during the Preceding One Year by Socio-Economic and Demographic Attributes (%)**

	Public	Private	Chemist	Traditional	Other
All	24.0	44.6	7.9	22.3	0.9
Place of Residence					
Rural	23.2	48.6	7.4	19.6	1.2
Urban	26.5	33.3	9.5	30.7	0.0
Marital Status					
Married	23.5	47.0	7.3	21.5	0.6
Unmarried	25.7	38.1	9.7	24.6	1.8
Social Groups					
SC/ST	34.0	39.0	6.8	19.1	1.0
OBC/General	19.4	47.5	8.4	23.7	0.9
Educational Categories					
Illiterate	16.0	44.1	11.1	28.9	0.0
Matric	28.7	43.8	5.5	20.4	1.7
Higher Secondary+	20.2	48.6	11.1	20.2	0.0
Occupational Categories					
Worker	25.3	36.7	6.6	30.7	0.8
Non-worker	23.9	45.5	8.0	21.6	0.9
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	30.5	35.5	11.8	21.6	0.7
Quartile 2	21.7	48.4	4.5	24.9	0.6
Quartile 3	25.4	44.9	7.1	21.9	0.8
Quartile 4 (Richest)	19.4	49.3	8.8	20.8	1.7
Household Size					
Up to 5 Members	25.7	48.0	7.3	17.9	1.1
More than 5 Members	21.6	40.3	8.8	28.6	0.7
Age Categories (Years)					
Below 25	23.5	42.8	8.8	22.0	3.0
25-30	23.7	47.1	6.7	22.5	0.0
31-45	24.4	46.6	7.9	21.0	0.1
Above 45	27.4	29.0	9.8	33.9	0.0
Total	24.0	44.9	7.9	22.3	0.9

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.6: Proportion of Patients Who Visited a Number of Health Care Providers for Treatment after a Flare-up during the Preceding One Year by Socio-economic and Demographic Attributes (%)**

	One	Two	Three	Four
All	83.7	11.9	3.6	0.9
Place of Residence				
Rural	86.1	10.6	2.4	0.9
Urban	76.2	15.6	7.2	1.0
Marital Status				
Married	84.3	11.4	3.4	1.0
Unmarried	81.8	13.3	4.2	0.7
Education Categories				
Illiterate	76.3	18.2	3.9	1.5
Matric	87.3	8.6	3.3	0.8
Higher Secondary+	82.0	13.8	3.9	0.4
Occupational Categories				
Worker	88.6	9.2	0.0	2.2
Non-worker	83.3	12.1	3.9	0.8
Monthly Per Capita Expenditure Quartiles				
Quartile 1 (Poorest)	87.5	10.7	1.7	0.0
Quartile 2	85.3	10.5	3.7	0.6
Quartile 3	82.4	10.9	5.0	1.8
Quartile 4 (Richest)	80.3	15.2	3.5	1.0
Household Size				
Up to 5 Members	88.3	8.6	2.1	1.0
More than 5 Members	77.1	16.5	5.6	0.8
Age Categories (Years)				
Below 25	84.8	11.3	2.9	1.1
25-30	82.0	10.4	6.0	1.6
31-45	84.2	13.6	1.9	0.3
Above 45	82.8	11.3	5.9	0.0
Total	83.7	11.9	3.6	0.9

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.7: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Preceding One Year by Women Seeking Treatment By Districts (%)**

Districts	Visits	Public			Private			Chemist			Other		
		Public	Private	Other	Public	Private	Other	Public	Private	Other	Public	Private	Other
Individual Districts													
Chandauli	First	23.9			53.0			15.8			7.3		
	Second	0.0	74.9	25.1	16.8	53.6	29.5	43.7	56.3	0.0	0.0	100.0	0.0
	Third	0.0	100.0	0.0	11.0	70.8	18.3	0.0	100.0	0.0	0.0	100.0	0.0
	Fourth	41.2	26.9	31.9	19.4	48.3	32.4	0.0	0.0	0.0	0.0	0.0	0.0
Firozabad	First	17.4			35.4			7.7			39.5		
	Second	5.8	85.8	8.5	8.0	29.7	62.3	0.0	57.9	42.1	8.2	61.9	29.9
	Third	0.0	38.4	61.6	21.2	28.6	50.1	0.0	0.0	0.0	0.0	100.0	0.0
	Fourth	0.0	31.1	68.9	0.0	53.1	46.9	0.0	0.0	0.0	0.0	100.0	0.0
Bargarh	First	32.0			52.3			4.1			11.7		
	Second	0.0	100.0	0.0	14.8	35.6	49.6	0.0	0.0	0.0	0.0	100.0	0.0
	Third	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dhenkanal	First	31.5			52.8			6.2			9.5		
	Second	100.0	0.0	0.0	9.6	84.8	5.6	0.0	0.0	0.0	0.0	100.0	0.0
	Third	70.9	29.2	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All	First	24.0			44.9			7.9			23.2		
	Second	8.0	80.8	11.2	10.7	38.4	50.9	10.2	57.2	32.3	6.0	71.9	22.1
	Third	3.4	47.2	49.4	17.4	44.0	38.6	0.0	100.0	0.0	0.0	100.0	0.0
	Fourth	10.3	45.4	44.4	9.8	50.7	39.6	0.0	0.0	0.0	0.0	0.0	0.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.



**Appendix 5.8: Sequencing of Visits to Different Types of Health Care Providers Seeking Treatment for a Flare-up during the Preceding One Year by Socio-economic and Demographic Attributes (per cent)**

Place of Residence		Details of Visit													
Rural	First	23.2				48.6				7.4				20.8	
	Second	8.4	80.6	11.0	10.1	43.0	46.9	10.2	57.5	32.3	11.1	48.2	40.7		
	Third	10.5	36.8	25.7	16.6	36.9	46.5	0.0	100.0	0.0	0.0	100.0	0.0		
	Fourth	18.0	68.0	14.0	0.0	38.1	61.9	0.0	0.0	0.0	0.0	0.0	0.0		
Urban	First	26.5				33.3				9.5				30.7	
	Second	7.8	80.9	11.4	12.1	27.7	60.2	0.0	0.0	0.0	0.0	100.0	0.0		
	Third	0.0	39.2	60.8	21.2	78.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Fourth	0.0	15.6	84.5	27.1	72.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Marital Status															
Married	First	23.5				47.0				7.3				22.2	
	Second	9.1	75.9	15.0	11.4	35.8	52.8	10.2	57.5	32.3	17.4	51.0	31.7		
	Third	5.1	57.4	37.5	12.6	57.2	30.1	0.0	100.0	0.0	0.0	100.0	0.0		
	Fourth	12.0	45.3	42.7	0.0	61.4	38.6	0.0	0.0	0.0	0.0	0.0	0.0		
Unmarried	First	25.7				38.1				9.7				26.5	
	Second	4.8	95.2	0.0	7.4	50.1	42.6	0.0	0.0	0.0	0.0	83.0	17.0		
	Third	0.0	26.7	73.3	29.3	11.1	59.6	0.0	0.0	0.0	0.0	0.0	0.0		
	Fourth	0.0	45.7	54.3	30.9	27.5	41.6	0.0	0.0	0.0	0.0	0.0	0.0		
Monthly Per Capita Expenditure Quartiles															
Quartile 1 (Poorest)	First	30.5				35.5				11.8				22.2	
	Second	12.8	87.2	0.0	0.0	58.7	41.3	18.4	81.6	0.0	0.0	100.0	0.0		
	Third	0.0	0.0	0.0	31.1	27.4	41.5	0.0	0.0	0.0	0.0	100.0	0.0		
	Fourth	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Quartile 2	First	21.7				48.4				4.5				25.5	
	Second	3.5	83.8	12.8	16.3	66.1	17.7	0.0	0.0	0.0	0.0	89.9	10.1		
	Third	0.0	80.7	19.3	0.0	53.1	46.9	0.0	0.0	0.0	0.0	0.0	0.0		
	Fourth	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Quartile 3	First	25.4				44.9				7.1				22.6	
	Second	0.0	95.7	4.4	0.0	33.2	66.8	0.0	0.0	100.0	100.0	0.0	0.0		
	Third	0.0	37.7	62.4	12.3	36.8	50.9	0.0	0.0	0.0	0.0	0.0	0.0		
	Fourth	0.0	100.0	0.0	0.0	77.6	22.4	0.0	0.0	0.0	0.0	0.0	0.0		
Quartile 4 (Richest)	First	19.4				49.3				8.8				22.5	
	Second	20.8	55.2	24.0	20.5	21.2	58.0	0.0	100.0	0.0	0.0	40.2	59.9		
	Third	11.9	38.6	49.4	31.7	54.7	13.7	0.0	100.0	0.0	0.0	100.0	0.0		
	Fourth	30.1	16.3	53.5	24.9	0.0	75.1	0.0	0.0	0.0	0.0	0.0	0.0		

Source: NCAER-NOSSAL 4IS Health Survey, 2019

**Appendix 5.9: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Socio-economic And Demographic Attributes (in Days)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	All
All	22.7	22.1	18.0	14.5	20.2
Place of Residence					
Rural	23.7	23.5	18.6	15.0	20.8
Urban	15.9	20.0	11.5	11.0	18.4
Marital Status					
Married	22.4	23.4	19.4	13.4	21.1
Unmarried	23.8	17.6	14.1	17.3	17.5
Social Groups					
SC/ST	21.5	27.2	18.5	16.6	22.0
OBC/General	23.6	20.4	17.7	13.8	19.4
Educational Categories					
Illiterate	31.6	30.5	22.3	21.8	29.8
Matric	20.9	21.6	20.1	15.3	20.0
Higher Secondary+	15.3	10.4	6.1	8.9	10.3
Occupational Categories					
Worker	27.5	14.5	23.6	17.7	18.1
Non-worker	22.5	22.9	17.6	14.3	20.4
Monthly Per Capita Expenditure Quartiles					
1 (Poorest)	24.4	33.3	21.2	23.8	26.1
Quartile 2	23.8	22.4	17.6	14.3	20.3
Quartile 3	22.3	20.1	19.7	13.0	19.6
4 (Richest)	18.4	18.4	13.0	9.9	15.8
Household Size					
Up to 5 Members	22.4	19.6	18.2	14.2	18.5
More than 5 Members	22.9	23.7	16.1	15.9	22.7
Age Categories (Years)					
Below 25	21.9	14.0	11.9	15.6	15.2
25-30	21.3	25.0	20.7	15.8	22.6
31-45	22.9	22.7	21.1	12.7	21.1
Above 45	33.1	34.1	24.2	14.4	30.5

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.10: Proportion of Patients Who Recovered after Different Number of Visits to Health Care Providers for Treatment during the Preceding One Year by Socio-economic and Demographic Attributes (%)**

	Recovery Status after Visiting Health Care Provider				
	First	Second	Third	Fourth	All visits
All	15.5	1.9	2.1	0.7	10.6
Place of Residence					
Rural	15.7	2.2	2.1	0.3	10.6
Urban	14.8	0.7	1.8	1.8	10.6
Marital Status					
Married	15.8	1.4	1.8	0.9	11.0
Unmarried	14.6	3.2	2.9	0.0	9.5
Social Groups					
SC/ST	16.0	2.7	3.2	0.6	10.9
OBC/General	15.2	1.5	1.5	0.7	10.5
Educational Categories					
Illiterate	14.9	2.5	4.2	0.0	11.0
Matric	15.7	1.3	1.4	1.2	10.3
Higher Secondary+	15.5	2.6	1.6	0.0	11.2
Occupational Categories					
Worker	12.5	0.9	0.0	0.0	7.5
Non-worker	15.7	1.9	2.2	0.7	10.9
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	15.8	1.1	3.1	0.0	9.6
Quartile 2	14.5	1.4	2.3	0.9	10.0
Quartile 3	12.9	1.2	0.9	0.0	8.5
Quartile 4 (Richest)	18.8	3.7	2.2	1.8	14.6
Household Size					
Up to 5 Members	13.5	1.7	2.1	1.1	9.8
More than 5 Members	18.3	2.0	2.0	0.0	11.7
Age Categories (Years)					
Below 25	15.6	2.7	3.0	0.0	10.4
25-30	11.8	1.6	1.8	1.6	9.3
31-45	18.1	1.1	1.7	0.5	11.7
Above 45	16.7	3.7	0.0	0.0	11.2

Source: NCAER-NOSSAL 4IS Health Survey-2019.

Note: The denominator in the above calculation is the total number of persons suffering from chronic respiratory conditions who sought treatment from any health care provider after the flare-up in their health condition.

**Appendix 5.11: Proportion of Patients Exiting and Switching the Treatment after Visiting the Health Care Provider by Socio-economic and Demographic Attributes (%)**

	After First Visit			After Second Visit			After Third Visit		
	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider
All	68.6	14.5	16.9	84.8	7.7	7.5	91.4	6.3	2.4
<b>Place of residence</b>									
Rural	73.8	12.4	12.8	87.0	6.9	6.2	92.3	5.8	1.9
Urban	52.8	21.0	26.2	78.5	10.1	11.4	88.5	7.7	3.8
<b>Marital Status</b>									
Male	67.7	15.6	16.7	83.9	9.3	6.8	90.2	7.4	2.4
Female	71.3	11.1	17.6	87.8	2.6	9.6	95.1	2.7	2.3
<b>Social Groups</b>									
SC/ST	68.1	16.6	15.3	82.3	8.3	9.4	89.7	5.7	4.6
OBC/General	68.8	13.6	17.6	86.0	7.4	6.6	92.1	6.5	1.4
<b>Educational Categories</b>									
Illiterate	53.9	23.1	23.0	71.1	16.9	12.0	82.2	15.5	2.3
Matric	76.8	9.5	13.7	89.9	4.3	5.9	94.5	3.2	2.3
Higher Secondary+	62.5	18.6	18.9	86.2	6.9	6.9	32.4	4.8	2.8
<b>Occupational Categories</b>									
Worker	75.6	16.1	8.3	85.5	7.2	7.3	90.3	7.2	2.6
Non-worker	68.0	14.4	17.6	84.8	7.7	7.5	91.5	6.2	2.4
<b>Monthly Per Capita Expenditure Quartiles</b>									
Quartile 1 (Poorest)	73.9	14.1	12.0	89.3	6.3	4.4	94.0	5.6	0.4
Quartile 2	76.4	7.3	16.3	88.2	5.5	6.3	92.7	5.4	2.0
Quartile 3	64.7	17.9	17.4	81.0	9.5	9.6	88.4	8.4	3.2
Quartile 4 (Richest)	60.4	18.4	21.2	81.8	9.1	9.1	91.1	5.3	3.6
<b>Household Size</b>									
Up to 5 Members	75.3	13.2	11.5	87.9	7.2	4.9	92.5	4.9	2.6
More than 5 Members	58.5	16.5	25.0	80.3	8.4	11.4	89.6	8.3	2.1
<b>Age Categories (Years)</b>									
Below 25	72.8	10.6	16.7	89.9	3.9	6.2	94.9	2.6	2.5
25-30 Years	67.5	15.3	17.2	82.0	7.8	10.3	88.8	7.3	3.9
31-45 Years	67.6	15.9	16.6	83.9	10.1	6.1	90.7	8.0	1.3
Above 45	55.7	24.7	19.6	79.0	12.6	8.5	91.6	8.4	0.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Note: The denominator is the total number of persons making successive visits to health care providers.

**Appendix 5.12: Average Cost of Treatment of All the Four Visits (in Rs.) by Socio-economic and Demographic Attributes (%)**

Background Characteristics	Chandauli	Firozabad	Bargarh	Dhenkanal	All
All	2454	1574	2582	3218	2180
<b>Age Categories (Years)</b>					
Below 25	2803	1152	2172	2355	1962
25-30	1583	1485	3162	3305	2116
31-45	2484	1810	2527	3848	2353
Above 45 Years	3397	2279	1820	4022	2606
<b>Duration of the Disease (Months)</b>					
12 and below	1543	1279	2915	2648	1972
13-24	1879	1454	2262	2646	1900
Above 24	3767	1683	2604	3766	2386
<b>Occupation Categories</b>					
Worker	1727	1480	2381	4331	1938
Non-worker	2483	1585	2597	3162	2199
<b>Social Groups</b>					
SC/ST	2575	1847	2796	2285	2376
OBC/General	2370	1488	2433	3509	2090
<b>Per Capita Expenditure Quintile</b>					
Quartile 1 (Poorest)	1344	598	2407	1307	1407
Quartile 2	2163	1353	2398	3394	1979
Quartile 3	2761	1581	2803	3014	2179
Quartile 4 (Richest)	4785	2251	2763	4383	3025
<b>Level of Education</b>					
Illiterate	2727	1842	2269	3426	2125
Matric	2376	1073	2616	3126	2128
Higher Secondary+	2268	2122	2529	3468	2381
<b>Household Size</b>					
Up to 5 Members	2820	1372	2659	3382	2397
More than 5 Members	2216	1713	1901	2292	1872
<b>Service Providers</b>					
Public	1524	2221	2172	2029	2060
Private	3490	2554	3324	4664	3264

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.13: Percentage of Households That Reported Spending More Than 10% on Treatment as a Percentage of the Total Household Expenditure by Socio-economic and Demographic Attributes (%)**

	On First Treatment Cost (% Households)	On Total Treatment Cost (% Households)
All	6.4	7.1
Districts		
Chandauli	7.0	7.3
Firozabad	1.6	2.4
Bargarh	12.2	12.8
Dhenkanal	11.3	11.9
Place of Residence		
Rural	8.2	9.0
Urban	1.2	1.2
Household Size		
Up to 5 Members	8.7	9.3
More than 5 Members	3.2	4.0
Social Groups		
SC/ST	8.1	9.3
OBC/Gen	5.7	6.1
Per Capita Expenditure Quartile		
Quartile 1 (Poorest)	8.3	8.7
Quartile 2	7.4	8.5
Quartile 3	7.7	8.5
Quartile 4 (Richest)	2.6	2.8

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.14: Households Spending on Treatment as a Percentage of the Total Non-food Expenditure by Socio-economic and Demographic Attributes (%)**

Background Characteristics	Percentage of Households Spent On Treatment Cost Of First Visit As % of the Total Household Non-food Expenditure				Percentage of Households Spent on Treatment Cost of All Visits As % of the Total Household Non-food Expenditure			
	Catastrophic Thresholds				Catastrophic Thresholds			
	>10%	>20%	>30%	>40%	>10%	>20%	>30%	>40%
All	13.4	5.7	3.3	2.0	15.6	6.3	3.7	2.6
Place of Residence								
Rural	16.6	7.5	4.3	2.7	19.0	8.3	4.9	3.5
Urban	3.5	0.4	0.2	0.0	5.2	0.4	0.2	0.0
Household Size								
Up to 5 Members	18.7	8.1	4.9	3.2	20.2	8.4	5.3	3.9
More than 5 Members	5.8	2.4	1.0	0.4	9.0	3.4	1.5	0.8
Social Groups								
SC/ST	17.2	7.9	4.7	3.1	21.3	8.6	5.7	3.8
OBC/General	11.6	4.7	2.7	1.5	13.0	5.3	2.8	2.1
Per Capita Expenditure Quartile								
Quartile 1 (Poorest)	18.3	7.9	4.0	2.1	20.5	8.2	4.4	2.8
Quartile 2	18.7	6.6	4.6	3.4	22.6	7.7	5.1	3.8
Quartile 3	11.3	7.1	4.2	2.3	12.4	8.0	4.8	3.5
Quartile 4 (Richest)	6.3	1.6	0.6	0.4	8.0	1.6	0.7	0.5

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 5.15: Key Deciding Factors for Choosing Health Care Providers (%) by District**

	Proximity				Good Reputation			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	60.9	56.7	64.8	59.4	70.3	68.0	59.5	66.8
Firozabad	33.4	43.1	45.4	42.4	32.6	50.2	21.4	34.3
Bargarh	58.7	51.1	82.3	58.3	78.6	75.9	30.5	69.8
Dhenkanal	51.9	35.6	82.9	47.7	68.2	77.1	31.5	67.5
All	49.7	47.2	55.0	50.1	60.6	65.1	27.7	53.1
	Inexpensive				Good Personal Experience			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	53.8	14.6	40.1	29.2	32.7	27.1	12.0	25.3
Firozabad	58.1	31.5	65.8	51.5	12.4	24.3	13.4	17.4
Bargarh	52.4	17.1	16.4	28.2	51.8	57.1	22.4	50.2
Dhenkanal	45.2	8.7	10.9	20.5	36.5	44.5	5.2	36.2
All	53.4	20.7	52.8	38.0	33.4	37.6	14.0	29.7
	Qualification of Staff				Availability of Drugs			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	2.8	5.4	0.0	3.6	31.9	50.9	36.7	43.4
Firozabad	1.8	7.1	0.9	3.4	57.1	41.3	15.9	32.7
Bargarh	54.9	61.4	9.6	51.5	22.8	2.8	8.9	10.1
Dhenkanal	39.5	44.2	2.1	36.5	21.8	1.2	5.2	8.3
All	78.7	37.2	2.4	36.9	35.4	26.1	16.7	25.6
	Relative/Friends Works There				Recommended by Relatives			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	3.7	2.4	0.0	2.2	12.5	12.2	5.9	11.0
Firozabad	3.3	1.7	3.4	2.7	22.0	17.7	22.6	20.6
Bargarh	0.0	1.9	2.3	1.4	3.8	22.1	25.4	16.8
Dhenkanal	8.3	6.6	5.9	7.0	11.8	30.5	10.7	21.7
All	2.9	2.6	3.0	2.8	12.4	19.7	20.3	18.1

Source: NCAER-NOSSAL 4IS Health Survey, 2019.





