

HEALTH OF MIGRANT LABOUR IN MUMBAI METROPOLITAN REGION: AN EMPIRICAL ANALYSIS

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By

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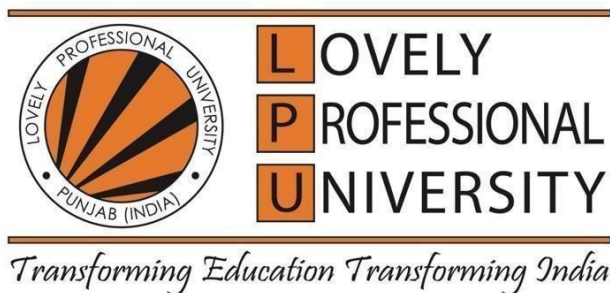
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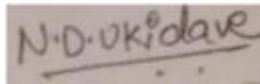


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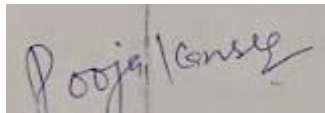
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This is to certify that the thesis titled “**Health of Migrant Labor in Mumbai Metropolitan Region: An Empirical Analysis**” was carried out by Mr. Neel Ukidave, a Ph.D. research scholar at Lovely Professional University, under my guidance and supervision. This thesis is being submitted by him in partial fulfilment of the requirements for the award of the Doctor of Philosophy in Economics from Lovely Professional University. His thesis represents his original work and is worthy of consideration for the award of the degree of Doctor of Philosophy.

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ABSTRACT

Migration is a state where a person relocates from his residence to another place in search of work, better employment opportunities, and better pay. Many opportunities in western India like Maharashtra, Gujarat, and Madhya Pradesh have witnessed great migration due to these factors. From these states, Maharashtra witnesses a higher amount of migration. Mumbai forms the epicenter of migration for workers, and laborers who migrate into Mumbai in search of better employment opportunities and better pay. Lack of opportunities and good pay are the detrimental factors that have led to more migration in the last decade. The main focus of the study was on primary data whereas secondary data was used to conclude. The secondary data was collected from articles published in Scopus indexed journals and annual reports of the Brihanmumbai municipal corporation whereas the primary data was collected with the help of a structured questionnaire from seven zones of the Mumbai metropolitan region. A sample size of 476 respondents from migrant labor were taken for the study. The analysis was performed with the use of mean, median, mean gap, mean positive gap, chi-square, Headcount, overshoot, mean positive overshoot, Weighted average score, and Logistic regression.

The socio-demographic study of migrant labor from the Mumbai Metropolitan Region, it was observed that the majority were males aged 25-35 years. The highest number of migrant laborers belonged to the Hindu religion and were part of the scheduled caste community. They were illiterate and predominantly worked as construction workers. However, apart from working as construction workers, they also practiced fishing as an occupation due to the vast coastline in the Mumbai Metropolitan Region. The majority of the migrant laborers opened a savings account with a nationalized bank as a part of the initiatives taken by their principal employer. A large portion of the monthly income was spent on food and utilities. Monthly income was also spent on clothing, education, healthcare, recreation, traveling, and other miscellaneous expenses. Households of the migrant labor were located within seven different zones of the MMR region.

In the event of chronic disease, hospitalization, or periodic illness, the migrant laborers had to travel significant distances from their residence to access the healthcare facility. The majority of migrant laborers did not own any agricultural land but worked as landless laborers in villages. This necessitated their migration into the Mumbai Metropolitan Region in search of better opportunities. The migrant laborers stayed in joint families predominantly across different zones of Mumbai. In most households, decision-making authority was vested with the father or with another senior most patriarchal member in the family in the father's absence.