## Chapter 6

# Acute Respiratory Infection among Children: Healthcare Use Pathways, Out of Pocket Spending, and Service Quality

In this chapter, the characteristics of the treatment pathways of children aged up to 5 years with acute respiratory infection problems have been assessed via:

- vi. the time between the first appearance of symptoms and the time the treatment was sought;
- vii. the number and types of healthcare providers visited;
- viii. the order in which healthcare providers were consulted, including the number of times the patients switched between the healthcare providers;
- ix. the total number of visits to health care providers; and
- x. the point of exit from treatment-seeking.

This chapter also reports findings on the households' out of pocket spending on healthcare for children with the problem of acute respiratory infection, including expenditures incurred over the full treatment pathway for the most recent acute episode related to the condition.

The quality of health care was also assessed from the standpoint of the respondents and their perceptions about the quality of health care services received.

Section 6.1 presents a description of the sampling procedure and household characteristics. It also provides details of the ailing children. The remainder of this chapter is organised into four sections. Section 6.2 includes background details, such as the demographic and socio-economic profile of the household (with a child with acute respiratory infection problems), including their housing characteristics. Section 6.3 reports findings on treatment-seeking behaviour, including different elements of the treatment 'pathways' of the patient during the one month preceding the date of the survey. Section 6.4 discusses the on household's OOP spending on the child's healthcare. Section 6.5 provides the results from the analyses of the survey data on the quality of healthcare services offered by different healthcare providers, as perceived by the survey respondents, including differences between the public and private healthcare providers, and by the levels of care. It also presents information on factors taken into consideration during selection of a healthcare service provider.

## 6.1. Sampling and Household Characteristics

The findings reported in this chapter are based on a survey of 1,630 individuals from an equivalent number of households sampled from the four districts under study and are representative at the district level in Odisha and Uttar Pradesh. The sample of households surveyed included at least one child who had suffered or was suffering from acute respiratory infection during the survey or during the month preceding the survey, with the focus of the survey questions being on health care and the expenditure incurred on the individual who reported acute respiratory infection.

These households are spread across 397 villages and 119 urban blocks in the four districts. Out of the total sample households, 83.0 per cent were from rural areas (ranging from 65.0 per cent in Firozabad to 90.2 per cent in Dhenkanal) and 17.0 per cent were from urban areas (ranging from 7.5 per cent in Dhenkanal to 35.0 per cent in Firozabad). The breakdown of the sample households is given in Table 6.1.

**Table 6.1: District-wise Number of Selected Households by Districts and Place of Residence**

District	Rural	Urban	All
Chandauli	337	81	418
Firozabad	275	132	407
Bargarh	341	86	427
Dhenkanal	326	52	378
All	1,279	351	1,630

*Source: NCAER-NOSSAL 4IS Health Survey, 2019.*

Further characterisation of the sample by social group, religion, and household size is given in Table 6.2. An assessment of the social group distribution of the overall sample households indicates that a majority of the households belonged to the OBC and General categories (61.2 per cent) while the remaining 38.8 per cent were from the SC/ST community. Across the four study districts, the highest share of SC/ST households was from Chandauli (50 per cent) and the lowest were from Firozabad (24.9 per cent).

The predominant number of households in all the four districts were Hindus, ranging from 89.3 per cent in Firozabad to 100 per cent in Dhenkanal, followed by Muslims and Others, ranging from 0 in Dhenkanal to 10.7 per cent in Firozabad. It should be noted that the households selected for the study were from a specific category, that is, households having at least one child who was/had been suffering from chronic a breathlessness problem during the preceding one year; and that the religion and caste classifications were based on the respondent's self-identification.

There were major differences in household size in the sampled households in Odisha and Uttar Pradesh. In Uttar Pradesh, 33.8 per cent of the households had more than five members with Chandauli at 51.3 per cent and Firozabad, at 39.2 per cent. In the

Bargarh and Dhenkanal districts of Odisha, around 79 per cent of the households had more than five members. The average household size was 5.9 in Uttar Pradesh whereas in Odisha it was 4.5.

Table 6.2 also reports the breakdown of the sample districts by the share of the population belonging to different (per capita) expenditure quartiles. The district with the highest percentages of households in the highest expenditure quartile<sup>14</sup> is Firozabad (29.4 per cent), followed by Dhenkanal, at 26.6 per cent. About 35.2 per cent of the total households fell in the poorest quartile in Chandauli.

**Table 6.2: Distribution of Selected Households by Socio-Economic Characteristics across Districts**

	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
Social Group					
SC/ST	50.0	24.9	38.9	44.6	38.8
OBC/General	50.0	75.1	61.1	55.5	61.2
All	100.0	100.0	100.0	100.0	100.0
Religion					
Hindu	89.5	89.3	99.8	100.0	94.2
Muslim/Others	10.6	10.7	0.2	0.0	5.9
All	100.0	100.0	100.0	100.0	100.0
Household Size					
Up to 5 Members	48.7	60.8	79.8	78.8	66.2
More than 5 Members	51.3	39.2	20.2	21.2	33.8
All	100.0	100.0	100.0	100.0	100.0
Per Capita Expenditure Quartile					
Quartile 1 (Poorest)	35.2	22.8	20.5	28.6	26.7
Quartile 2	22.2	24.5	31.8	25.3	25.8
Quartile 3	22.0	23.3	29.5	19.5	23.5
Quartile 4 (Richest)	20.6	29.4	18.2	26.6	24.0
All	100.0	100.0	100.0	100.0	100.0

Source: NCAER-Nossal 4IS Health Survey, 2019.

### 6.1.1. Survey Respondents

The household questionnaire was administered to the individual who was the most knowledgeable about the child reporting acute respiratory distress and the treatment that took place during the preceding one month, besides providing other household information related to income and expenditure, among other things (details are given in Chapter 2). It was observed that in 66.1 per cent of the households, mothers were the respondents in the survey. In the case of the remaining respondents, 22.9 per cent were fathers, 11 per cent were either the brother/sister or grandparent or uncle/aunt or other relative or non-relative of the ill child.

<sup>14</sup>The construction of expenditure quartiles is based on the full sample of households in the two States and based on per capital expenditures at the household levels, using sample weights.

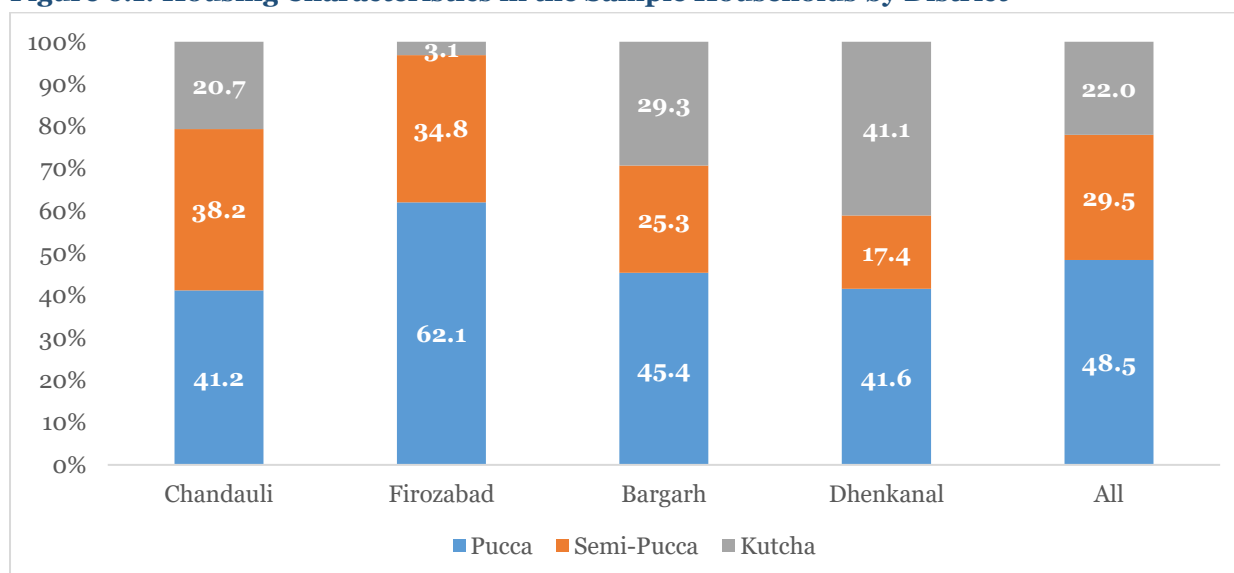
## 6.2. Housing and Individual Characteristics

This section addresses two themes. First, it provides a description of the household's standard of living as measured by basic amenities and asset holdings such as the ownership of house and the type of house, access to electricity, sanitation, drinking water and purification, and a variety of household consumer durable items. The second theme in this section pertains to the characteristics of the children suffering from Acute Respiratory Infections (ARI).

### 6.2.1. Housing Characteristics

**Ownership and Type of House:** Around 95 per cent of the sample households were staying in their own house. Figure 6.1 indicates that about 49 per cent of the total households stay in pucca houses. The district-wise data shows that a higher percentage of households in Firozabad (62 per cent) stay in pucca houses followed by those in Bargarh (45 per cent), and so on. In the districts of Uttar Pradesh, around 35 per cent of the households had semi-pucca houses. Only the households in Dhenkanal still had 41 per cent of kutcha households.

**Figure 6.1: Housing Characteristics in the Sample Households by District**

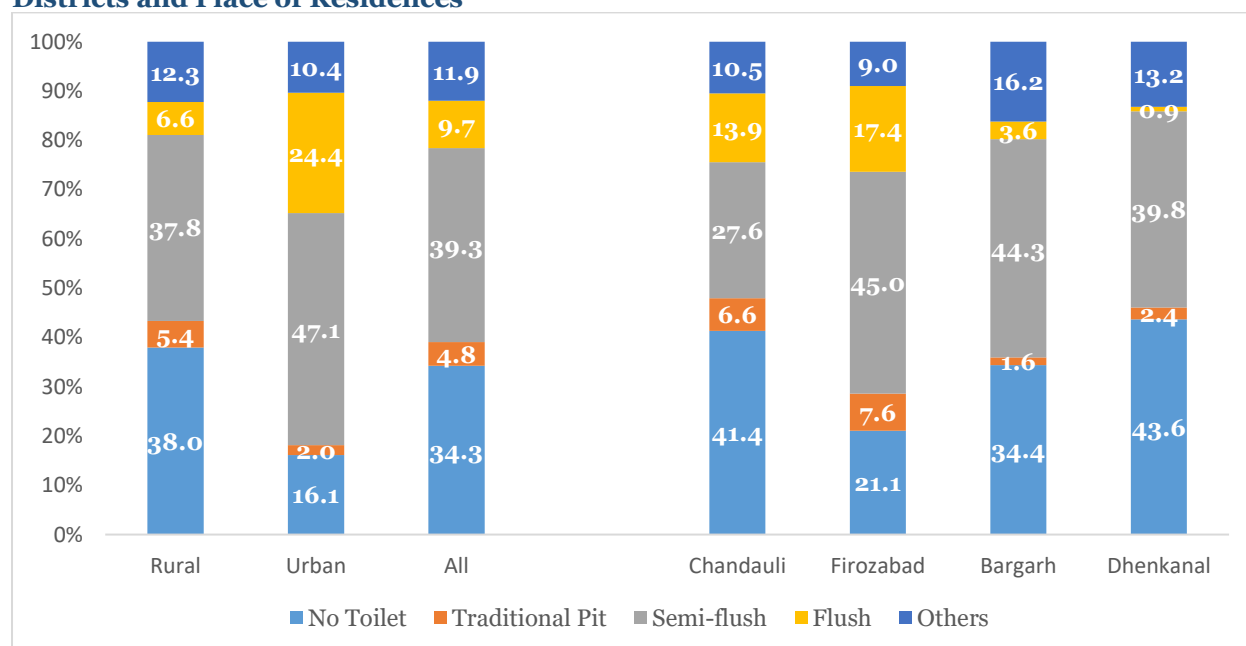


Source: NCAER-Nossal 4IS Health Survey, 2019.

**Access to Electricity:** Almost 95 per cent of the households had access to electricity with a small rural-urban divide (95 per cent in the rural and 99 per cent in the urban households, respectively). There were no significant differences between the districts of Uttar Pradesh and Odisha. Access to electricity was the highest in Bargarh (98 per cent).

**Access to Sanitation Facilities:** About 34 per cent of the households did not have a toilet and were practising open defecation. This was particularly stark in rural areas, where 38 per cent of the households had no toilet, as compared to 16.1 per cent in urban areas. Almost 39 per cent of the remaining households had semi-flush toilets and only 9.7 per cent of them had toilets with a flush. The proportions of these two categories were substantially higher in urban areas as compared to their rural counterparts. There was some inter-district variation as well. More than 39 per cent of the households in the two districts of Odisha possessed semi-flush toilets. About 34 to 44 per cent of the households in Odisha had no toilets at all. In contrast, in the Firozabad district of Uttar Pradesh, 32 per cent of the households used semi-flush toilets whereas in Chandauli, about 28 per cent of the households reported having the same. A comparatively higher proportion of households in Uttar Pradesh had toilets with flushes as compared to those in Odisha.

**Figure 6.2: Percentage Distribution of Households by Type of Toilet Facilities by Districts and Place of Residences**

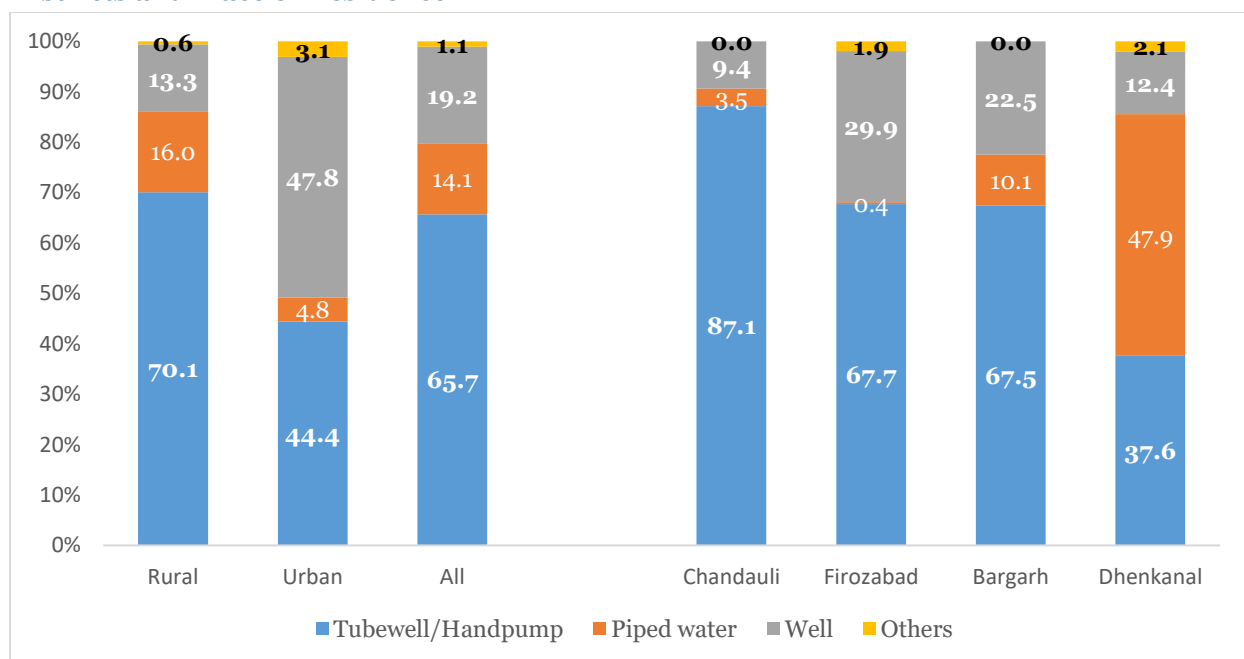


Source: NCAER-Nossal 4IS Health Survey, 2019.

**Drinking water source and treatment:** Two types of information related to drinking water were collected in this study: (i) sources of drinking water; and (ii) the treatment process, that is, the actions that households undertake to make water safe for drinking. Overall, the provision for piped water in the four districts was poor (Figure 6.3), with only about 16 per cent of the rural households reporting access to piped water and an even lower percentage of households in the urban areas (4.8 per cent) doing so. The district-wise data revealed that though a relatively high 47.9 per cent of the households in Dhenkanal had access to piped water, the corresponding status in the two districts of Uttar Pradesh was very poor. Tube wells/hand pumps were the most common

sources of drinking water in rural areas. About 44.4 per cent of the urban households had access to tube wells/hand pumps for drinking water and a slightly higher proportion (47.8 per cent) of the households had wells for the same. In the rural areas, mostly tube wells/hand pumps (70.1 per cent) were found. At the district level, households of Chandauli and Firozabad mostly had access to tube wells/hand pumps. In Odisha, though 67.7 per cent of the households in Bargarh had tube wells/hand pumps, the percentage of the same in Dhenkanal was relatively lower (37.6 per cent). Around 92 per cent of the total households did not treat their water before drinking. Around 11 per cent of the households in Bargarh and Dhenkanal either boiled or strained water through a cloth or used a water filter.

**Figure 6.3: Percentage Distribution of Households by Source of Drinking Water by Districts and Place of Residence**



Source: NCAER-Nossal 4IS Health Survey 2019.

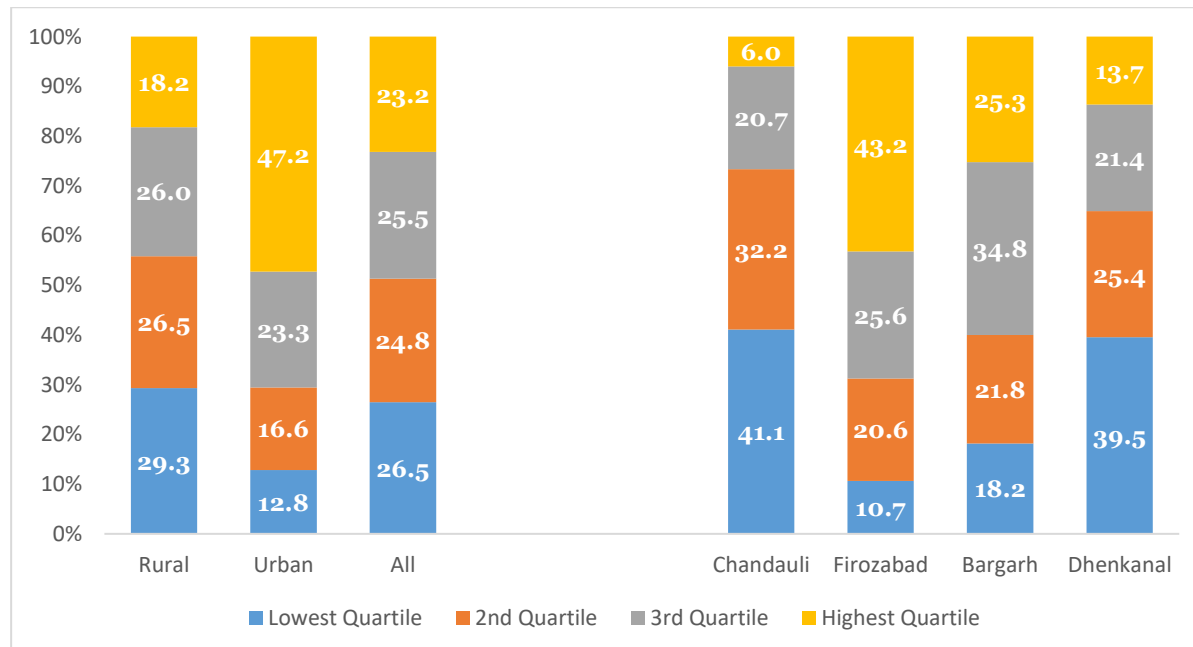
Access to basic services has thus far been considered individually. If an index that captures access to all three—electricity, sanitation and drinking water—is used, the sample households come off worse. In rural areas, only 10.1 per cent of the households reported access to all three, but in urban areas, the access was far from universal—with 43.7 per cent of the households reporting in the affirmative (Table 6.1). At the district level, only Firozabad and Bargarh had a magnitude close to or higher than the overall average of 15.9 per cent.

**Table 6.3: Proportion of Households Having Three Basic Facilities by Districts and Place of Residence**

District	Rural	Urban	All
Chandauli	4.1	41.5	7.8
Firozabad	15.6	47.9	26.9
Bargarh	13.2	32.5	15.4
Dhenkanal	8.5	37.7	10.7
All	10.1	43.7	15.9

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Wealth Index:** The survey also collected information on the household ownership of consumer durables, in addition to housing amenities, in order to capture the households' standard of living. Figure 6.4 reports the distribution of the sampled households by wealth quartiles<sup>15</sup> by district and rural-urban location. Not surprisingly, the wealthiest households were concentrated in urban areas, with 70.5 per cent of the urban households belonging to the top two wealth quartiles. In comparison, more than half of the rural households (56.8 per cent) belonged to the lowest two wealth quartiles. Among the districts, Firozabad had the highest share of households in the top wealth quartile. Chandauli and Dhenkanal had the highest shares of households in the bottom wealth quartile.

**Figure 6.4: Share of Households across Wealth Quartile by Districts and Place of Residence**


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

<sup>15</sup>Households are given scores based on the number and kinds of consumer goods they own, ranging from a television to a bicycle or car, and housing characteristics such as toilet facilities. These scores were derived using principal component analysis. Overall, the wealth quartiles are compiled by assigning the household score, ranking each household by its score, and then dividing the distribution into four equal categories, each with 25 per cent of the households.



### 6.2.2. Profile of the Child with Acute Respiratory Infection

Table 6.4 reports information on the demographic profile of the child with acute respiratory infection. In our sample, 35 per cent of the children were below the age of one, 36 per cent were between the age of 2 and 3 years, and the remaining (29.1 per cent) were 4-5 years old. Only in Firozabad the share of children aged 4-5 years was lower than in the other districts, and compared to the overall share of this group of 29.1 per cent in the sample. Boys comprised a dominant share of the sample, at almost 60 per cent of the sample. There was some variation in Dhenkanal where the share of young girl children suffering from acute respiratory infection was 33.2 per cent and that of boys was slightly higher (66.8 per cent) than that reported in the other districts.

**Table 6.4: Profile of Children Suffering from Acute Respiratory Infections (ARI) by Socio- Economic Characteristics across Districts (% Distribution)**

Districts	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
Age Category					
Up to One Year	31.2	41.0	34.2	31.7	34.9
2-3 Years	39.2	36.6	32.9	34.8	36.0
4-5 Years	29.6	22.4	32.9	33.5	29.1
Gender					
Male	55.7	59.6	58.8	66.8	60.1
Female	44.3	40.4	41.2	33.2	39.9

Source: NCAER-Nossal Health Survey, 2019.

### 6.3. Health Care-seeking Pathways

Health-seeking pathways for children, in general, are more complicated than those for adults as the recognition of symptoms and the decisions on when to consult a doctor/specialist, the type of health care providers to consult, and the duration of the same are all dependent on caregivers. In contrast to the previous two chapters which dealt with chronic conditions, this chapter elaborates an acute health condition which exhibits a very distinct health-seeking pathway.

In this section, we discuss the treatment-seeking pathways for children with acute respiratory infection (ARI) during the one month preceding the survey. This section, as in the case of Chapters 4 and 5, elaborates the status of treatment of children who have suffered from ARI, their reasons for not seeking treatment, delay between the onset of ARI and accessing a health care provider, the types of health care providers, sequencing of health care providers, and exits from the treatment pathways in the form of recovery, with the patients either doing nothing or resorting self-care, persisting with the same health care provider, or switching to a new health care provider.

The analysis in this section explores the health-seeking responses by persons with chronic breathlessness in response to an acute episode during the year preceding the survey. Following were the specific questions explored:

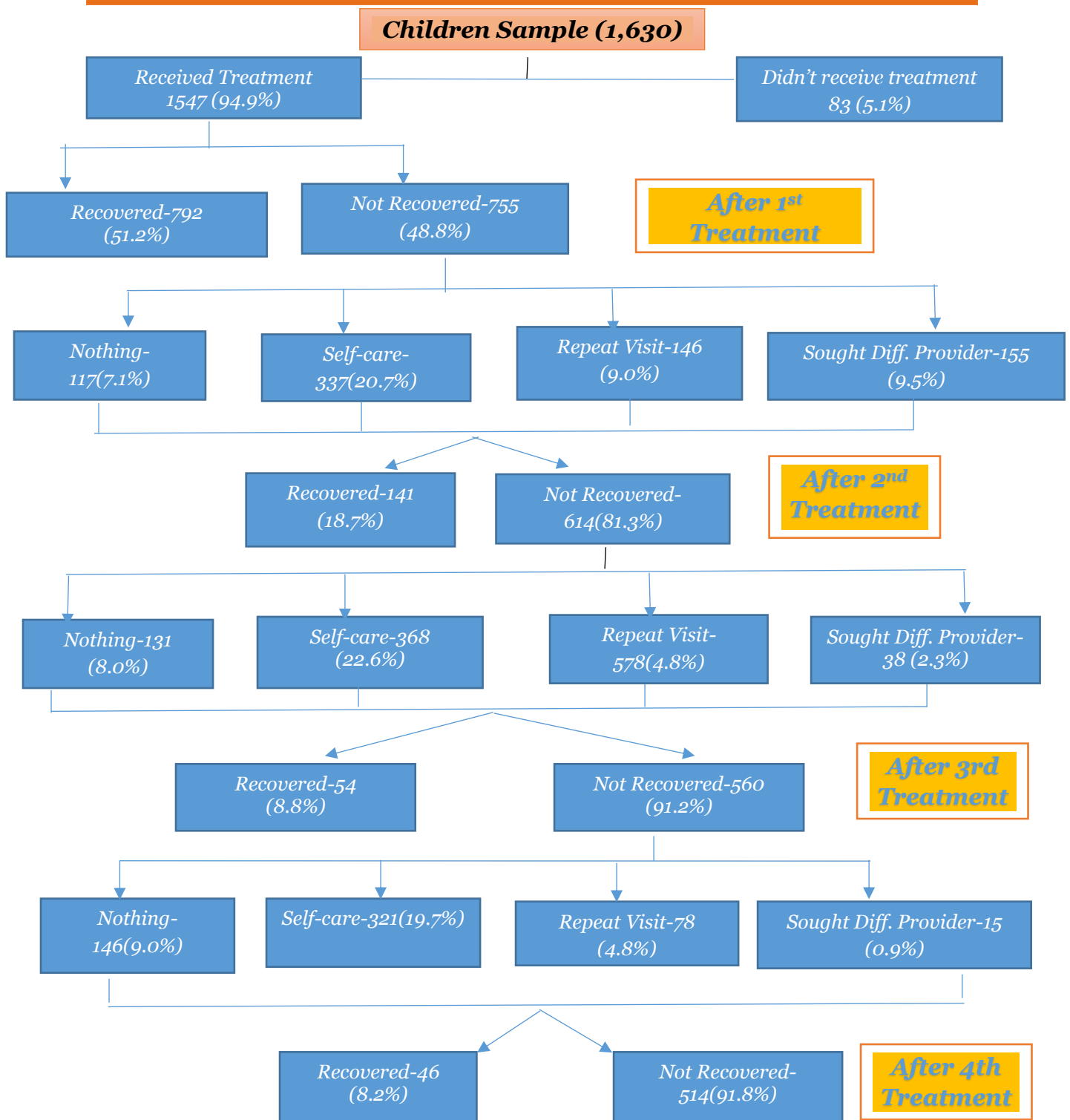
- Following the initial recognition of the acute episode, was any health provider consulted?
- What was the first source of treatment?
- What was the length of time from identification of the health problem to the choice of the first treatment provider?
- How many providers were consulted during the episode?
- What was the sequencing of providers consulted during the episode (namely, who was consulted first, who was consulted second, and so forth)?
- How (or why) did the patient exit treatment? What factors affected this choice?

### 6.3.1. Number of Visits and Distribution of Patients

Figures 6.5 and 6.6 provide an overview of the status of treatment starting from the point of “first sought treatment” to “exited treatment”.

It was observed that about 94.9 per cent of the children with acute respiratory infections received treatment from a health care facility (Figure 6.5). A little more than half (51.2 per cent) of the 94.9 per cent of the ailing children recovered after the first visit to the health care provider. Of the remaining 48.8 per cent of those who did not recover after the first visit, 7.1 per cent were made to do nothing and 20.1 per cent were cared for/given medication at home. This is equivalent to the figures on self-care/self-medication mentioned in Chapters 4 and 5. For ease of reference, the same terms will be used in this chapter from this point onwards. About 9 per cent of the children continued receiving treatment from the same health care provider and another 9 per cent were taken to a different health care provider. The recovery rate for children with an increasing number of visits gradually came down. While 18.7 per cent recovered after the second visit, 8.8 and 8.2 per cent recovered after the third and fourth visits, respectively.

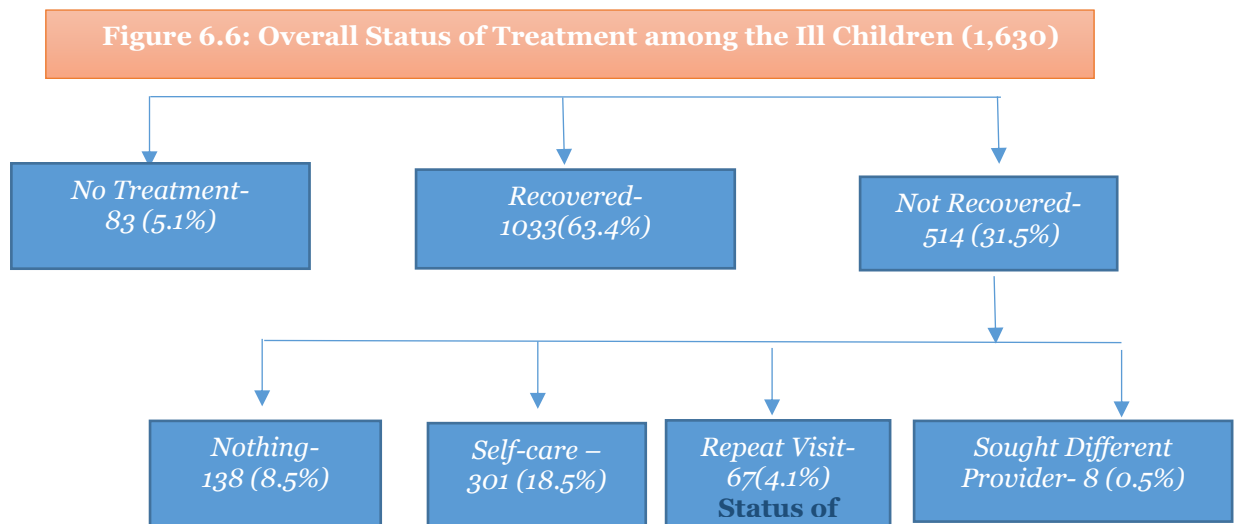
Figure 6.5: Treatment Seeking Behaviour



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Figure 6.6 provides the overall status after four visits to health care providers. About 63 per cent of the children with acute respiratory infections during the last month recovered, whereas 31.5 per cent did not. Of those who could not recover, 27 per cent

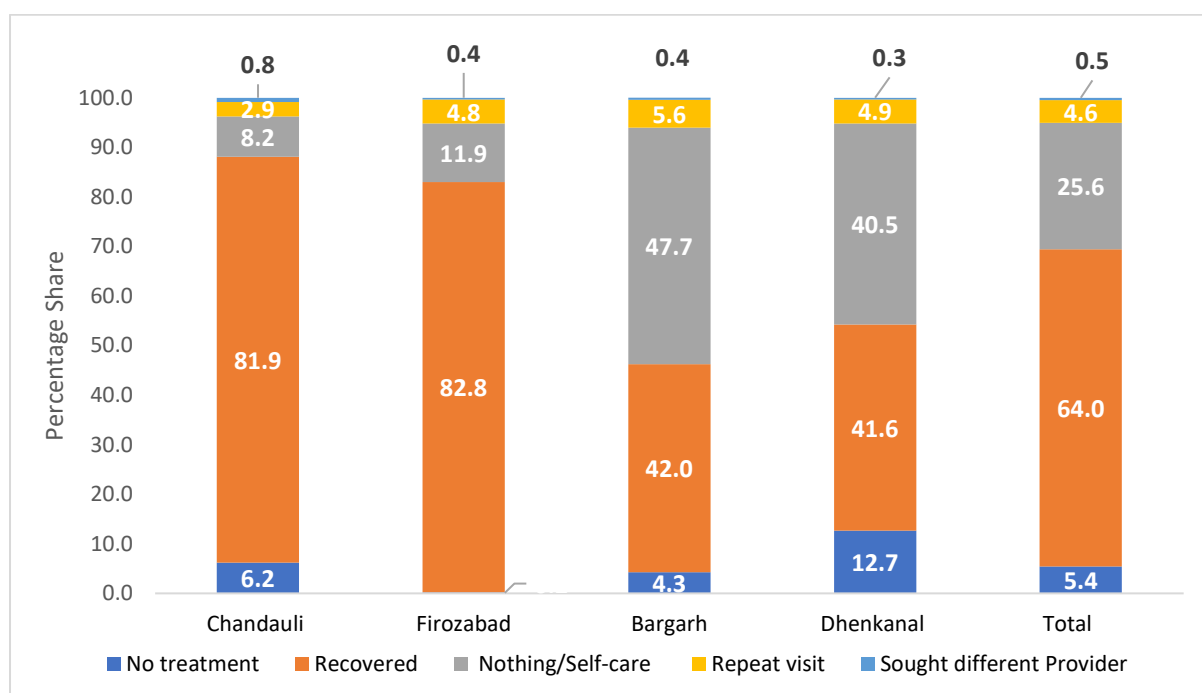
were either given no treatment or were subjected to home (self)-care. 4.1 per cent were taken to the same health care provider, while only 0.5 per cent were taken to a different health care provider.



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Of all the children with acute respiratory conditions, 5.1 per cent did not receive any treatment (Figure 6.7). The district-wise results showed that Dhenkanal had the highest proportion (12.7 per cent) of children not receiving treatment. The recovery rate was higher in Uttar Pradesh as compared to Odisha. It should also be noted that more than 40 per cent of the ailing children were not given any further treatment (doing nothing) or were cared for at home (self-care) in Odisha. The rate of recovery of children in Uttar Pradesh was much higher, at about 82 per cent than that in Odisha, at about 42 per cent.

Figure 6.7: Status of Treatment after All Four Visits by Districts



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 6.1 shows the status of treatment after all the four visits according to the place of residence, gender, and the age categories, and explains the treatment-seeking pathways wherein the patient’s recovery rate was higher in urban areas whereas adherence towards self-care and not seeking treatment was higher in rural areas. The recovery rate was higher among children aged 2-3 years. There was no male-female gap seen in recovery.

### 6.3.2. Reasons for Not Seeking Treatment

It may be recalled that 5.1 per cent of the children with ARI did not receive treatment. Table 6.5 reports the share of children across the four districts that did not receive treatment after a flare-up by different categories of reasons. About 62 of these children, who did not receive treatment from a health care provider, were accorded home (self-care). For 12.1 per cent of the children, lack of money was the main reason for not receiving treatment while for 11.5 per cent, the episode was not considered severe enough. The district-level findings revealed that all the children in Firozabad were cared for at home. A considerable proportion (19.8 per cent) of the ailing children in Dhenkanal could not be treated due to lack of money.

**Table 6.5: Proportion of Children Not Being Taken for Treatment after Flare-up by Districts (%)**

	Wait for Auto Recovery	Not Severe Enough	Got Better	Self-care/ Medication	Not Enough Money for Treatment
All	4.5	11.5	10.3	61.6	12.1
Districts					
Chandauli	0.0	22.6	34.5	39.3	3.7
Firozabad	0.0	0.0	0.0	100.0	0.0
Bargarh	13.3	17.3	5.5	61.7	2.3
Dhenkanal	3.9	4.3	0.0	72.1	19.8

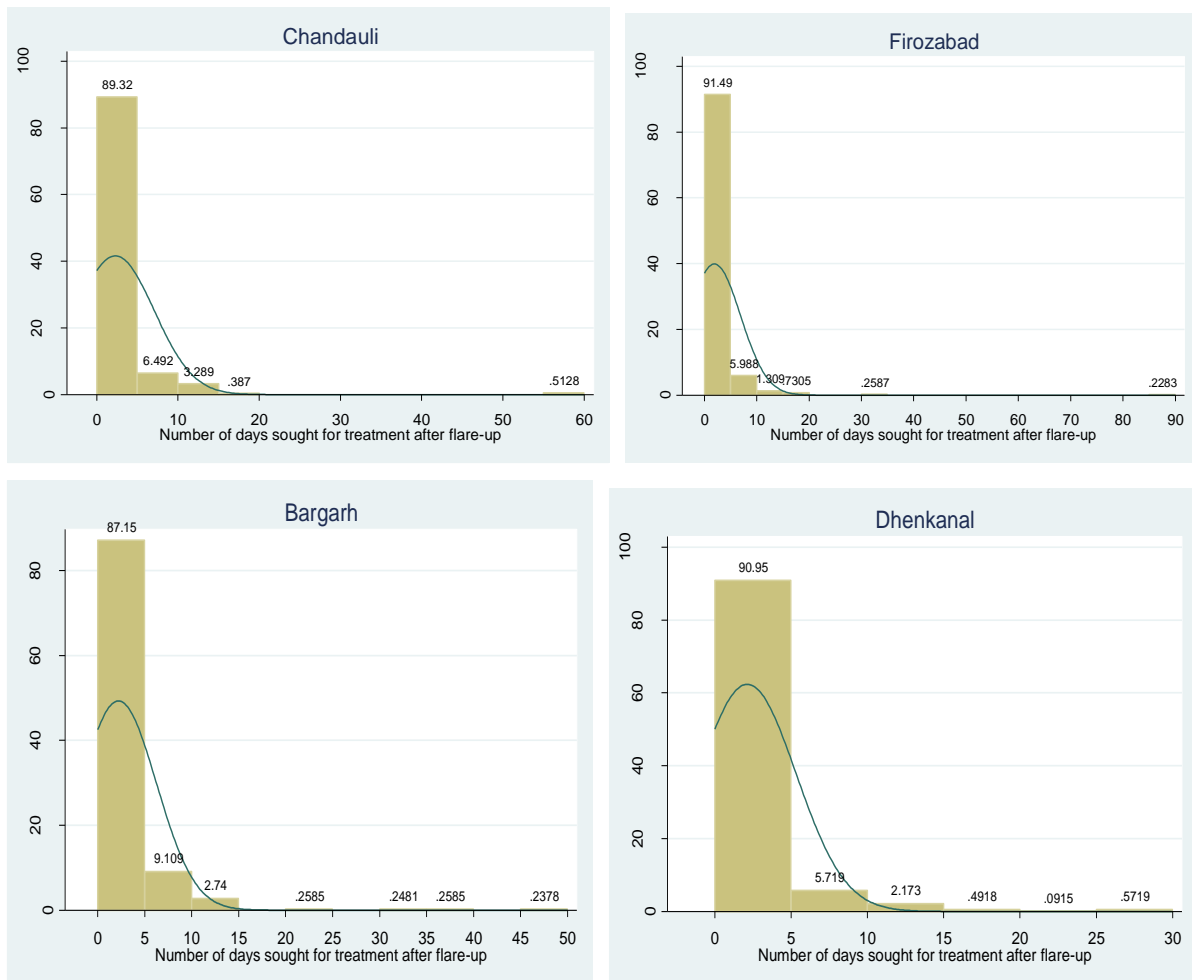
Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 6.2 shows that there were not many variations by place of residence, gender, social status, occupation status, income status, household size, and age categories. The proportion of children receiving home (self-care) and medication was higher in rural areas, among male children and children from the OBC/General caste categories.

### 6.3.3. Time Lag in Seeking Treatment after a Recent Flare-up:

Nearly 90 per cent of the children were taken to a health care provider within five days of the flare-up in all the four districts. The tail of the distribution is very short for all the four districts suggesting that a higher proportion of children were taken to a health care provider with lesser delay (Figure 6.8).

**Figure 6.8: Average Duration of Time between the Flare-up and Seeking of Treatment from the First Health Care Provider by District in Days**

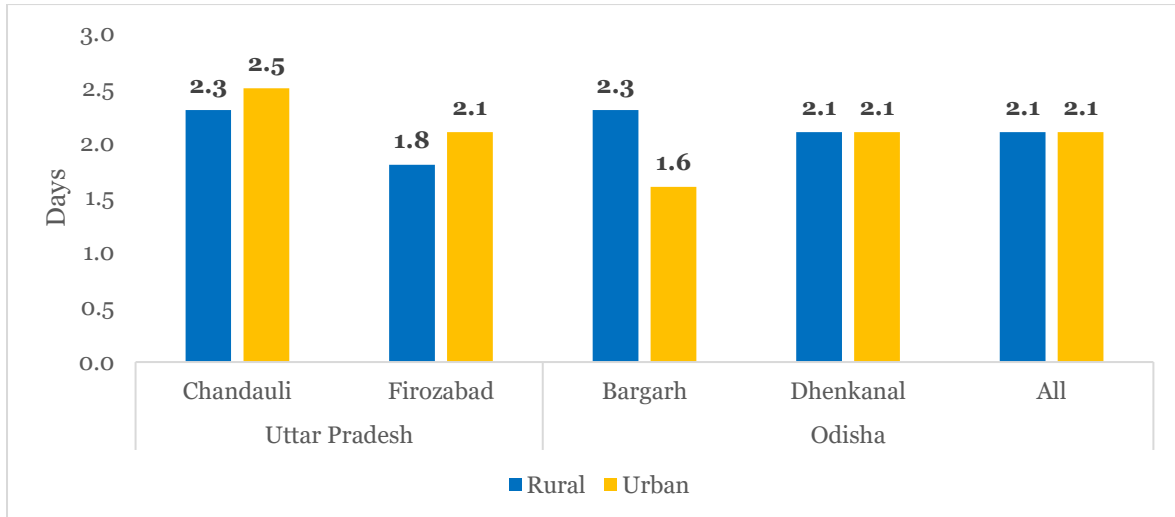


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Table 6.6 shows the average duration of time between the flare-up and seeking of treatment from the first health care provider by socio-economic and demographic attributes (in days) during the preceding one month. The average delay for the whole sample was 2.1 days, with no variations for the place of residence but very small differences when examined across individual districts (Figure 6.9). The duration of delay decreased with a rise in the monthly per capita expenditure (Figure 6.10).