The analysis shows that as the catastrophic threshold levels increase, the incidence and intensity of catastrophe expenditure due to outpatient care, inpatient care, and chronic disease declines. The incidence and intensity of inpatient care were the highest among the respondents. It may be attributable to the fact that inpatient care not only involves consultation fee, travel expenses but other charges like a hospital stay, special diet, regular consultations and investigations, etc. The zone-wise comparison showed that 43.0 percent each from Zone 1,2 and Zone 3,6 and 7 followed by 36.7 percent from Zone 4 and 5 reported illness episodes. The majority of the respondents availed the outpatient care from all the zones. The mean healthcare expenditure on outpatient care was ₹ 359.0, ₹ 336.0, and ₹ 139.0 in Zones 3, 4, and 7 respectively whereas it was ₹346.0, ₹338.0, ₹240.0, and ₹198.0 in Zones 1,2,5 and 6 respectively. However, the mean wage loss to respondents due to outpatient care was ₹ 630.0, ₹594.0, and ₹ 460.0 in Zones 3, 4, and 7 respectively whereas it was ₹346.0, ₹338.0, ₹240.0, and ₹198.0 in Zones 1,2,5 and 6 respectively. It was observed that the highest percent of the respondents who availed of inpatient care belonged to Zone 4 (44.3 percent) followed by Zone 3 (21.9 percent), Zone 7 (10.5 percent), Zone 1 (10.2 percent), Zone 2 (3.4 percent), Zone 5 (5.5 percent), and Zone 6 (4.2 percent) respectively.

The Bartlett test of Sphericity and KMO values showed that the data matrix is sufficient and appropriate for the factor analysis. Service quality and Improvement of care service dimensions were analyzed, with the highest significant positive correlation between tangible factors and customer satisfaction of (0.667**). Tangible and reliability had a positive correlation of 0.619**, indicating a strong positive relationship between tangible factors and empathy (understanding, and compassion) in the context of customer satisfaction. The awareness regarding comorbidities, their risk factors, prevention strategies and costs help in designing innovative awareness programs and government campaigns to educate individuals about the consequences of lifestyle modification, sedentary lifestyle, and altering the epidemiology of comorbidities.

Thus, there is a dire need to create awareness about comorbidities and their complications through mass media campaigns such as the distribution of pamphlets and advertisements in magazines, newspapers, television, radio, etc. The awareness programs should be designed at public places, different zones in Mumbai, religious gatherings, schools, colleges, and especially in women's organizations. Considering the economic burden of healthcare treatment in the Mumbai Metropolitan Region, it is imperative to strengthen the government healthcare infrastructure to detect the early onset of healthcare issues/diseases/comorbidity conditions and provide uniform healthcare facilities. It was observed that expenditure on medicine reports the highest cost proportion, therefore, medicines should be made available at subsidized rates through 'Jan Aushadhi Kendra'.

The study indicates that respondents with macrovascular complications and respondents below 30 years of age incurred high out-of-pocket expenditures. Therefore, outpatient costs should be reimbursed under the 'Ayushman Bharat-Sarbat Sehat Bima Yojana'. The findings of the study highlighted that a very small proportion of respondents utilized assistance-based coping strategies. Thus, early detection of healthcare conditions among high-risk individuals and effective management of identified patients should be prioritized to reduce catastrophic health expenditure.

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LIST OF ABBREVIATIONS		
S. NO.	DESCRIPTION	ABBREVIATION
1	Below Poverty Line	BPL
2	Scheduled Caste	SC
3	Scheduled Tribe	ST
4	Other Backward Classes	OBC
5	Liquified Petroleum Gas	LPG
6	Brihan Mumbai Municipal Corporation	BMC
7	Mumbai Metropolitan Region	MMR
8	Mean Positive Overshoot	MPO
9	Out of Pocket Expenditure	OPE
10	World Health Organization	WHO
11	International Labor Organization	ILO
12	National Family Health Survey	NFHS
13	Ministry of Health & Family Welfare	MHFW
14	Catastrophic Healthcare Expenditure	CHE
15	Odd Ratios	OR
16	Standard Deviation	SD
17	Tuberculosis	TB
18	Resident Medical Practitioner	RMP
19	Burden of Disease	BOD
20	Human Development Index	HDI
21	International Institute of Population Sciences	IIPS
22	Municipal Corporation of Greater Mumbai	MCGM
23	National Urban Health Mission	NUHM
24	District-Level Household Survey	DLHS
25	National Health Mission	NHM
26	Universal Health Coverage	UHC
27	Government-Sponsored Health Insurance Scheme	GSHIS
28	Central Government Healthcare Scheme	CGHS
29	Community-Based Health Insurance	CBHI
30	Sustainable Development Goals	SDG
31	Employee State Insurance Corporation	ESIC

32	Employee State Insurance Scheme	ESIS
33	United Nations Development Program	UNDP
34	Association for South East Asian Nations	ASEAN
35	Health and Wellness Centers	HWC
36	Pradhan Mantri Jan Arogya Yojana	PMJAY