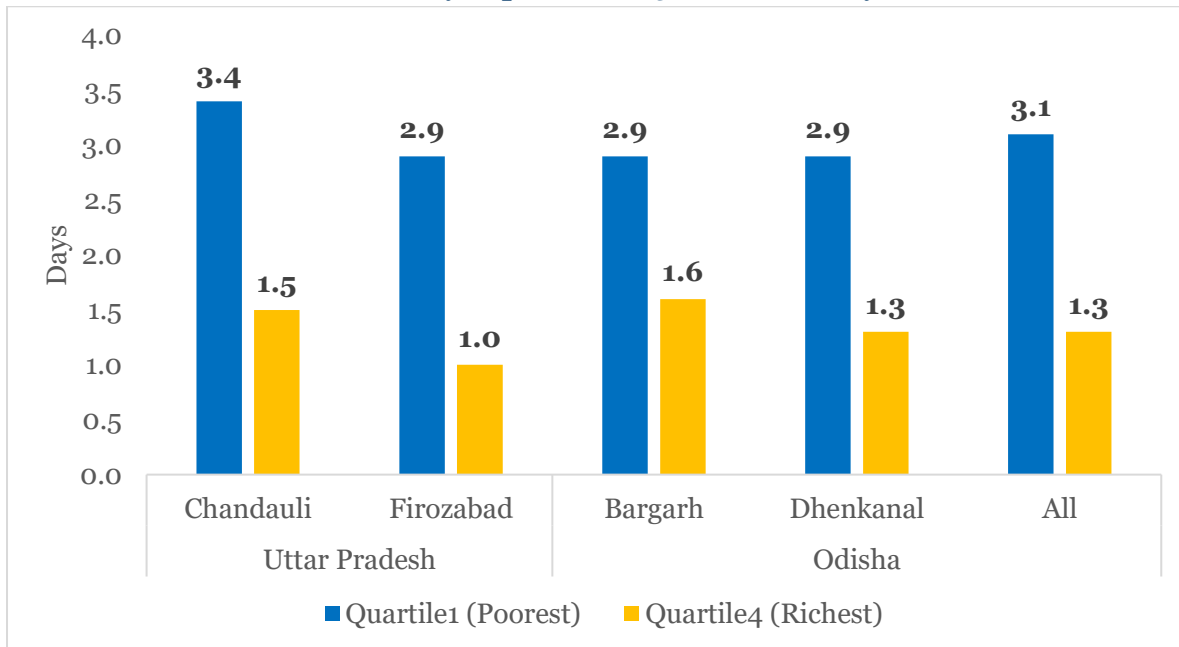
The duration of delay was lower for the female child (1.7 days) as compared to that for the male child (2.4 days), across all the four districts individually. Children from the OBC/General caste categories were taken to a health care provider sooner than those from the SC/ST categories. The duration of delay increased with an increase in the size of the household and the age of children (Appendix 6.3).

**Figure 6.9: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Districts and Place of Residence (in Days)**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Figure 6.10: Average Duration between the Flare-up and Seeking of Treatment from the First Health Care Provider by Expenditure Quartiles (in Days)**



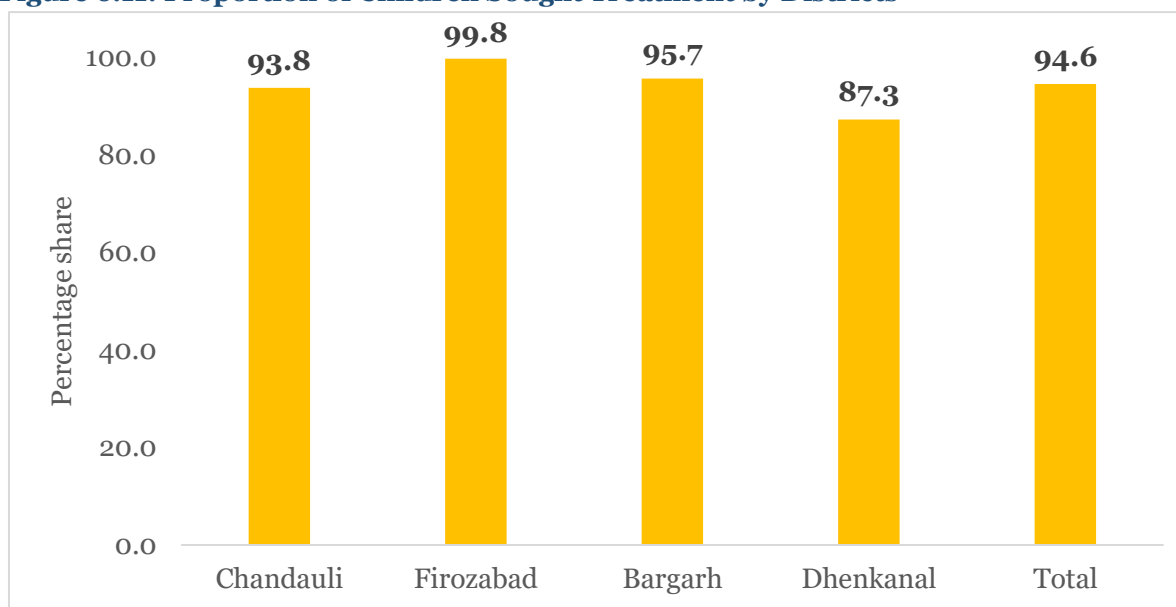
Source: NCAER-NOSSAL 4IS Health Survey, 2019.



### 6.3.4. Consultation Status after the Flare-up

Figure 6.11 presents the proportion of children with a flare-up who received treatment in the four sampled districts. The share of children receiving care in response to a flare-up was quite high (94.6 per cent). The highest proportion of children receiving treatment was in Firozabad (99.8 per cent), while the lowest proportion was in Dhenkanal (87.3 per cent).

**Figure 6.11: Proportion of Children Sought Treatment by Districts**

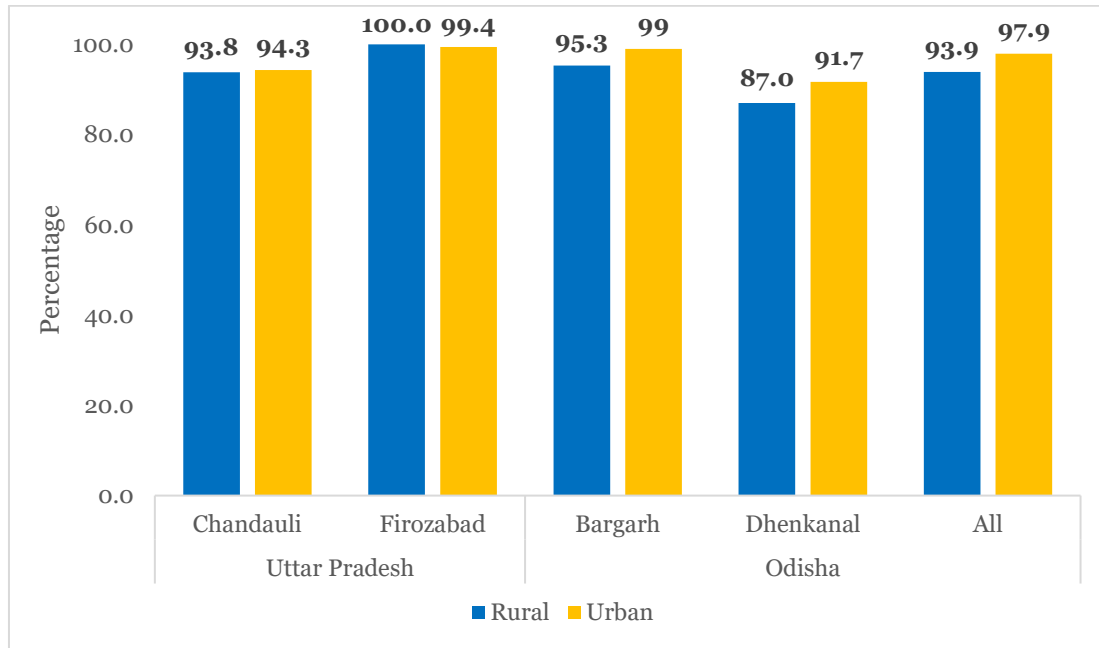


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Figure 6.12 shows that for the three districts, namely, Chandauli, Bargarh, and Dhenkanal, the proportion of patients receiving treatment was higher among urban patients as compared to rural patients. The opposite was true for Firozabad though the difference between the rural (100 per cent) and urban (99.4 per cent) shares was negligible. The share of children receiving treatment increased directly in proportion to the income quartiles (Figure 6.13). There were not much variations across quartiles in any of the districts barring in Dhenkanal district.

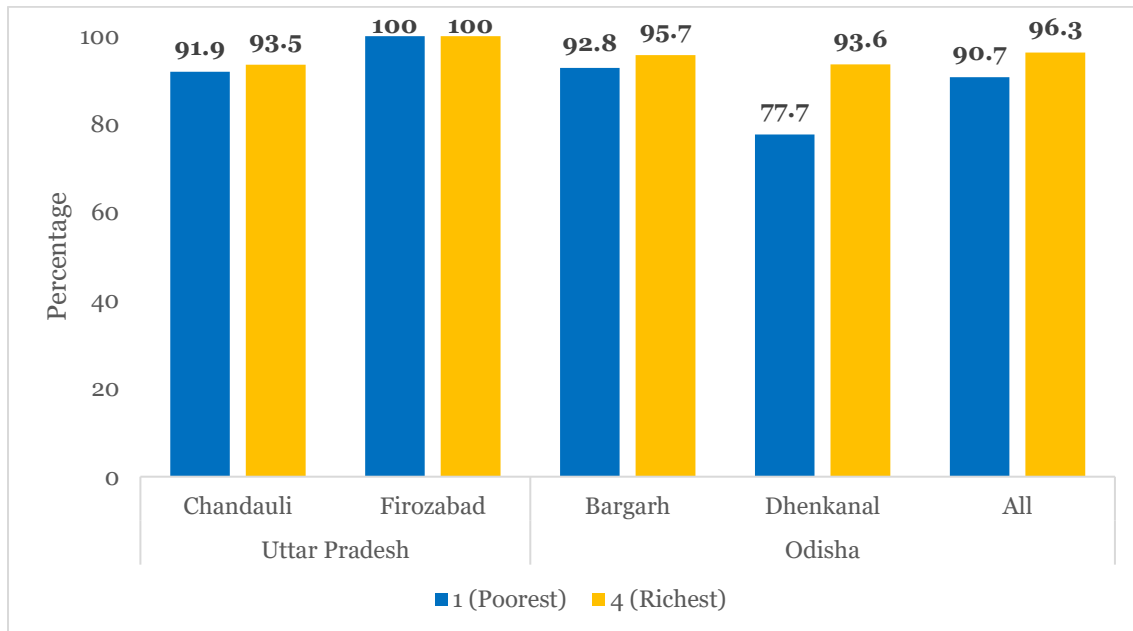
Appendix 6.4 shows the proportion of children receiving treatment by socio-economic and demographic attributes. A higher proportion of female children received treatment than male children except in Bargarh. A higher proportion of children from the OBC/General population groups received treatment. There was no pronounced effect of the size of the household. The number of children receiving treatment after the first flare-up increased with the age of the child.

**Figure 6.12: Proportion of Children Sought Treatment by District and Place of Residence (%)**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Figure 6.13: Proportion of Children Sought Treatment by Expenditure Quartiles**

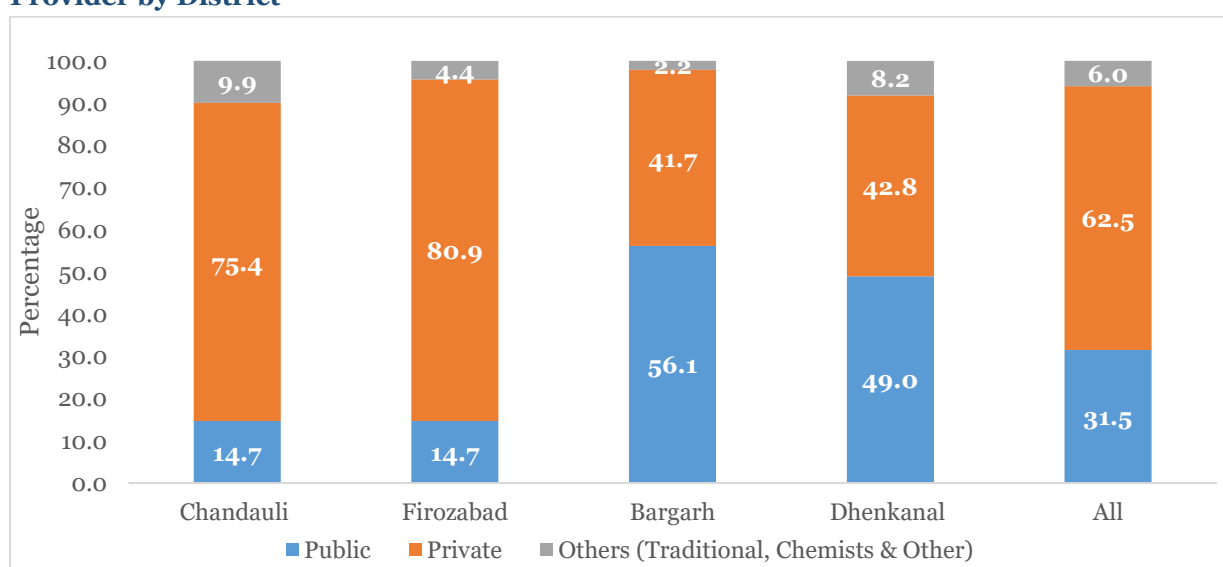


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

### 6.3.5. Type of Service Provider at the First Consultation

Figure 6.14 shows the proportion of children with ARI during the preceding month of the survey who received treatment from different types of health care providers. While 31.5 per cent of the children were taken to public health care providers, 62.5 per cent received treatment from private health care providers. The proportion of children receiving treatment from public health care providers was higher in the two districts of Odisha, while in the case of Uttar Pradesh, a higher proportion of children were being taken to private health care providers.

**Figure 6.14: Share of the First Source of Treatment by the Type of Healthcare Service Provider by District**



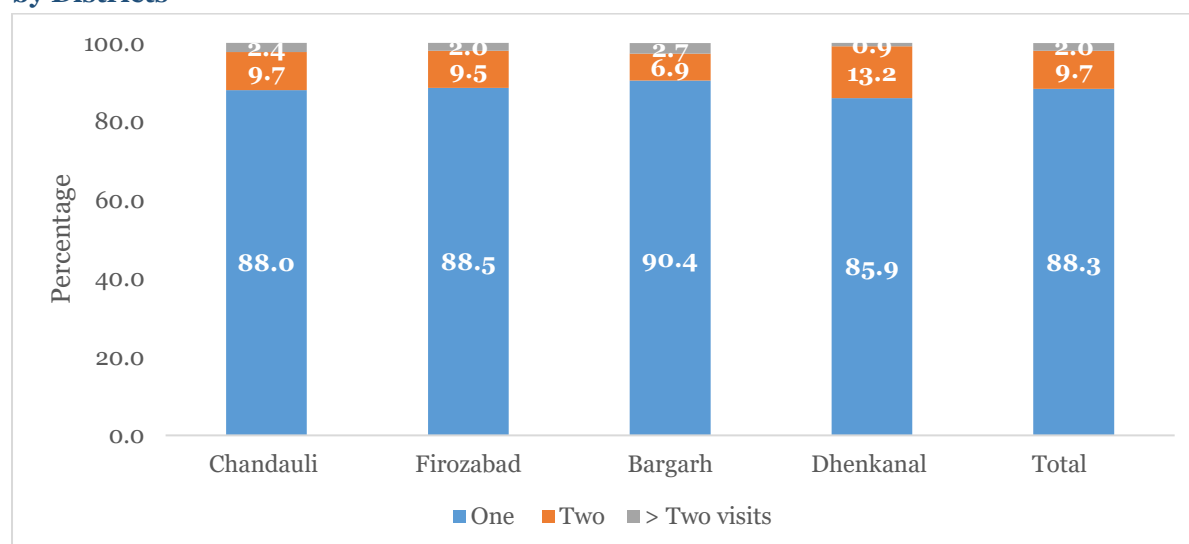
Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 6.5 presents the proportion of children receiving treatment from different types of health care providers by socio-economic and demographic attributes. The proportion of children being taken to the chemist, and traditional and other types of health care providers was very small (6.1 per cent). In rural areas, a relatively higher proportion of children were taken to public health care providers than in the urban areas, though in total, a majority of them were taken to private health care providers. The proportion of children receiving treatment from public health care providers was higher for the SC/ST population groups, at 35.1 per cent, as compared to those for the OBC/General population groups, at 29.3 per cent. The share of children receiving treatment from private health care providers increased with a rise in the monthly per capita expenditure. A higher share of children from households of a larger size were taken to private health care providers. There were no noticeable variations across genders. The proportion of children being taken to the private health care providers decreased with the age of the children.

### 6.3.6. Number of Health Care Providers Consulted

The proportion of children taken to a number of health care providers by districts is given in Figure 6.15. About 88 per cent of the children received care from one health care provider. There were no major variations across the four districts. The proportion of children being taken to two health care providers was the highest (13.2 per cent) in Dhenkanal. A very small proportion of children (2 per cent) were taken to more than three health care providers.

**Figure 6.15: Distribution of Patients by the Number of Health Care Providers Visited by Districts**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 6.6 presents the distribution of children taken to a number of health care providers by socio-economic and demographic attributes. Although a large majority of the children continue to be taken to just one health care provider, this figure is slightly higher for children from urban areas, female children, and children from small-sized households. The proportion of children receiving treatment from one health care provider decreased with a rise in the monthly per capita expenditure and increased with the age of the children.

Table 6.6 presents the average number of healthcare providers consulted for children with ARI during the preceding one month. Children from rural areas and male children received treatment from a higher number of health care providers as compared to their urban female counterparts. Younger children and those from households with higher monthly per capita expenditures also received treatment from a higher number of health care providers.

**Table 6.6: Average Number of Health Care Providers Consulted For Treatment of ARI in Children (Five Years of Age) after a Flare-up during the Preceding One Month by Socio-economic and Demographic Attributes (Numbers)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	Total
All	1.2	1.1	1.1	1.2	1.1
Place of Residence					
Rural	1.2	1.2	1.1	1.2	1.2
Urban	1.1	1.1	1.1	1.1	1.1
Gender					
Male	1.2	1.2	1.1	1.2	1.2
Female	1.1	1.1	1.1	1.1	1.1
Age Categories					
Up to 1 Year	1.2	1.2	1.1	1.1	1.2
2-3 Years	1.2	1.1	1.1	1.2	1.1
4-5 Years	1.1	1.1	1.2	1.2	1.1
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	1.2	1.2	1.1	1.1	1.1
Quartile 2	1.1	1.1	1.1	1.2	1.1
Quartile 3	1.1	1.1	1.1	1.1	1.1
Quartile 4 (Richest)	1.2	1.2	1.2	1.2	1.2

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

### 6.3.7. Sequencing of Providers

Appendix 6.7 shows the sequencing of visits for children with ARI during the preceding month, to different types of health care providers after the first. It may be recalled that a higher proportion of children received treatment from public health care providers in the two districts of Odisha. A considerable proportion of the children taken to public health care providers in the first visit in the two districts of Odisha continued receiving treatment from the same health care provider in subsequent visits. In contrast, in Uttar Pradesh, a sizeable proportion of the children receiving treatment from public health care providers shifted to private providers in subsequent visits. The children receiving treatment from chemists or other types of health care providers were taken to private health care providers in subsequent visits.

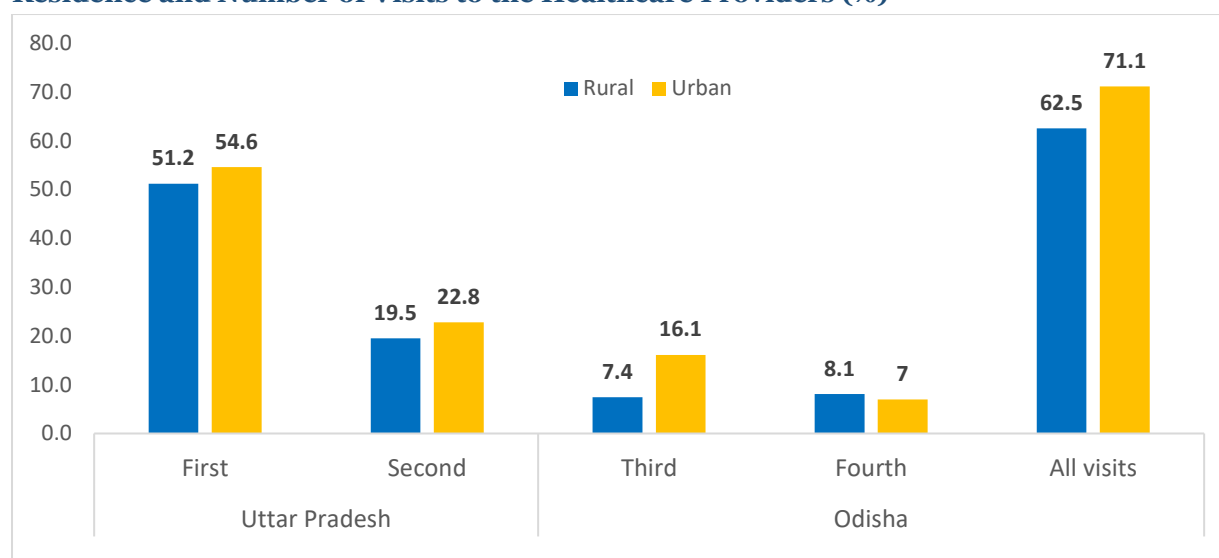
Appendix 6.8 presents the sequencing of visits of children with ARI during the preceding one month to different types of health care providers by socio-economic and demographic attributes. Although a higher proportion of children from the rural areas than from urban areas received treatment from private health care providers, a higher proportion of children from rural areas also shifted to other types of health care providers in their subsequent visits. A higher proportion of male children received treatment from private health care providers in their first visits and continued receiving treatment from private health care providers in subsequent visits. The proportion of children receiving treatment from private health care providers increased, as per expectation, with a rise in the monthly per capita expenditure.

### 6.3.8. Exiting from Treatment

This section presents the recovery status and, therefore, the exit of children from the treatment pathway after receiving treatment from a health care provider by socio-economic and demographic variables.

About 52 per cent of the children who were taken to a health care provider recovered after the first visit, while another 20 per cent recovered after the second visit. Overall, 64 per cent of the children with ARI (including those who did not receive any treatment) recovered. As seen in Figure 6.16, the rate of recovery in urban areas (71.1 per cent) was higher than that in rural areas (62.5 per cent).

**Figure 6.16: Proportion of Recovering Children (Five Years of age) by Place of Residence and Number of Visits to the Healthcare Providers (%)**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

The overall recovery rate for children with ARI was much higher in the two districts of Uttar Pradesh than those of Odisha (Table 6.7).

**Table 6.7: Proportion of Children Who Recovered by Number of Visits and District (%)**

	Recovery Status after Visiting the Health Care Provider				
	First	Second	Third	Fourth	All visits
All	51.8	20.0	8.8	8.0	64.0
Chandauli	74.2	36.1	11.3	13.2	81.9
Firozabad	61.5	34.4	21.0	14.6	82.8
Bargarh	34.5	4.3	3.5	7.2	42.0
Dhenkanal	29.8	17.5	6.4	3.5	41.6

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 6.9 highlights the negligible impact of the place of residence, gender, and social status on the recovery rate of children. The recovery rate of children with ARI declined with a rise in the monthly per capita expenditure. The recovery rate was also higher for children from larger-sized households than from smaller-sized ones. The recovery rate improved with the age of children.

Table 6.8 reports the distribution of children who were withdrawn from treatment (with parents either doing nothing for them or providing them with “self-care and self-medication”) and who continued receiving treatment from either the same health care provider or from a different one. Among the children who did not recover after the first visit, 56.1 per cent were withdrawn from treatment and were given either nothing or were subjected to home (self) care/medication, whereas 21.3 per cent switched from the previous health care provider to another one. The proportion of children for whom nothing was done or who were subjected to home (self) care increased with an elongation of the treatment pathway, that is, with an increase in the number of visits. The proportion of children for whom nothing or ‘home (self) care’ were the options was higher in the two districts of Odisha as compared to the two districts of Uttar Pradesh, with the latter also having a higher proportion of children reporting a change of health care providers.

**Table 6.8: Status (Exiting/Repeating Visit to the Same Healthcare Provider/ Switching Healthcare Provider) of Patients after the First and/or Subsequent Visit to the Health Care Provider by District (%)**

	After the First Visit			After the Second Visit			After the Third Visit		
	Nothing/ Self-care/ Medication	Re-peat Visit	Switching the Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider	Nothing/ Self-care/ Medication	Repeat Visit	Switching the Provider
All	56.1	22.6	21.3	78.7	14.8	6.6	81.2	16.1	2.7
Districts									
Chandauli	30.8	31.0	38.2	55.1	28.5	16.4	59.3	28.3	12.4
Firozabad	25.4	48.9	25.6	48.2	42.5	9.3	62.7	32.6	4.7
Bargarh	84.1	2.1	13.8	93.7	0.8	5.5	89.3	9.7	1.0
Dhenkanal	63.8	18.2	18.0	88.9	8.5	2.9	88.5	10.8	0.7

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Note: The denominator is the total persons making successive visits to health care providers.

Appendix 6.10 shows that in urban areas, a smaller proportion of children were given nothing or were subjected to home (self) care, and a higher proportion continued their treatment with the same health care provider. There are negligible differences for different genders, social groups, and children from households falling in different monthly per capita expenditure quartiles. The proportion of children being given nothing or subjected to home (self) care was higher for children from households of smaller size. It also increased with the age of the children.

### 6.3.9. Key Findings from Health-seeking Pathway Analysis

Following are some salient findings from the analysis of the health-seeking pathways:

- A very small proportion of children (5.1 per cent) did not receive any treatment.
- The duration of delay was very small (2.1 days) as compared to that for patients with the two chronic health conditions discussed in the previous two chapters.
- The proportion of children receiving care from private health care providers is higher in the two districts of Uttar Pradesh.
- The recovery rate of children with ARI is also quite high (63.4 per cent). It is higher in the two districts of Uttar Pradesh than in the two districts of Odisha.
- The children receiving treatment from public health care providers or chemists or other types of health care providers shifted to private health care providers with an elongation in the treatment pathways.

### 6.4. Out-of-pocket Spending

It has been observed that ARI is a major cause for morbidity and mortality in children aged upto five years in both developed and developing countries. Around one-third or 32 per cent of the deaths occurred among children aged under five in South Asian countries (UNICEF 2014). Acute respiratory infections cause inflammation of the respiratory tract with a variety of symptoms like common cold and even breathing problems (Pore et al. 2010). In managing children's health, mothers play an important role as they are the first to recognise the sick child and their deliberate decision of seeking treatment can prevent mortality rates among under-five children (Chibwana et al. 2009; D'Souza 2003; Hortensia et al. 1997; Mitra et al. 2001). The Integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD) prioritises the case management, improvement of nutrition, breastfeeding, vaccination, and treatment of pneumonia and diarrhoea by 2025 (WHO/UNICEF 2013). Still, according to NFHS-4 data, in both the rural and urban areas of India, only 71 per cent and 80 per cent of the children having ARI/fever during the preceding two weeks sought treatment from any health facilities (NFHS-4: Factsheets). In India, even the ARI burden is high, the vaccines against ARI are not a part of the national immunisation schedule. Factors contributing to complications and death include a delay in diagnosis (Majumdar et al. 2014), improper use of antibiotics (Hardy and Traisman 1956; Taylor et al. 1977), home remedies and not seeking treatment (Willis et al. 2009). Therefore, the cost of treatment of childhood ailments poses an adequate economic burden on the affected households. Around 10 per cent of the household income was spent on the treatment of acute childhood illnesses (Dongre et al. 2010). Among the hospitalised children aged less than five years, the main factors for out-of-pocket (OOP) spending at both public and private facilities were post-discharge medical prescriptions, diagnostic tests, and radiological studies, and the direct costs were 2 to 20 times higher than the indirect costs for ARI (Peasah et al. 2015). The



findings show that inappropriate health-seeking behaviour, that is, seeking of treatment from traditional healers, local chemist shops, unqualified practitioners, self-medication, and resorting to home remedies may lead to a deterioration in the condition of upto-five children with ARI, causing higher economic trauma and even mortality (Halder et al. 2017). The reasons for informal care adherence are the poor socio-economic condition of the household, inaccessibility to proper formal providers, cultural beliefs, illiterate mothers, and large household members (Majumdar et al. 2014).

Disease-specific treatment costs and studies on OOP spending have been poorly emphasised in health epidemiology. Most of the articles have covered OOP expenditure, catastrophic health expenditure, and impoverished health expenditure on selected chronic conditions but not for acute breathing problems. Therefore, this study is an effort to understand the OOP expenditure, catastrophic health expenditure, financial strategies of the households, and health insurance coverage among children up to the age of five years with ARI in all the four districts under study.

#### 6.4.1. Cost of Treatment

The study collected information on the cost of treatment of children aged five years of age suffering from ARI across all the last four treatment-seeking episodes from the healthcare providers. The information regarding the average treatment costs incurred in all the last four visits has been presented in Table 6.9. Among the four districts of Uttar Pradesh and Odisha, the Chandauli and Firozabad districts of Uttar Pradesh reported higher average treatment costs than the two districts of Odisha. The average cost of treatment was higher for urban patients as compared to their rural counterparts, especially in the two districts of Uttar Pradesh.

The percentage share of OOP expenditure to the total household expenditure was higher in urban areas (2.7 per cent) than in rural areas (2.3 per cent). The districts of Chandauli (3.3 per cent) and Firozabad (2.9 per cent) in Uttar Pradesh reported a higher share of OOP expenditure to the total household expenditure.

**Table 6.9: Average OOPE and Its Share in the Total Household Expenditure by District**

Districts	Average Treatment Cost Of all the Last Four Visits (in Rs.)			Percentage Share of OOPE to the Total Household Expenditure		
	Rural	Urban	All	Rural	Urban	All
Chandauli	2880	3691	2960	2.5	3.3	2.5
Firozabad	2393	3583	2808	2.3	2.9	2.6
Bargarh	1741	1999	1770	2.3	1.8	2.2
Dhenkanal	1845	2285	1880	1.8	1.5	1.8
All	2233	3241	2410	2.3	2.7	2.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Table 6.10 depicts the share of treatment cost as a percentage to the total cost by different visits till reporting of the fourth wherein it shows that 82 per cent of the total OOP expenditure was incurred only on the first visit, followed by 14 per cent on the second visit, and so on. The share of the treatment cost for first visit was higher in the Chandauli district of Uttar Pradesh, at 88 per cent than the other districts under study.

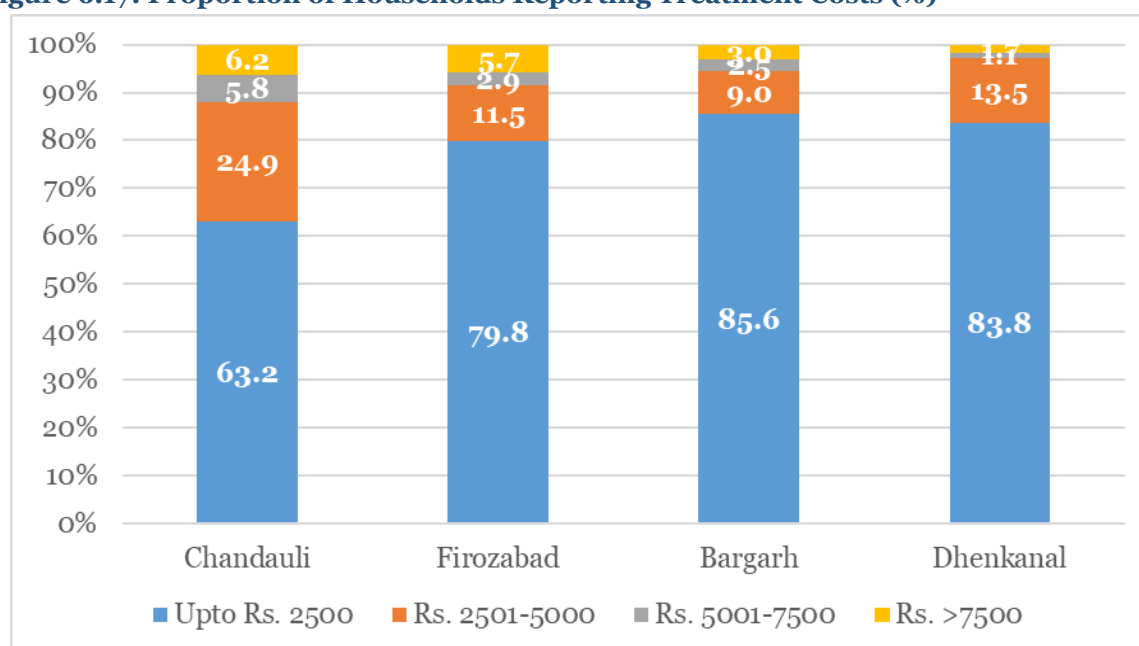
**Table 6.10: Share of the Treatment Cost as a Percentage to the Total Cost by Different Visits**

Districts	Share of the Treatment Cost as a Percentage to the Total Cost by Different Visits			
	First Visit	Second Visit	Third Visit	Fourth Visit
Chandauli	88.3	8.2	2.5	0.9
Firozabad	80.0	19.3	0.5	0.1
Bargarh	80.4	11.8	7.4	0.4
Dhenkanal	77.2	13.6	9.4	0.0
All	82.1	13.8	3.7	0.4

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Figure 6.17 shows the proportion of households reporting their share of the cost incurred on the treatment of upto-five children having ARI. The analysis pertains to the distribution of OOP expenditure wherein both the Bargarh (86 per cent) and Dhenkanal (84 per cent) districts of Odisha recorded a low cost of treatment (up to Rs. 2,500) as compared to the two districts of Uttar Pradesh. The proportion of households spending more than Rs 7,500 was high among the households in the Chandauli (6.2 per cent) and Firozabad (5.7 per cent) districts of Uttar Pradesh.

**Figure 6.17: Proportion of Households Reporting Treatment Costs (%)**

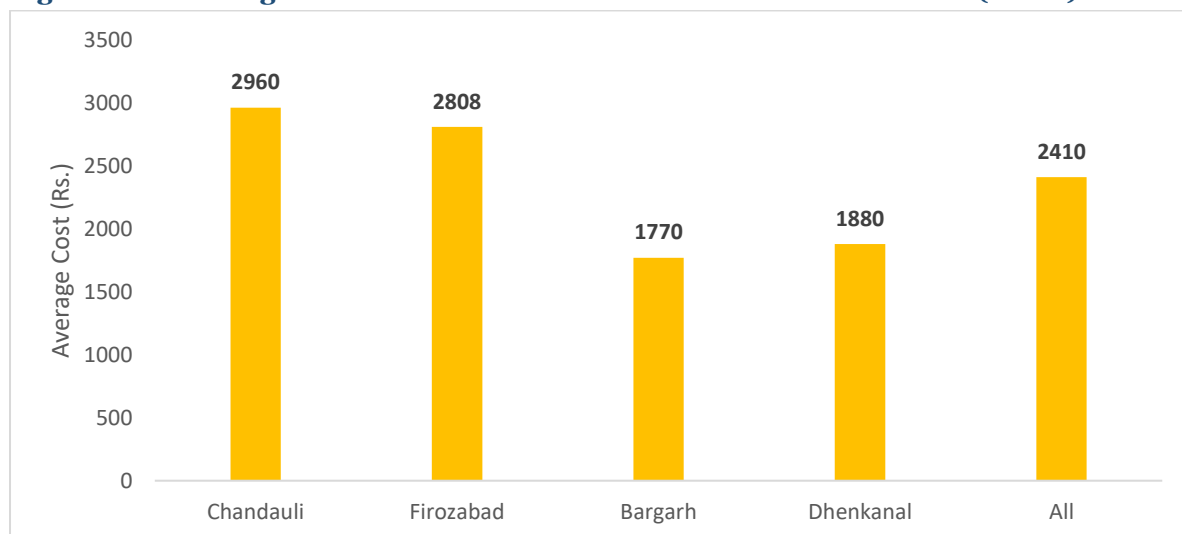


Source: NCAER-NOSSAL 4IS Health Survey, 2019.

The data analysis constituted the average cost of treatment incurred on all the four episodes of visits to the healthcare providers across different background characteristics in the respective districts of Uttar Pradesh and Odisha in correlation with the type of healthcare service provider, as depicted in Appendix 6.11. Figure 6.18 shows that the average cost of treatment incurred on all the four visits was higher in Uttar Pradesh as compared to that in the two districts of Odisha. It was observed that the cost of treatment incurred on male children was higher in both of the districts of Uttar Pradesh as well as in the share of the total expenses incurred on treatment. The preference for treatment of a male child and the desire for him to recover soon were higher than for the female child in the household’s health-seeking behaviour (Sivamani 2016).

Except for Bargarh district, all the other districts reported a higher average cost of treatment for children in the age group of 4-5 years compared to the other two groups. With an increase in the age of children with ARI, the seriousness of treatment-seeking and their associated costs also increased. The distribution of the associated treatment costs can also be identified based on the social stratification. Except for Dhenkanal, the average cost of treatment for ARI among children in the OBC/General categories was higher than that in the SC/ST social groups. Across the per capita expenditure quartiles, the average treatment cost increased with an increase in the household’s per capita expenditure. The analysis showed that except for Dhenkanal, households with more than five members from all the other districts incurred higher treatment costs as compared to their counterparts in the other districts under study. Households from all the four districts under study were also found to be spending more on private healthcare facilities, which indicates the households’ preference for private facilities over those in the public sector.

**Figure 6.18: Average Cost of Treatment Incurred on All the Four Visits (in Rs.)**



Source: NCAER-NOSSAL 4IS Health Survey, 2019.

The distribution of treatment costs according to the type of provider have been discussed in Table 6.11, wherein the total proportion of the treatment cost on ARI in the private healthcare sector (79 per cent) was the highest, followed by that in the public sector (19 per cent), and others. The costs incurred on treatment in private healthcare facilities in the Firozabad (92 per cent) and Chandauli (88 per cent) districts was higher than in the other two districts under study.

**Table 6.11: Distribution of Treatment Expenses by the Type of Providers and District (%)**

Districts	Public Provider	Private Provider	Chemist	Traditional Provider	Other
Chandauli	9.5	88.0	0.3	0.0	2.2
Firozabad	6.3	91.8	0.3	0.0	1.5
Bargarh	48.7	50.6	0.0	0.1	0.7
Dhenkanal	36.6	58.2	0.8	4.3	0.0
All	19.1	78.5	0.3	0.7	1.4

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

#### 6.4.2. Catastrophic Health Expenditure Estimates

The catastrophic health expenditure has been calculated on the basis of the percentage distribution of the total treatment costs. Table 6.12 provides an overview of the percentage catastrophic health expenditure incurred on the first treatment across all the districts. It can be observed that as regards the total distribution, around 4 per cent of the households spent more than 10 per cent of their total household expenditure on the first treatment and 5 per cent of the total treatment costs for all the four visits to the healthcare provider. The district of Firozabad (5 per cent) reported a higher share on the first treatment cost while both the districts of Chandauli and Firozabad reported an expenditure of around 6 per cent on the total treatment cost in both districts of Uttar Pradesh.

**Table 6.12: Share of Households Spending More Than 10% of the Total Expenses on Treatment by District**

Background Characteristics	On First Treatment Cost (% Households)	On Total Treatment Cost (% Households)
All	3.7	5.3
Districts		
Chandauli	4.9	6.1
Firozabad	5.0	6.2
Bargarh	2.6	4.5
Dhenkanal	1.5	4.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Appendix 6.12 presents details of the catastrophic health expenditure by socio-economic and demographic parameters.

With respect to the total non-food household expenditure, around 14 per cent and 16.5 per cent of the households spent more than 10 per cent of the total non-food expenditure on the treatment of ARI in the first visit and on all the four visits shown in Table 6.13, respectively. Households belonging to rural areas in the Chandauli district of Uttar Pradesh incurred higher treatment costs than their urban counterparts on both the first visit and all the visits as a proportion of the total household non-food expenditure. With an increase in the number of treatment-seeking episodes for children with ARI, the share of household spending to the total household expenditure also increased for all the catastrophic thresholds and socio-economic backgrounds.

**Table 6.13: Percentage Households Reporting Spending on Treatment as a Percentage of the Total Household Non-food Expenditure by Different Visits to the Health Care Service Providers by District**

Background Characteristics	Percentage of Households Spend on Treatment at Different Threshold Levels (Treatment Cost of the First Visit as a % to the Total Household Non-food Expenditure)				Percentage of Households Spend on Treatment at Different Threshold Levels (Treatment Cost of All the Visits as a % to the Total Household Non-food Expenditure)			
	Catastrophic Thresholds				Catastrophic Thresholds			
	>10%	>20%	>30%	>40%	>10%	>20%	>30%	>40%
All	13.6	5.8	2.8	1.5	16.5	7.1	3.9	2.3
Districts								
Chandauli	20.2	9.5	4.3	2.4	22.5	9.7	5.1	2.4
Firozabad	14.2	7.0	4.2	2.6	16.7	8.0	5.4	3.8
Bargarh	7.4	2.6	1.1	0.4	10.3	4.3	2.4	1.1
Dhenkanal	11.7	3.0	0.6	0.3	15.9	5.7	1.6	1.1

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Households with up to five members, belonging to the SC/ST social groups, especially those from the poorest per capita expenditure quartile were more likely to incur higher treatment costs on both the first visit and all the visits as a proportion of the total household non-food expenditure. With an increase in the number of treatment-seeking episodes for children with ARI, the share of household spending to the total household expenditure also increased for all the catastrophic thresholds and socio-economic backgrounds (Appendix 6.13).

### 6.4.3. Financial Strategies

Despite the initiation of various plans and programmes over the years, the Indian State's health indicators have not improved significantly. It is true that the health-seeking behaviours of the people are largely affected by their financial status as healthcare facilities are not free, and privatisation has further increased the cost of quality healthcare treatment. Therefore, the marginalised sections of the society have

been adversely affected by the high OOP expenditure. Consequently, households primarily resorted to varied financial risk protection strategies like selling of assets, borrowing money from random sources, and curtailing the education expenses of their children (Garg and Karan 2005; Rout 2010; Sahoo and Madheswaran 2014).

Table 6.14 examines the information pertaining to financial strategies that households resorted to for meeting their treatment costs. Overall, around 81 per cent of the households were dependent on their savings, followed by the strategy of borrowing money from relatives, moneylenders, healthcare providers, and others to face the health expenditure shock caused by high OOP expenditure and a low level of insurance coverage. In Firozabad, a majority of the households (86 per cent) were more inclined to spend money from their savings on health care. On the other hand, households in the Dhenkanal district showed less inclination towards using their savings for treatment in comparison with the other districts, and only 21 per cent of the households in the district borrowed money for healthcare treatment. Less than 1 per cent of the households used insurance as a cost coverage option for treatment of children with ARI.

**Table 6.14: Financing Strategies to Meet Treatment Costs (% Households) by District**

Districts	Savings	Borrowed (from Relatives/Moneylenders/Health Care Providers)	Insurance	Others (Sale Jewellery/Property ; Other)
Chandauli	80.1	19.0	0.0	0.8
Firozabad	86.0	13.2	0.3	0.5
Bargarh	79.2	19.9	0.0	0.9
Dhenkanal	78.5	21.1	0.2	0.2
All	81.3	17.9	0.1	0.6

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Health Insurance:** In India, with an increase in the financial burden caused by health shocks, the number of people living below the poverty line also increases (Mitchell et al. 2011). Thus, in order to provide financial aid, especially to the marginalised sections of the population, the Central Government in India has launched various insurance schemes, among which the Rashtriya Swasthya Bima Yojana (RSBY) scheme being implemented by the Ministry of Labour and Employment deserves special mention. A few states like Kerala and Himachal Pradesh have also extended the benefit packages of RSBY, whereas State governments like those of Odisha and West Bengal also have their own public health insurance schemes apart from RSBY, such as the Biju Swasthya Kalyan Yojana (BSKY) and the Swasthya Sathi Scheme, which are funded by the state revenues. However, health insurance coverage is not applicable for acute ailments as it can only be availed of through hospitalisation.

The analysis in Table 6.15 indicates that overall, around 21 per cent of the households reported being covered under the RSBY/Arogyashri/BSKY schemes, 76 per cent had no insurance, and only 2.7 per cent and 0.9 per cent of the households were covered

under the government and private healthcare insurance schemes, respectively, in all the four districts cumulatively.

Only the two districts of Odisha under study, that is, Bargarh (37 per cent) and Dhenkanal (38 per cent) were covered under the RSBY/Arogyashri/BSKY schemes, and around 92 per cent of the households from both the districts of Uttar Pradesh had not been covered by any health insurance schedule. Further, none of the government or private health insurance schemes separately covered treatment costs for children suffering from ARI. Irrespective of the differences in the economic and per capita expenditure quartiles, most of the households with children with ARI were not insured under any public or private health schemes (75 to 78 per cent), and as per the different quartile cohorts, only 16 to 22 per cent of the households were covered under the RSBY/Arogyashri/BSKY schemes.

**Table 6.15: Type of Health Insurance Coverage by Districts and Per Capita Expenditure Quartiles (% Households)**

	Private	Government	RSBY/Arogyashri/BSKY	No Insurance
All	0.9	2.7	20.1	76.2
Districts				
Chandauli	0.5	1.3	6.0	92.2
Firozabad	0.5	1.6	6.0	92.0
Bargarh	1.8	1.5	36.8	59.9
Dhenkanal	1.2	6.9	37.6	54.4
Per Capita Expenditure Quartiles				
Quartile 1	0.2	0.6	21.8	77.4
Quartile 2	0.9	1.8	22.4	74.9
Quartile 3	1.6	3.6	20.1	74.7
Quartile 4	1.1	5.2	15.9	77.9

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

#### 6.4.4. Salient Findings from the Analysis of OOP Spending

Following are the significant findings based on an assessment of the OOP expenditure incurred by different categories of households:

- The household OOP spending on treatment was higher in Uttar Pradesh than in Odisha, and patients living in urban areas reported higher levels of OOP spending than their counterparts from rural areas.
- The larger share of treatment costs incurred mostly pertained to the first visit to the healthcare provider as compared to the subsequent episodes of visit.
- In both the States, higher OOP expenditures were incurred on treatment from private healthcare providers. However, the share of spending on public providers was relatively higher in Odisha (around 40 per cent) than in Uttar Pradesh.



- The estimated catastrophic spending was higher in urban than in rural areas. There was not much difference for the other variables in terms of catastrophic healthcare spending for the 10 per cent threshold in the first visit and all the visits cumulatively. It is, however, evident that, the poorest household was spending more than the richest household on the entire healthcare-seeking pathway.

## 6.5. Factors Influencing the Choice of Health Care Provider

It has been observed that ARI is a major public health problem afflicting young children globally (Kamal et al. 2020). It is the leading cause of mortality and morbidity among children, especially in developing countries. About 40 per cent of global child mortality happens due to ARI, especially in Bangladesh, India, Indonesia, and Nepal (Park 2015). Globally, 1,400 cases of pneumonia per 100,000 children are recorded each year with the highest incidence rate in South Asia, exhibiting 2,500 cases per 100,000 children. Pneumonia is seen as the most serious outcome of ARI (UNICEF 2020). ARI contributes to 15-25 per cent of deaths among children in India, and most of them are preventable. According to the latest NFHS-4 report, around 3 per cent of the children in India were detected with symptoms of ARI during the last two weeks before the survey, and among them, 78 per cent sought treatment from any health service provider. The report also showed that the percentage of children with symptoms of ARI was higher in Uttar Pradesh (5 per cent) than in Odisha (2.4 per cent).

### 6.5.1. Opinion on the Quality of Health Care Facilities

An examination of the consumers' perceptions regarding their health issues and their health care-seeking behaviour points to several ways of obtaining better access and quality of healthcare. Health-seeking behaviour is defined as the "sequence of remedial actions that individuals undertake to rectify perceived ill-health" (UBC Wiki 2015). The health care-seeking behaviour varies according to the response to ill health by individuals, their knowledge and perceptions of health, socio-economic parameters, the number of quality healthcare services available near the consumer, and the attitude of healthcare providers. Perceived health risks and health self-efficacy significantly influence the health seeking-behaviour intentions of the consumer (Deng and Liu 2017).

Therefore, this study elaborates the dynamic regional variations in the quality of healthcare providers as perceived by the respondents for their ill children. These findings and assessments may help contribute to national policy making for child immunisation and disease prevention. The variables and background characteristics analysed in the previous chapters on the quality of healthcare sought for treating respiratory problems among adults and gynaecological problems among women aged



15-49 years have also been used in this chapter for studying health-care seeking for five children with ARI. This section of the study examines the respondents' perceptions about the health service providers for children suffering from ARI. The perceived knowledge among the respondents about the healthcare providers in the vicinity of their homes and the quality of care offered by these providers have envisioned through multiple indicators determining the reasons for the choice of providers in treatment-seeking.

### 6.5.2. Evaluation of Health Care Service

Table 6.16 depicts the district-wise differences in perceptions about healthcare providers (public versus private) wherein overall there was a higher preference for public healthcare facilities (87.7 per cent) for treatment of children with ARI as compared to private facilities (77.7 per cent) and the reason given by the respondents was 'good services' offered by the facilities concerned. Respondents in the Bargarh (94 per cent) and Dhenkanal (92 per cent) districts of Odisha showed a higher inclination towards seeking treatment from public providers offering good services as compared to their counterparts in the two districts of Uttar Pradesh. Only respondents in the Chandauli district (71 per cent) perceived that private healthcare providers offered good services. Overall, the service offered by private facilities for the treatment of children with ARI was perceived as 'excellent' by only 19 per cent of the respondents.

**Table 6.16: Respondent Ratings of Public and Private Providers by District (% Households)**

Districts	Excellent		Good		Poor	
	Public	Private	Public	Private	Public	Private
Chandauli	28.5	25.9	60.9	70.7	2.5	3.3
Firozabad	18.0	21.7	76.9	75.5	5.1	2.4
Bargarh	3.9	6.2	94.0	91.6	1.7	2.2
Dhenkanal	4.9	10.9	92.3	84.8	2.2	4.3
Total	8.7	19.2	87.7	77.7	2.5	2.9

Source: NCAER-NOSSAL Survey, 2019

### 6.5.3. Factors Determining the Choice of Health Facilities

The two major factors that were considered by all the respondents in their selection of health facilities across districts and the sources of health care were good reputation (70.7 per cent) of the facility and proximity (66.3 per cent) to the same (Appendix 6.14). In the case of households that chose public health care facilities, along with the aforementioned factors, inexpensiveness (64.2 per cent) was a major consideration in the choice. Good reputation of the facility (69.3 per cent), proximity (62.3 per cent), and prior good experience (44.8 per cent) were the key factors for those who chose the

particular facility to seek treatment for children with ARI. For those who chose “other” facilities, proximity was the most important determining factor.

The district-wise data revealed that for the districts of Chandauli, Firozabad, and Dhenkanal, proximity and good reputation of the health care facility were clearly the two most important deciding factors for their choice of health care provider. However, in the case of Bargarh, apart from these two factors, prior good personal experience (67.7 per cent) and inexpensiveness (57.5 per cent) were also important considerations. In the case of Chandauli, 40 per cent of the respondents also factored in the availability of drugs in their decision-making process.

Factors such as the qualifications of staff, having friends/relatives working in the facility and /or recommendations by relatives were not important deciding factors for a significant proportion of the respondents.

### **6.5.4. Key Factors Determining the Choice of Health Care Providers**

Following are the findings relating to the key deciding factors in the choice of the health care providers by households:

- Most of the respondents reported that both public and private healthcare facilities were ‘Good’ but this good opinion was tilted more in favour of public providers as compared to the private ones.
- The three most important considerations for the respondents, as a whole, in the choice of the health care facility were good reputation of the facility (71 per cent), proximity (66.3 per cent), and good personal experience (48 per cent).

## APPENDICES

**Appendix 6.1: Status of Treatment after the Fourth Visits Total Sample (1,630)**

Districts	Status of the Treatment after the Fourth Visit						Total
	No Treatment	Recovered	Nothing	Self-care	Repeat Visit	Sought a Different Provider	
All	5.4	64.0	7.9	17.6	2.8	0.5	100.0
<b>Place of Residence</b>							
Rural	6.1	62.5	8.6	18.0	4.3	0.5	100.0
Urban	2.2	71.1	4.5	16.2	5.6	0.6	100.0
<b>Gender</b>							
Male	6.5	63.7	8.1	17.4	3.9	0.4	100.0
Female	3.8	64.4	7.6	18.0	5.5	0.7	100.0
<b>Age Categories</b>							
Up to one Year	6.1	61.7	8.3	18.8	4.6	0.4	100.0
2-3 Years	5.6	66.8	7.4	15.0	5.0	0.3	100.0
4-5 Years	4.6	63.2	8.1	19.5	4.0	0.8	100.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.2: Proportion of Children Not Seeking Treatment after a Flare-up during the Preceding One Month by Socio-economic and Demographic Attributes (%)**

	Wait for Auto Recovery	Illness Not Severe Enough	Got Better	Self-care/ Medication	Not Enough Money for Treatment
All	4.5	11.5	10.3	61.6	12.1
<b>Place of Residence</b>					
Rural	3.5	11.8	9.3	62.7	12.7
Urban	15.8	8.2	22.2	48.7	5.1
<b>Gender</b>					
Male	5.8	8.0	7.3	64.1	14.8
Female	1.7	18.7	16.6	56.5	6.5
<b>Social Groups</b>					
SC/ST	4.6	12.5	12.4	54.5	16.1
OBC/ General	4.3	10.4	7.9	69.8	7.6
<b>Monthly Per Capita Expenditure Quartiles</b>					
Quartile 1 (Poorest)	1.8	13.1	15.8	59.0	10.4
Quartile 2	9.3	9.3	2.5	54.6	24.3
Quartile 3	9.6	23.2	16.9	50.2	0.0
Quartile 4 (Richest)	0.0	0.0	0.0	93.1	6.9

Household Size					
Up to 5 Members	5.6	12.2	7.2	62.6	12.3
More than 5 Members	1.9	10.0	17.0	59.5	11.7
Age Categories					
Up to 1 Year	3.1	14.5	3.0	66.6	12.8
2-3 Years	2.8	10.7	8.0	67.6	11.0
4-5 Years	8.4	8.5	23.0	47.4	12.8

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

### Appendix 6.3: Average Duration of Delay in Seeking Treatment by Socio-economic and Demographic Attributes (in Days)

	Uttar Pradesh		Odisha		All
	Chandauli	Firozabad	Bargarh	Dhenkanal	
All	2.3	1.9	2.2	2.1	2.1
Place of Residence					
Rural	2.3	1.8	2.3	2.1	2.1
Urban	2.5	2.1	1.6	2.1	2.1
Gender					
Male	2.7	2.2	2.4	2.4	2.4
Female	1.7	1.4	2.0	1.6	1.7
Social Groups					
SC/ST	2.6	2.0	2.8	2.0	2.4
OBC/Gen	2.0	1.9	1.8	2.2	1.9
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	3.4	2.9	2.9	2.9	3.1
Quartile 2	1.9	2.3	2.6	2.3	2.3
Quartile 3	1.7	1.7	1.7	2.1	1.8
Quartile 4 (Richest)	1.5	1	1.6	1.3	1.3
Household Size					
Up to 5 Members	2.2	1.5	2.1	2.2	2.0
More than 5 Members	2.4	2.5	2.7	1.8	2.4
Age Categories					
Up to 1 Year	1.4	2.1	2.0	2.2	1.9
2-3 Years	2.6	1.6	2.3	2.1	2.1
4-5 Years	2.7	2.2	2.3	2.2	2.4

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.4: Proportion of Children Being Taken for Treatment after a Flare-up during the Preceding One Month by Socio-economic and Demographic Attributes (%)**

	Chandauli	Firozabad	Bargarh	Dhenkanal	All
All	93.8	99.8	95.7	87.3	94.6
Place of Residence					
Rural	93.8	100.0	95.3	87.0	93.9
Urban	94.3	99.4	99.0	91.7	97.9
Gender					
Male	91.2	99.7	97.1	85.2	93.5
Female	97.2	100.0	93.7	91.6	96.2
Social Groups					
SC/ST	94.5	99.2	93.3	86.1	92.9
OBC/General	93.2	100.0	97.3	88.3	95.6
Monthly Per Capita Expenditure Quartiles					
1 (Poorest)	91.9	100.0	92.8	77.7	90.7
Quartile 2	96.9	100.0	95.1	84.0	94.4
Quartile 3	94.0	99.1	98.5	97.2	97.4
4 (Richest)	93.5	100.0	95.7	93.6	96.3
Household Size					
Up to 5 Members	93.2	99.7	96.0	88.5	94.5
More than 5 Members	94.4	100.0	94.6	83.0	94.8
Age Categories					
Up to 1 Year	94.8	99.5	94.7	82.7	93.9
2-3 Years	93.9	100.0	94.9	87.0	94.5
4-5 Years	92.7	100.0	97.7	92.0	95.5

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.5: Proportion of Children Who Received First Treatment By the Type of Healthcare Service Provider during the Preceding One Year by Socio-economic and Demographic Attributes (%)**

	Public	Private	Chemist	Traditional	Other
All	31.5	62.5	1.1	1.3	3.7
Place of Residence					
Rural	33.3	59.8	1.1	1.5	4.3
Urban	23.3	75.0	0.7	0.3	0.7
Gender					
Male	31.8	63.1	0.7	0.9	3.5
Female	31.1	61.5	1.5	2.0	3.9
Social Groups					
SC/ST	35.1	57.0	0.8	0.8	6.3
OBC/General	29.3	65.8	1.2	1.6	2.1
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	37.3	56.9	1.0	1.6	3.3
Quartile 2	34.1	61.2	1.6	1.0	2.2
Quartile 3	30.1	64.4	0.7	0.4	4.5
Quartile 4 (Richest)	24.2	67.8	1.0	2.3	4.7
Household Size					
Up to 5 Members	35.5	58.4	0.8	1.5	3.8
More than 5 Members	23.8	70.4	1.6	0.9	3.4
Age Categories					
Up to 1 Year	27.8	65.2	0.7	1.7	4.6
2-3 Years	30.2	65.1	1.2	0.9	2.7
4-5 Years	37.5	56.1	1.4	1.4	3.7

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.6: Proportion of Children Being Taken for Treatment to a Number of Health Care Providers by Socio-economic and Demographic Attributes (%)**

	Number of Visits			
	One	Two	Three	Four
All	88.3	9.7	1.5	0.5
<b>Place of Residence</b>				
Rural	87.9	10.1	1.7	0.6
Urban	90.0	8.0	2.0	0.0
<b>Gender</b>				
Male	87.1	10.4	1.9	0.6
Female	90.0	8.7	0.9	0.3
<b>Monthly Per Capita Expenditure Quartiles</b>				
Quartile 1 (Poorest)	90.3	7.0	2.0	0.7
Quartile 2	87.1	12.0	0.7	0.2
Quartile 3	90.9	7.3	1.3	0.6
Quartile 4 (Richest)	84.9	12.5	2.1	0.5
<b>Household Size</b>				
Up to 5 Members	90.4	8.2	1.1	0.3
More than 5 Members	84.2	12.6	2.2	1.0
<b>Age Categories</b>				
Up to 1 Year	86.6	10.4	2.2	0.9
2-3 Years	89.0	9.7	0.9	0.4
4-5 Years	89.3	8.9	1.5	0.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.7: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Preceding One Month Who Sought Treatment by Districts (%)**

Visits	Public			Private			Chemist			Other		
	Public	Private	Other	Public	Private	Other	Public	Private	Other	Public	Private	Other
<b>Individual Districts</b>												
Chandauli	First		14.7		75.4			1.3			8.6	
	Second	43.0	57.0	0.0	15.1	83.3	1.6	0.0	0.0	0.0	100.0	0.0
	Third	25.6	74.4	0.0	12.6	78.2	9.2	0.0	0.0	0.0	100.0	0.0
	Fourth	49.3	50.7	0.0	19.6	28.8	51.7	0.0	100.0	0.0	0.0	0.0
Firozabad	First		14.7		80.9			1.0			3.4	
	Second	9.0	91.1	0.0	5.8	86.0	8.2	0.0	100.0	0.0	8.2	61.9
	Third	0.0	100.0	0.0	27.7	72.3	0.0	0.0	100.0	0.0	0.0	100.0
	Fourth	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Bargarh	First		56.1		41.7			0.0			2.2	
	Second	52.0	44.3	3.8	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0
	Third	58.8	25.3	16.0	34.1	65.9	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	49.7	50.3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dhenkanal	First		49.0		42.8			2.1			6.1	
	Second	37.6	58.7	3.7	33.7	50.6	15.8	0.0	0.0	0.0	100.0	0.0
	Third	90.4	9.6	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All	First		31.5		62.5			1.1			5.0	
	Second	37.9	59.4	2.7	11.8	82.1	6.1	0.0	100.0	0.0	0.0	71.9
	Third	48.2	44.7	7.1	20.1	76.1	3.9	0.0	100.0	0.0	0.0	0.0
	Fourth	37.8	25.5	36.7	32.6	35.3	32.1	0.0	0.0	0.0	0.0	0.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.8: Sequencing of Visits to Different Types of Health Care Providers with a Flare-up during the Preceding One Month Who Sought Treatment by Socio-economic and Demographic Attributes (%)**

<i>Place of Residence</i>													
Rural	First		23.2			48.6			7.4			20.8	
	Second	8.4	80.6	11.0	10.1	43.0	46.9	10.2	57.5	32.3	11.1	48.2	40.7
	Third	10.5	36.8	25.7	16.6	36.9	46.5	0.0	100.0	0.0	0.0	100.0	0.0
	Fourth	18.0	68.0	14.0	0.0	38.1	61.9	0.0	0.0	0.0	0.0	0.0	0.0
Urban	First		26.5			33.3			9.5			30.7	
	Second	7.8	80.9	11.4	12.1	27.7	60.2	0.0	0.0	0.0	0.0	100.0	0.0
	Third	0.0	39.2	60.8	21.2	78.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	15.6	84.5	27.1	72.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Gender</b>													
Male	First		23.5			47.0			7.3			22.2	
	Second	9.1	75.9	15.0	11.4	35.8	52.8	10.2	57.5	32.3	17.4	51.0	31.7
	Third	5.1	57.4	37.5	12.6	57.2	30.1	0.0	100.0	0.0	0.0	100.0	0.0
	Fourth	12.0	45.3	42.7	0.0	61.4	38.6	0.0	0.0	0.0	0.0	0.0	0.0
Female	First		25.7			38.1			9.7			26.5	
	Second	4.8	95.2	0.0	7.4	50.1	42.6	0.0	0.0	0.0	0.0	83.0	17.0
	Third	0.0	26.7	73.3	29.3	11.1	59.6	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	45.7	54.3	30.9	27.5	41.6	0.0	0.0	0.0	0.0	0.0	0.0
<b>Monthly Per Capita Expenditure Quartiles</b>													
Quartile 1 (Poorest)	First		30.5			35.5			11.8			22.2	
	Second	12.8	87.2	0.0	0.0	58.7	41.3	18.4	81.6	0.0	0.0	100.0	0.0
	Third	0.0	0.0	0.0	31.1	27.4	41.5	0.0	0.0	0.0	0.0	100.0	0.0
	Fourth	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Quartile 2	First		21.7			48.4			4.5			25.5	
	Second	3.5	83.8	12.8	16.3	66.1	17.7	0.0	0.0	0.0	0.0	89.9	10.1
	Third	0.0	80.7	19.3	0.0	53.1	46.9	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Quartile 3	First		25.4			44.9			7.1			22.6	
	Second	0.0	95.7	4.4	0.0	33.2	66.8	0.0	0.0	100.0	100.0	0.0	0.0
	Third	0.0	37.7	62.4	12.3	36.8	50.9	0.0	0.0	0.0	0.0	0.0	0.0
	Fourth	0.0	100.0	0.0	0.0	77.6	22.4	0.0	0.0	0.0	0.0	0.0	0.0
Quartile 4 (Richest)	First		19.4			49.3			8.8			22.5	
	Second	20.8	55.2	24.0	20.5	21.2	58.0	0.0	100.0	0.0	0.0	40.2	59.9
	Third	11.9	38.6	49.4	31.7	54.7	13.7	0.0	100.0	0.0	0.0	100.0	0.0
	Fourth	30.1	16.3	53.5	24.9	0.0	75.1	0.0	0.0	0.0	0.0	0.0	0.0

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.9: Proportion Of Children Who Recovered, by Number of Visits to Healthcare Providers for Treatment during the Preceding One Month by Socio-economic and Demographic Attributes (%)**

	Recovery Status after Visiting the Health Care Provider				
	First	Second	Third	Fourth	All visits
All	51.8	20.0	8.8	8.0	64.0
Chandauli	74.2	36.1	11.3	13.2	81.9
Firozabad	61.5	34.4	21.0	14.6	82.8
Bargarh	34.5	4.3	3.5	7.2	42.0
Dhenkanal	29.8	17.5	6.4	3.5	41.6
Place of Residence					
Rural	51.2	19.5	7.4	8.1	62.5
Urban	54.6	22.8	16.1	7.0	71.1
Gender					
Male	51.6	20.2	9.5	8.9	63.7
Female	52.1	19.8	7.8	6.6	64.4
Social Groups					
SC/ST	52.6	21.0	9.0	10.1	64.5
OBC/Gen	51.3	19.5	8.7	6.7	63.6
Monthly Per Capita Expenditure Quartiles					
Quartile 1 (Poorest)	55.8	19.0	9.8	10.0	64.3
Quartile 2	50.7	19.2	9.7	7.2	62.8
Quartile 3	53.7	22.3	8.1	9.3	68.2
Quartile 4 (Richest)	47.0	19.9	7.8	5.8	60.7
Household Size					
Up to 5 Members	50.3	17.8	8.6	6.5	61.5
More than 5 Members	54.7	24.9	9.2	11.3	68.8
Age Categories					
Up to 1 Year	48.6	21.1	9.9	6.2	61.7
2-3 Years	54.6	20.3	9.1	11.1	66.8
4-5 Years	52.1	18.4	7.2	6.7	63.2

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Note: The denominator in the above calculation is the total number of persons suffering from chronic respiratory conditions who sought treatment from any health care provider after a flare-up



**Appendix 6.10: Proportion of Children Exiting and Switching the Treatment after Visiting the Health Care Provider by Socio-economic and Demographic Attributes (%)**

	After the First Visit			After the Second Visit			After the Third Visit		
	Nothing/Self-care/Medi-cation	Repeat Visit	Switching the Provider	Nothing/Self-care/Medi-cation	Repeat Visit	Switching the Provider	Nothing/Self-care/Medi-cation	Repeat Visit	Switching the Provider
All	56.1	22.6	21.3	78.7	14.8	6.6	81.2	16.1	2.7
<b>Districts</b>									
Chandauli	30.8	31.0	38.2	55.1	28.5	16.4	59.3	28.3	12.4
Firozabad	25.4	48.9	25.6	48.2	42.5	9.3	62.7	32.6	4.7
Bargarh	84.1	2.1	13.8	93.7	0.8	5.5	89.3	9.7	1.0
Dhenkanal	63.8	18.2	18.0	88.9	8.5	2.9	88.5	10.8	0.7
<b>Place of Residence</b>									
Rural	59.5	18.8	21.7	82.5	11.2	6.3	82.6	14.6	2.8
Urban	39.5	41.5	19.0	58.9	33.1	8.1	73.2	24.4	2.5
<b>Gender</b>									
Male	55.0	20.9	24.1	78.7	14.3	7.1	83.1	14.0	2.9
Female	57.8	25.1	17.1	78.7	15.4	5.9	78.6	19.0	2.4
<b>Social Groups</b>									
SC/ST	58.1	21.9	20.0	79.8	13.3	6.9	80.8	15.7	3.6
OBC/General	54.9	23.0	22.0	78.0	15.6	6.5	81.5	16.3	2.2
<b>Monthly Per Capita Expenditure Quartiles</b>									
Quartile 1 (Poorest)	57.4	25.0	17.6	76.5	15.0	8.5	81.9	13.8	4.3
Quartile 2	54.8	23.1	22.2	75.5	19.5	5.0	80.1	18.2	1.7
Quartile 3	61.9	18.9	19.2	84.8	10.2	5.0	86.9	10.4	2.7
Quartile 4 (Richest)	51.4	23.2	25.4	78.5	13.7	7.8	77.0	20.7	2.3
<b>Household Size</b>									
Up to 5 Members	61.9	20.7	17.4	83.3	12.1	4.6	84.1	14.3	1.6
More than 5 Members	43.8	26.6	29.6	67.8	20.9	11.3	74.4	20.3	5.3
<b>Age Categories</b>									
Up to 1 Year	55.1	21.2	23.7	77.4	14.4	8.2	82.0	14.4	3.5
2-3 Years	53.9	24.6	21.5	75.1	21.3	3.6	77.0	20.8	2.2
4-5 Years	60.0	22.0	18.0	84.2	7.8	8.0	85.0	12.8	2.3

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

Note: The denominator is the total number of persons making successive visits to health care provid

**Appendix 6.11: Average Cost of Treatment of All the Four Visits (In Rs.) by Socio-economic and Demographic Attributes (%)**

Background Characteristics	Chandauli	Firozabad	Bargarh	Dhenkanal	All
All	2960	2808	1770	1880	2410
Gender					
Male	3464	3335	1815	2058	2718
Female	2366	2033	1703	1546	1962
Age Categories					
Up to 1 Year	2567	2965	2212	1662	2470
2-3 Years	2986	2234	1439	1610	2143
4-5 Years	3347	3460	1641	2329	2666
Social Groups					
SC/ST	2262	2375	1476	1994	2038
OBC/General	3669	2951	1950	1790	2640
Per Capita Expenditure Quintile					
Quartile 1 (Poorest)	2234	1964	1228	1303	1784
Quartile 2	2746	2290	1538	1572	2033
Quartile 3	3145	2227	1837	1860	2251
Quartile 4 (Richest)	4219	4349	2624	2672	3612
Household Size					
Up to 5 Members	2911	2300	1696	1915	2144
More than 5 Members	3006	3594	2052	1738	2927
Service Providers					
Public	2143	1240	1695	1856	1727
Private	3311	3167	1934	2085	2867

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.12: Percentage Households That Reported Spending More Than 10% on Treatment as a Proportion of the Total Household Expenditure by Socioeconomic and Demographic Attributes (%)**

Background Characteristics	On First Treatment Cost (% Households)	On Total Treatment Cost (% Households)
All	3.7	5.3
Place of Residence		
Rural	3.5	5.4
Urban	4.4	5.1
Household Size		
Up to 5 Members	3.4	5.3
More than 5 Members	4.2	5.4
Social Groups		
SC/ST	3.4	4.7
OBC/General	3.8	5.7
Per Capita Expenditure Quartile		
Quartile 1 (Poorest)	6.6	9.3
Quartile 2	2.7	4.3
Quartile 3	3.1	3.6
Quartile 4 (Richest)	2.2	4.1

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.13: Percentage of Households Reported Spending on Treatment as a Percentage to the Total Household Non-food Expenditure by Different Visits by Socio-Economic and Demographic Attributes (%)**

Background Characteristics	Percentage of Households Spend On Treatment at Different Threshold Levels (Treatment Cost of First Visit as a % of the Total Household Non-food Expenditure)				Percentage of Households Spend On Treatment at Different Threshold Levels (Treatment Cost of All Visits as a % of the Total Household Non-food Expenditure)			
	Catastrophic Thresholds				Catastrophic Thresholds			
	>10%	>20%	>30%	>40%	>10%	>20%	>30%	>40%
All	13.6	5.8	2.8	1.5	16.5	7.1	3.9	2.3
Place of Residence								
Rural	13.8	5.6	2.7	1.3	16.9	7.1	3.8	2.1
Urban	12.6	6.4	3.4	2.5	14.5	7.1	3.9	2.9
Household Size								
Up to 5 Members	14.0	6.0	2.9	1.2	16.9	7.5	3.9	1.9
More than 5 Members	12.8	5.3	2.6	2.3	15.6	6.2	3.8	3.0
Social Groups								
SC/ST	15.9	6.4	2.7	1.2	19.3	7.3	3.3	1.4
OBC/General	12.1	5.3	2.9	1.8	14.7	6.9	4.2	2.8
Per Capita Expenditure Quartile								
Quartile 1 (Poorest)	22.2	11.9	6.2	3.7	25.9	14.2	7.9	5.5
Quartile 2	13.7	3.7	1.0	0.6	16.9	4.7	2.0	1.0
Quartile 3	11.5	3.8	1.8	0.9	14.3	4.2	2.3	1.1
Quartile 4 (Richest)	6.5	3.6	2.0	0.9	8.3	5.0	3.2	1.4

Source: NCAER-NOSSAL 4IS Health Survey, 2019.

**Appendix 6.14: Key Deciding Factors for Choosing Health Care Providers by District (%)**

	Proximity				Good Reputation			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	57.6	63.5	72.0	63.5	74.5	63.9	46.6	63.7
Firozabad	42.8	56.5	55.3	54.6	72.3	67.8	52.5	67.7
Bargarh	83.0	77.3	100.0	81.0	88.6	79.6	66.2	84.4
Dhenkanal	81.3	60.7	66.7	70.9	64.4	74.5	60.3	68.5
All	74.1	62.3	68.8	66.3	77.0	69.3	54.0	70.7
	Inexpensive				Good Personal Experience			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	38.2	37.6	43.5	38.1	43.1	39.1	43.3	39.9
Firozabad	42.5	29.0	25.2	30.7	41.3	41.3	30.9	40.9
Bargarh	72.4	35.9	70.4	57.5	67.8	67.6	66.7	67.7
Dhenkanal	70.9	8.5	34.4	40.1	52.9	43.8	33.6	47.2
All	64.2	29.7	38.7	4.1	56.7	44.8	39.4	48.1
	Qualification of Staff				Availability of Drugs			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	17.6	8.3	0.0	0.0	45.4	38.7	46.5	40.2
Firozabad	9.2	9.7	6.4	0.3	23.8	32.0	51.1	31.7
Bargarh	48.6	40.3	20.7	0.3	43.1	4.0	27.2	26.8
Dhenkanal	46.7	37.6	23.9	0.0	52.7	3.2	19.1	27.9
All	39.2	17.8	10.7	0.1	43.7	25.8	37.6	3.2
	Relative/Friend Works There				Recommended by Relatives			
	Public	Private	Other	Total	Public	Private	Other	Total
Chandauli	2.4	1.4	0.0	1.4	2.5	2.7	2.3	2.7
Firozabad	0.0	0.8	6.0	0.9	3.6	4.0	4.8	4.0
Bargarh	1.1	3.4	0.0	2.0	1.0	11.4	5.6	5.3
Dhenkanal	2.6	9.9	0.0	5.6	2.0	26.3	5.9	13.2
All	1.6	2.7	1.5	0.2	1.9	7.9	4.4	5.9

Source: NCAER-NOSSAL 4IS Health Survey, 2019.



## References

- Acharya, A., Vellakkal, S., Taylor, F., Masset, E., Satija, A., Burke, M., and Ebrahim, S. (2012). "Impact of national health insurance for the poor and the informal sector in low-and middle-income countries: A systematic review." EPPI-Centre Report, London: Social Science Research Unit, Institute of Education, University of London.
- Adhikari, D., & Rijal, D.P. (2014). "Factors affecting health-seeking behaviour of senior citizens of Dharan." *Journal of Nobel Medical College*, 3(1), 50-57.
- Alam, M., and Tyagi, R.P. (2009). "A Study of Out of Pocket Household Expenditure on Drugs and Medical Services: An Exploratory Analysis of UP, Rajasthan and Delhi." New Delhi: Population Research Centre, Institute of Economic Growth.
- Andersen, B. L., Cacioppo, J. T., & Roberts, D. C. (1995). Delay in seeking a cancer diagnosis: delay stages and psychophysiological comparison processes. *British journal of social psychology*, 34(1), 33-52.
- Anwar, M., Green, J., & Norris, P. (2012). "Health-seeking behaviour in Pakistan: A narrative review of the existing literature." *Public Health*, 126(6), 507-517.
- Arjun, P., Nair, S., Jilisha, G., Anand, J., Babu, V., Moosan, H., & Kumari, A.K. (2019). "Assessing health-seeking behavior among Asthma and COPD patients in urban South India." *Journal of Family Medicine and Primary Care*, 8(8), 2714-2719.
- Arokiaswamy et al. (2017) Chronic noncommunicable diseases in 6 low- and middle-income countries: findings from Wave 1 of the World Health Organization's Study on global ageing and adult health (SAGE), *American Journal of Epidemiology*, 185, 6.
- Banerjee, A., Deaton, A., and Duflo, E. (2004). "Wealth, health, and health services in rural Rajasthan." *American Economic Review*, 94(2), 326-330.
- Bang, R.A., Bang, A.T., Baitule, M., Choudhary, Y., Sarmukaddam, S., and Tale, O. "High Prevalence of Gynaecological Diseases in Rural Indian women." *Lancet (London, England)*; 1(8629): 85-88. DOI: 10.1016/S0140-6736(89)91438-4.
- Basnet, R., Hinderaker, S.G., Enarson, D., Malla, P., & Mørkve, O. (2009). "Delay in the diagnosis of tuberculosis in Nepal." *BMC Public Health*, 9(1), 236.
- Beran, D., Zar, H.J., Perrin, C., Menezes, A.M., and Burney, P. (2015). "Burden of asthma and chronic obstructive pulmonary disease and access to essential medicines in low-income and middle-income countries." *The Lancet Respiratory Medicine*, 3(2), 159-170.
- Berki, S.E. (1986). "A look at catastrophic medical expenses and the poor." *Health Affairs*, 5(4), 138-145.

- Bhatia, J. C., & Cleland, J. (1995). Self-reported symptoms of gynecological morbidity and their treatment in south India. *Studies in family planning*, 203-216.
- Bhatia, J., and Cleland, J. (2000) “Methodological Issues in Community-based Studies of Gynecological Morbidity.” *Studies in Family Planning*, 31: 267-273.
- Bhatia, J.C., Cleland, J., Bhagavan, L., and Rao, N.S.N. (1997). “Levels and determinants of gynaecological morbidity in a district of south India.” *Studies in Family Planning*, 28(2), 95-103.
- Bhatti, L. I., & Fikree, F. F. (2002). Health-seeking behavior of Karachi women with reproductive tract infections. *Social Science & Medicine*, 54(1), 105-117.
- Binnendijk, E., Koren, R., and Dror, D.M. (2012). “Hardship financing of healthcare among rural poor in Orissa, India.” *BMC Health Services Research*, 12(1), 1-14.
- Chaudhary, V., Kumar, R., Agrawal, V.K., Singh, A., Narula, R., & Sharma, M. (2012). “Prevalence and determinants of vaginal discharge among women of reproductive age group in tertiary care hospital of northern India.” *National Journal of Community Medicine*, 3(4), 661-665.
- Chauhan, R.C., Manikandan, P.A., Samuel, A., & Singh, Z. (2015). “Determinants of health care seeking behavior among rural population of a coastal area in South India.” *Int J Sci Rep*, 1(2), 118-122.
- Chibwana, A.I., Mathanga, D.P., Chinkhumba, J., and Campbell, C.H. (2009). “Socio-cultural predictors of health-seeking behaviour for febrile under-five children in Mwanza-Neno district, Malawi.” *Malaria Journal*, 8(1), 1-8.
- Corbin, J., and Strauss, A. (2014). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, California: Sage Publications.
- Damrongplasit, K., & Wangdi, T. (2017). “Healthcare utilization, bypass, and multiple visits: The case of Bhutan.” *International journal of health economics and management*, 17(1), 51-81.
- Das, J., and Mohpal, A. (2016). “Socioeconomic status and quality of care in rural India: new evidence from provider and household surveys.” *Health Affairs*, 35(10), 1764-1773.
- Das, J., Holla, A., Mohpal, A., and Muralidharan, K. (2016). “Quality and accountability in health care delivery: audit-study evidence from primary care in India.” *American Economic Review*, 106(12), 3765-3799.
- Das, M., Angeli, F., Krumeich, A.J., & van Schayck, O.C. (2018). “The gendered experience with respect to health-seeking behaviour in an urban slum of Kolkata, India.” *International Journal for Equity in Health*, 17(1), 24.

Das, S., Basu, M., Mandal, A., Roy, N., Chatterjee, S., & Dasgupta, A. (2017). Prevalence and determinants of delay in diagnosis of pulmonary tuberculosis in Darjeeling district of West Bengal. *Journal of family medicine and primary care*, 6(3), 627.

Dasgupta, P., and Mukherjee, S. (2021). "Distress financing for out-of-pocket hospitalization expenses in India: An analysis of pooled National Sample Survey data." Occasional Paper 71, Institute of Development Studies Kolkata.

Deng, Z., and Liu, S. (2017). "Understanding consumer health information-seeking behavior from the perspective of the risk perception attitude framework and social support in mobile social media websites." *International Journal of Medical Informatics*, 105, 98-109.

Dercon, S. (2002). "Income risk, coping strategies, and safety nets." *The World Bank Research Observer*, 17(2), 141-166.

Desai, S. (2009). "Keeping the 'health' in health insurance." *Economic and Political Weekly*, 18-21.

Dheresa, M., Assefa, N., Berhane, Y., Worku, A., Mingiste, B., and Dessie, Y. (2017). "Gynecological Morbidity among Women in Reproductive Age: A Systematic Review and Meta-Analysis." *Journal of Women's Health Care*, 6: 367. DOI:10.4172/2167-0420.1000367.

Dilip, T.R., and Duggal, R. (2002). "Incidence of non-fatal health outcomes and debt in urban India." Mumbai: Centre for Enquiry into Health and Allied Themes (CEHAT).

Dongre, A.R., Deshmukh, P.R., and Garg, B.S. (2010). "Health expenditure and care seeking on acute child morbidities in peri-urban Wardha: A prospective study." *The Indian Journal of Paediatrics*, 77(5), 503-507.

D'Souza, R.M. (2003). "Role of health-seeking behaviour in child mortality in the slums of Karachi, Pakistan." *Journal of Biosocial Science*, 35(1), 131-144.

Filippi, V., Marshall, T., Bulut, A., Graham, W., and Yolsal, N. (1997). "Asking Questions about Women's Reproductive Health: Validity and Reliability of Survey Findings from Istanbul." *Tropical Medicine and International Health*, 2(1): 47-56. DOI: 10.1046/j.1365-3156.1997.d01-126.x. PMID: 9018302.

Flores, G., Krishnakumar, J., O'Donnell, O., and Van Doorslaer, E. (2008). "Coping with health-care costs: Implications for the measurement of catastrophic expenditures and poverty." *Health Economics*, 17(12), 1393-1412.

Fochsen, G., Deshpande, K., Diwan, V., Mishra, A., Diwan, V.K., & Thorson, A. (2006). "Healthcare-seeking among individuals with cough and tuberculosis: A population-based study from rural India." *The International Journal of Tuberculosis and Lung Disease*, 10(9), 995-1000.

Garg, C.C., and Karan, A.K. (2005). "Health and Millennium Development Goal 1: Reducing out-of-pocket expenditures to reduce income poverty: Evidence from India." *Equity in Asia-Pacific Health Systems*, New Delhi: Institute for Human Development.



Garg, C.C., and Karan, A.K. (2009). "Reducing out-of-pocket expenditures to reduce poverty: a disaggregated analysis at rural-urban and state level in India." *Health Policy and Planning*, 24(2), 116-128.

Ghosh, S. (2011). "Catastrophic payments and impoverishment due to out-of-pocket health spending." *Economic and Political Weekly*, 63-70.

Ghoshal, A.G., Ravindran, G.D., Gangwal, P., Rajadhyaksha, G., Cho, S.H., Muttalif, A.R. B. A., Lin, H.C., Thanaviratnanich, S., Bagga, S., Farugi, R., Sajjan, S., Shetty, P., Syed, R., Hamrosi, K.K., and Wang, D.Y. (2016). "The burden of segregated respiratory diseases in India and the quality of care in these patients: Results from the Asia-Pacific Burden of Respiratory Diseases study." *Lung India: Official Organ of Indian Chest Society*, 33(6), 611.

Gosoni, G.D., Ganapathy, S., Kemp, J., Auer, C., Somma, D., Karim, F., & Weiss, M.G. (2008). "Gender and socio-cultural determinants of delay to diagnosis of TB in Bangladesh, India and Malawi [Special section on gender and TB]." *The International Journal of Tuberculosis and Lung Disease*, 12(7), 848-855.

Guntoory, I., Tamaraba, N.R., Nambaru, L.R., and Kalavakuri, A.S. (2017). "Prevalence and socio-demographic correlates of vaginal discharge among married women of reproductive age group at a teaching hospital." *Int J Reprod Contracept Obstet Gynecol*, 6(11), 4840-4846.

Halder, A.K., Luby, S.P., Akhter, S., Ghosh, P.K., Johnston, R.B., and Unicomb, L. (2017). "Incidences and costs of illness for diarrhea and acute respiratory infections for children < 5 years of age in rural Bangladesh." *The American Journal of Tropical Medicine and Hygiene*, 96(4), 953-960.

Hardy, L.M., and Traisman, H.S. (1956). "Antibiotics and chemotherapeutic agents in the treatment of uncomplicated respiratory infections in children: A controlled study." *The Journal of Paediatrics*, 48(2), 146-156.

Hemachandra, D.K.N.N., & Manderson, L. (2009). "Menstrual problems and health seeking in Sri Lanka." *Women & Health*, 49(5), 405-421.

Hortensia, R., Perez-Cuevas, R., Salmeron, J., Tome, P., Guiscafre, H., and Gutierrez, G. (1997). "Infant mortality due to acute respiratory infections: The influence of primary care processes." *Health Policy and Planning*, 12(3), 214-230.

India State-Level Disease Burden Initiative CRD Collaborators. (2018). "The Burden of Chronic Respiratory Diseases and Their Heterogeneity across the States of India: The Global Burden of Disease Study 1990-2016." *Lancet Glob Health*. 6(12): e1363-e1374. DOI: 10.1016/S2214-109X(18)30409-1.

Indian Institute for Population Sciences (IIPS) and MoHFW. (2017). "India Fact Sheet: National Family Health Survey-4." Available at: <http://rchiips.org/nfhs/pdf/NFHS4/India.pdf> (accessed 18 June 2021).

Ismail, S. A., McCullough, A., Guo, S., Sharkey, A., Harma, S., & Rutter, P. (2019). Gender-related differences in care-seeking behaviour for newborns: a systematic review of the evidence in South Asia. *BMJ global health*, 4(3), e001309.

Jabeen, S., Bari, M.A., Wazib, A., Salma, U., Shaheduzzaman, A.K.M., Das, P.P., & Hossain, M.S. (2013). "Morbidity pattern and health-seeking behaviour among the senior citizens in selected rural areas of Bangladesh." *Journal of Dhaka Medical College*, 22(2), 129-135.

Jangid, V.K., Agrawal, N.K., Yadav, G.S., Pandey, S., & Mathur, B.B. (2016). "Health-seeking behavior and social stigma for tuberculosis in tuberculosis patients at a tertiary-care center in North West India." *Int J Med Sci Public Health*, 5(9), 1893-1899.

Jehu-Appiah, C., Aryeetey, G., Spaan, E., De Hoop, T., Agyepong, I., and Baltussen, R. (2011). "Equity aspects of the National Health Insurance Scheme in Ghana: Who is enrolling, who is not and why?" *Social Science & Medicine*, 72(2), 157-165.

Joe, W. (2015). "Distressed financing of household out-of-pocket health care payments in India: incidence and correlates." *Health Policy and Planning*, 30(6), 728-741.

Kamal, M.M., Aziz, F., Islam, M.R., Ahsan, M., and Islam, S.N. (2020). "Effect of immune-nutritional status, healthcare factors, and lifestyle on acute respiratory infections among under-5 children in Bangladesh." *SAGE Open Medicine*, 8, 2050312120940533.

Kambo, I.P., Dhillon, B.S., Singh, P., Saxena, B.N., and Saxena, N.C. (2003). "Self-reported Gynaecological Problems from Twenty-Three Districts of India: An ICMR Task Force Study." *Indian Journal of Community Medicine*, 28(2): 67-73.

Kapoor, S. K., Raman, A. V., Sachdeva, K. S., & Satyanarayana, S. (2012). How did the TB patients reach DOTS services in Delhi? A study of patient treatment seeking behavior. *PloS one*, 7(8), e42458.

Kastor, A., and Mohanty, S.K. (2018). "Disease-specific out-of-pocket and catastrophic health expenditure on hospitalization in India: Do Indian households face distress health financing?" *PloS One*, 13(5), e0196106-e0196106.

Kawabata, K., Xu, K., and Carrin, G. (2002). "Preventing impoverishment through protection against catastrophic health expenditure." *Bull World Health Organ*, 80(8), 612.

Khan, A., Shaikh, B.T., & Baig, M.A. (2020). "Knowledge, awareness, and health-seeking behaviour regarding tuberculosis in a rural district of Khyber Pakhtunkhwa, Pakistan." *BioMed Research International*, 2020(10), 1-6.

Khan, N., & Fatima, H. (2014). "Health seeking behaviors of Pakistani women reporting vaginal discharge." *TIJ's Research Journal of Social Science & Management*, Available at: <https://www.semanticscholar.org/paper/Health-Seeking-Behaviors-of-Pakistani-Women-Vaginal-Khan-Fatima/329b89aa214725bdd642f60f558763b417868699> (accessed 10 June 2021).

Khanna, A., Goyal, R.S., and Bhawsar, R. (2005). "Menstrual practices and reproductive problems: A study of adolescent girls in Rajasthan." *Journal of Health Management*, 7(1), 91-107.

Kishore, J., Kohli, C., Gupta, N., Kumar, N., & Sharma, P.K. (2015). "Awareness, practices and treatment seeking behavior of type 2 diabetes mellitus patients in Delhi." *Annals of Medical and Health Sciences Research*, 5(4), 266-273.

Konda, S., Melo, C., Giri, P., & Behera, A. (2014). "Determinants of delays in diagnosis and treatment of pulmonary tuberculosis in a new urban township in India: A cross-sectional study." *Int J Med Sci Public Health*, 3(2), 140-145.

Kotecha, P.V., Patel, S.V., Baxi, R.K., Shah, S., Mehta, K.G., & Diwanji, M. (2011). "Treatment seeking pathway of PID (Pelvic Inflammatory Disease) patients attending government hospital Vadodara, India." *National Journal of Community Medicine*, 2(2), 186-190.

Kroeger, A. (1983). Anthropological and socio-medical health care research in developing countries. *Social science & medicine*, 17(3), 147-161.

Kruk, M.E., Goldmann, E., and Galea, S. (2009). "Borrowing and selling to pay for health care in low-and middle-income countries." *Health Affairs*, 28(4), 1056-1066.

Kulkarni, P.Y., Kulkarni, A.D., Akarte, S.V., Bhawalkar, J.S., & Khedkar, D.T. (2013). "Treatment seeking behavior and related delays by pulmonary tuberculosis patients in E-ward of Mumbai Municipal Corporation, India." *Int J Med Public Health*, 3(4), 286.

Kumar, K., Singh, A., Kumar, S., Ram, F., Singh, A., Ram, U., and Kowal, P.R. (2015). "Socio-economic differentials in impoverishment effects of out-of-pocket health expenditure in China and India: Evidence from WHO SAGE." *PloS One*, 10(8), e0135051.

Kusuma, Y.S., & Babu, B.V. (2019). "The costs of seeking healthcare: Illness, treatment seeking and out of pocket expenditures among the urban poor in Delhi, India." *Health & Social Care in the Community*, 27(6), 1401-1420.

Lee, P.M., Khong, P., and Ghista, D.N. (2006). "Impact of deficient healthcare service quality." *The TQM Magazine*. DOI: 10.1108/09544780610707075.

Leeuw, Evelyne de (2008), "The effect of computer-assisted interviewing on data quality: A review of the evidence." *Psychology*, 1-20.

Majumdar, A., Premarajan, K.C., Ganesh, K.S., Veerakumar, A.M., and Ramaswamy, G. (2014). "Rural–urban differentials of treatment-seeking behaviour for acute respiratory infection among children in Puducherry." *Natl J Community Med*, 5(3), 325-328.

Mistry, N., Lobo, E., Shah, S., Rangan, S., & Dholakia, Y. (2017). "Pulmonary tuberculosis in Patna, India: Durations, delays, and health care seeking behaviour among patients identified through household surveys." *Journal of Epidemiology and Global Health*, 7(4), 241-248.

Mitchell, A., Mahal, A., and Bossert, T. (2011). "Healthcare utilisation in rural Andhra Pradesh." *Economic and Political Weekly*, 46(5), 15-19.

Mitra, N.K. (2001). "A longitudinal study on ARI among rural under-fives." *Indian Journal of Community Medicine*, 26(1), 8.

Mock, C.N., Gloyd, S., Adjei, S., Acheampong, F., and Gish, O. (2003). "Economic consequences of injury and resulting family coping strategies in Ghana." *Accident Analysis & Prevention*, 35(1), 81-90.

Mohan, P., Iyengar, S.D., Agarwal, K., Martines, J.C., & Sen, K. (2008). "Care-seeking practices in rural Rajasthan: barriers and facilitating factors." *Journal of Perinatology*, 28(2), S31-S37.

Mohan, M., Hay, K., and Mor, N. (2016). "Quality of health care in India: challenges, priorities, and the road ahead." *Health Affairs*, 35(10), 1753-1758.

Morduch, J. (1995). "Income smoothing and consumption smoothing." *Journal of Economic Perspectives*, 9(3), 103-114.

Mosadeghrad, A.M. (2012). "A conceptual framework for quality of care." *Materia Socio-medica*, 24(4), 251-261.

NFHS-4 India Factsheet (2015-16). New Delhi: Ministry of Health and Family Welfare, Government of India. Available at: [https://dhsprogram.com/pubs/pdf/OF31/India\\_National\\_FactSheet.pdf](https://dhsprogram.com/pubs/pdf/OF31/India_National_FactSheet.pdf) (accessed 26 June 2021).

NSS. (2015). "NSS 71<sup>st</sup> Round—Health in India." National Sample Survey Organization, New Delhi: Government of India.

Nyonator, F., and Kutzin, J. (1999). "Health for some? The effects of user fees in the Volta region of Ghana." *Health Policy and Planning*, 14(4), 329-341.

Olenja, J. (2003). "Health-seeking Behaviour in Context." *East African Medical Journal*, 80(2), 61-62.

Oyibo, P.G. (2011). "Out-of-pocket payment for health services: Constraints and implications for government employees in Abakaliki, Ebonyi State, south east Nigeria." *African Health Sciences*, 11(3), 481-485.

Pandey, A., Kumar, G. A., Dandona, R., & Dandona, L. (2018). Variations in catastrophic health expenditure across the states of India: 2004 to 2014. *PloS one*, 13(10), e0205510.

Pannarunothai, S., and Mills, A. (1997). "The poor pay more: Health-related inequality in Thailand." *Social Science & Medicine*, 44(12), 1781-1790.

Parasuraman, A., Zeithaml, V.A., and Berry, L.L. (1985). "A conceptual model of service quality and its implications for future research." *Journal of Marketing*, 49(4), 41-50.

Park, K. (2015). *Park's Textbook of Preventive and Social Medicine*. 23rd edition. Jabalpur, India: Bhanot Publishers.

Peasah, S.K., Purakayastha, D.R., Koul, P.A., Dawood, F.S., Saha, S., Amarchand, R., Broor, S., Rastogi, V., Assad, R., Kaul, K.A., Widdowson, M-A., Lal, R.B., and Krishnan, A. (2015). "The cost of acute respiratory infections in Northern India: a multi-site study." *BMC Public Health*, 15(1), 1-9.

Pore, P.D., Ghattargi, C.H., and Rayate, M.V. (2010). "Study of risk factors of Acute Respiratory Infection (ARI) in under-fives in Solapur." *Nat J Com Med*, 1(2), 64-67.

Prasad, J.H., Abraham, S., Kurz, K.M., George, V., Lalitha, M.K., John, R., & Joseph, A. (2005). "Reproductive tract infections among young married women in Tamil Nadu, India." *International Family Planning Perspectives*, 31(2), 73-82.

Prusty, R.K., & Unisa, S. (2013). "Reproductive tract infections and treatment seeking behavior among married adolescent women 15-19 years in India." *International Journal of MCH and AIDS*, 2(1), 103-110.

Rajeswari, R., Chandrasekaran, V., Suhadev, M., Sivasubramaniam, S., Sudha, G., & Renu, G. (2002). "Factors associated with patient and health system delays in the diagnosis of tuberculosis in South India." *The International Journal of Tuberculosis and Lung Disease*, 6(9), 789-795.

Rani, M., & Bonu, S. (2003). Rural Indian women's care-seeking behavior and choice of provider for gynecological symptoms. *Studies in Family Planning*, 34(3), 173-185.

Raza, W.A., Van de Poel, E., Panda, P., Dror, D., & Bedi, A. (2015). "Healthcare seeking behaviour among self-help group households in Rural Bihar and Uttar Pradesh, India." *BMC Health Services Research*, 16(1), 1-13.

Rohde, J.E., and Viswanathan, H. (1995). *The rural private practitioner*. New Delhi: Oxford University Press.

Rohlin, M., Schaub, R.M., Holbrook, P., Leibur, E., Lévy, G., Roubalíkova, L., Nilner, M., Roger-Leroi, V., Danner, G., Iseri, H. and Feldman, C. (2002). "2.2 Continuous Quality Improvement." *European Journal of Dental Education*, 6, 67-77.

Rout, S.K. (2010). "Public expenditure on health care in Orissa: Focus on reproductive and child health services." Health and Population Innovation Programme Working Paper No. 12, New Delhi: Population Council.

Rudan, I., Boschi-Pinto, C., Biloglav, Z., Mulholland, K., and Campbell, H. (2008). "Epidemiology and Etiology of Childhood Pneumonia." *Bull WHO*. 86: 408-416.

Russell, S. (1996). 'Ability to pay for health care: concepts and evidence.' *Health Policy and Planning*, 11(3), 219-237.

Sahoo, A.K., and Madheswaran, S. (2014). "Socio-economic disparities in health care seeking behaviour, health expenditure and its source of financing in Orissa: Evidence from NSSO 2004-05." *Journal of Health Management*, 16(3), 397-414.



Saito, E., Gilmour, S., Rahman, M.M., Gautam, G.S., Shrestha, P.K., and Shibuya, K. (2014). "Catastrophic household expenditure on health in Nepal: A cross-sectional survey." *Bulletin of the World Health Organization*, 92(10), 760-767.

Sangar, S., Dutt, V., and Thakur, R. (2020). "Coping with out-of-pocket health expenditure in India: Evidence from NSS 71<sup>st</sup> round." *Global Social Welfare*, 7(3), 275-284.

Seeberg, J., Pannarunothai, S., Padmawati, R. S., Trisnantoro, L., Barua, N., & Pandav, C.S. (2014). "Treatment seeking and health financing in selected poor urban neighbourhoods in India, Indonesia and Thailand." *Social Science & Medicine*, 102, 49-57.

Selvaraj, K., Kumar, S.G., and Ramalingam, A. (2014). "Prevalence of self-medication practices and its associated factors in Urban Puducherry, India." *Perspectives in Clinical Research*, 5(1), 32-36.

Shaikh, B.T., & Hatcher, J. (2007). "Health seeking behaviour and health services utilization trends in national health survey of Pakistan: What needs to be done?" *Journal of Pakistan Medical Association*, 57(8), 411-414.

Shankar, P.R., Partha, P., & Shenoy, N. (2002). "Self-medication and non-doctor prescription practices in Pokhara Valley, western Nepal: A questionnaire-based study." *BMC Family Practice*, 3(1), 1-7.

Sharma, J.K., & Narang, R. (2011). "Quality of healthcare services in rural India: The user perspective." *Vikalpa*, 36(1), 51-60.

Singh, D. (2019). "Awareness about Reproductive Tract Infection and Treatment Seeking Behavior among Married Women of Age 15-44 Years in a Rural Area of Bundelkhand Region of Uttar Pradesh, India." *Indian Journal of Applied Research*, 9(4), 51-53.

Sinha, B., Vibha, R.S., and Chowdhury, R. (2017). "An epidemiological profile of chronic obstructive pulmonary disease: A community-based study in Delhi." *Journal of Postgraduate Medicine*, 63(1), 29-35.

Sivamani, M. (2016). "A study on health seeking behaviour among mothers with acute respiratory infections in under-five children in a rural area of Coimbatore." Doctoral dissertation submitted to the PSG Institute of Medical Sciences and Research, Coimbatore.

Snoj, B., and Mumel, D. (2002). "The measurement of perceived differences in service quality—The case of health spas in Slovenia." *Journal of Vacation Marketing*, 8(4), 362-379.

Sreeramareddy, C. T., Qin, Z. Z., Satyanarayana, S., Subbaraman, R., & Pai, M. (2014). Delays in diagnosis and treatment of pulmonary tuberculosis in India: a systematic review. *The International Journal of Tuberculosis and Lung Disease*, 18(3), 255-266.

- Subba, N.R. (2008). "Health seeking behaviour of Rajbanshi community in Katahari and Baijanathpur of Morang district, Nepal." *Journal of Nepal Health Research Council*, 2(2), 14-18.
- Taksande, A.M., and Yeole, M. (2015). "Risk Factors of Acute Respiratory Infection (ARI) in Under-fives in a Rural Hospital of Central India." *Journal of Pediatric and Neonatal Individual Medicine*; 5(1): e050105. DOI: 10.7363/050105.
- Taylor, B., Abbott, G.D., Kerr, M.M., and Fergusson, D.M. (1977). "Amoxycillin and co-trimoxazole in presumed viral respiratory infections of childhood: Placebo-controlled trial." *Br Med J*, 2(6086), 552-554.
- Taylor, S.A., and Cronin Jr, J.J. (1994). "Modeling patient satisfaction and service quality." *Journal of Health Care Marketing*, 14(1), 34-44.
- Thakur, R., & Murhekar, M. (2013). "Delay in diagnosis and treatment among TB patients registered under RNTCP Mandi, Himachal Pradesh, India, 2010." *Indian J Tuberc*, 60(1), 37-45.
- Tucker, J.L., and Adams, S.R. (2001). "Incorporating patients' assessments of satisfaction and quality: An integrative model of patients' evaluations of their care." *Managing Service Quality*, 11(4), 272-287.
- UBC Wiki (2015). "Health Seeking Behaviour." The University of British Columbia, Wikipedia, Available at: [https://wiki.ubc.ca/Health\\_Seeking\\_Behaviour](https://wiki.ubc.ca/Health_Seeking_Behaviour) (Accessed 26 June 2021).
- UNICEF (2020). "Childhood pneumonia: Everything you need to know." Available at: <https://www.unicef.org/stories/childhood-pneumonia-explained> (accessed 26 June 2021).
- Van Brakel, W.H. (2006). 'Measuring health-related stigma—a literature review.' *Psychology, Health & Medicine*, 11(3), 307-334.
- Varkey, A. B. (2004). "Chronic obstructive pulmonary disease in women: Exploring gender differences." *Current Opinion in Pulmonary Medicine*, 10(2), 98-103.
- Wagstaff, A., and Doorslaer, E.V. (2004). "Overall versus socioeconomic health inequality: a measurement framework and two empirical illustrations." *Health Economics*, 13(3), 297-301.
- Walter, F., Webster, A., Scott, S., & Emery, J. (2012). The Andersen Model of Total Patient Delay: a systematic review of its application in cancer diagnosis. *Journal of Health Services Research & Policy*, 17(2), 110-118.
- Walters, D., and Jones, P. (2001). "Value and value chains in healthcare: A quality management perspective." *The TQM Magazine*, 13(5), 319-335.
- Weiss, M.G., Ramakrishna, J., and Somma, D. (2006). "Health-related stigma: Rethinking concepts and interventions." *Psychology, Health & Medicine*, 11(3), 277-287.

Willis, J.R., Kumar, V., Mohanty, S., Singh, P., Singh, V., Baqui, A.H., Awasthi, S., Singh, J.V., Santosham, M., and Darmstadt, G.L. (2009). "Gender differences in perception and care-seeking for illness of newborns in rural Uttar Pradesh, India." *Journal of Health, Population, and Nutrition*, 27(1), 62-71.

WHO/UNICEF (2013). "Ending preventable child deaths from pneumonia and diarrhoea by 2025: The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD)", Report No. WHO/FWC/MCA/13/01, Available at: [https://apps.who.int/iris/bitstream/handle/10665/79207/WHO\\_FWC\\_MCA\\_13\\_01\\_eng.pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/79207/WHO_FWC_MCA_13_01_eng.pdf?sequence=1) (accessed 27 June 2021).

World Bank. (2018). Current Health Expenditure Data, IBRD, IDA, World Health Organization Global Health Expenditure Database, New York: The World Bank, Available at: <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=IN> (accessed 21 June 2021).

World Health Organisation (2020). "Quality of services': Factsheets." Available at: <https://www.who.int/news-room/fact-sheets/detail/quality-health-services> (accessed 21 June 2021).

World Health Organization. (2016). "World Health Statistics 2016: Monitoring Health for the SDGs Sustainable Development Goals." Geneva: World Health Organization.

Xu, K., Evans, D.B., Kadama, P., Nabyonga, J., Ogwal, P.O., Nabukhonzo, P., and Aguilar, A.M. (2006). "Understanding the impact of eliminating user fees: Utilization and catastrophic health expenditures in Uganda." *Social Science & Medicine*, 62(4), 866-876.

Xu, K., Evans, D.B., Kawabata, K., Zeramdini, R., Klavus, J., and Murray, C.J. (2003). "Household catastrophic health expenditure: A multi-country analysis." *The Lancet*, 362(9378), 111-117.

Yadav, U.N., Lloyd, J., Hosseinzadeh, H., Baral, K.P., Dahal, S., Bhatta, N., & Harris, M.F. (2020). "Facilitators and barriers to the self-management of COPD: A qualitative study from rural Nepal." *BMJ open*, 10(3), e035700.



## Abbreviations

<b>ANC</b>	Antenatal care
<b>ARI</b>	Acute respiratory infections
<b>BSKY</b>	Biju Swastha Kalyan Yojana
<b>CAPI</b>	Computer Aided Personal Interviewing
<b>CEB</b>	Census Enumeration Block
<b>CGHS</b>	Central Government Health Scheme
<b>CHE</b>	Catastrophic Health Expenditure
<b>COPD</b>	Chronic obstructive pulmonary disease
<b>ESI</b>	Employee State Insurance
<b>GAPPD</b>	Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea
<b>GDP</b>	Gross domestic product
<b>Gen</b>	General Category
<b>HS</b>	Higher Secondary Schooling
<b>ICTs</b>	Information and Communication Technologies
<b>IHDS</b>	Indian Human Development Survey
<b>IHE</b>	Impoverished Health Expenditure
<b>LMICs</b>	Low- and middle-income countries
<b>MPCE</b>	Monthly per capita expenditure
<b>NCAER</b>	National Council of Applied Economic Research
<b>NFHS</b>	National Family and Health Survey
<b>NITI</b>	National Institution for Transforming India
<b>NSSO</b>	National Sample Survey Organization
<b>OBC</b>	Other Backward Caste
<b>OOP</b>	Out-of-pocket
<b>PMJAY</b>	Pradhan Mantri Jan Arogya Yojana
<b>PSU</b>	Public Sector Undertaking
<b>RSBY</b>	Rashtriya Swasthya Bima Yojana
<b>SC</b>	Scheduled castes
<b>ST</b>	Scheduled Tribes
<b>TB</b>	Tuberculosis
<b>UHC</b>	Universal health coverage
<b>UNICEF</b>	United Nations Children's Fund
<b>UP</b>	Uttar Pradesh
<b>WHO</b>	World Health Organization