CHAPTER I

INTRODUCTION

1.1 Background

The meaning of health can be explained as a “state of complete physical, mental and social well-being”. Many people associate the concept of healthcare with that of medical treatment. However, healthcare includes both preventive as well as curative healthcare, whereas medical treatment care is undertaken with the purpose of cure. Healthcare means “different types of services rendered to individuals, families or communities by the healthcare service providers, for the promotion, maintenance, monitoring or restoration of the health (World Health Organization, 2018). The term “medical care” mainly relates to the healthcare services that are provided by medical practitioners or rendered as a result of the medical practitioner’s instructions (Balkrishna, 2019). The health of an individual impacts the economic development of a nation in a very material sense (Acharya & Ranson, 2005). Whether defined in terms of financial protection or access to the healthcare services, majority of the masses remain irregularly and incompletely covered in India (Pathak et. al. 2011).

1.2 Health Care Systems in Maharashtra

Healthcare in Maharashtra operates through three distinct administrative divisions. The first is the Directorate of Health Services, which oversees primary healthcare facilities across the state. The second is the Maharashtra Vyadyakiya Mandal, responsible for managing secondary-level healthcare institutions, such as taluka and district hospitals. The third is the Directorate of Medical Education, which supervises medical colleges and state-run teaching hospitals. Health indicators—such as infant mortality rates and life expectancy for both men and women—are commonly used metrics to evaluate the population's overall health and are utilized in this study for that purpose (Bhagat, 2019).

Within the Maharashtra state, Mumbai has been a hub of migrant workers. The reason could be attributed to the employment opportunities which the city provides. For the year 2019-20, 65 percent of the total migration into India was alone witnessed in Mumbai (Ministry of Labour and Employment, 2019). Health of migrant workers has been a prime cause of concern in the past decade as a result of changing lifestyles of migrant workers, quality of diet consumed by them and their awareness about the health precautions which are expected to be taken by them. It has been observed that the amount of healthcare support resorted to by these migrant workers has reduced in the current decade as compared to the previous decade (BMC Longitudinal Study Report, 2021).

1.3 Nature of Health Care in the Mumbai Metropolitan Region

Healthcare in the Mumbai metropolitan region has been looked at as a cause of concern despite organized healthcare facilities due to the increasing pressure and utilization of healthcare systems by the increasing population. The state of the life and conditions of work of the migrants coming to Mumbai are harmful. Many impoverished migrants who move to urban areas often settle on the fringes of established slums, where living conditions tend to be significantly worse than within the slums themselves. Research has shown that some slum residents spend as much as ₹30 daily on drinking water, placing a substantial financial strain on already vulnerable households (Mundu & Bhagat, 2012). According to data from the District-Level Household Survey (DLHS-IV), Mumbai demonstrated relatively effective monitoring of migrant health conditions compared to other regions across the country (IIPS, 2014). The nature of healthcare in the Mumbai Metropolitan Region has witnessed a lot of changes in recent years. It has been observed that the conditions of healthcare facilities available for treatment are highly dependent on the nature and extent of healthcare spending by the patients for the treatment. The amount of spending seems to be directly linked to the quality of healthcare services utilized by the local residents. The availability of healthcare centers for treatment is dispersed on a larger piece of land, with a distance between the two nearby healthcare centers is approximately 2.5 km. It means that on average distance of 2.5 km, a patient finds a healthcare facility for treatment (Dandekar et. al., 2018).

1.4 Role of Migrant Labor in Mumbai's Economy

The migration is a state where a person dislocates from his place of residence to another place in search of work, better employment opportunities and better pay. A high amount of opportunities in western India like Maharashtra, Gujarat and Madhya Pradesh have witnessed great amount of migration due to these factors. Whereas, Maharashtra witnesses the higher amount of migration and Mumbai forms the epicenter of migration for workers. Laborers usually migrated into Mumbai in search of better employment opportunities and better pay. Lack of opportunities and good pay in native places are the detrimental factors which have led to the higher amount of migration in the last decade (Mundu & Bhagat, 2012). According to a 2014 estimate by the International Labour Organization, there were around 232 million people living outside their country of origin for at least a year, with nearly half engaged in the labor force, either employed or actively seeking work. In several nations, migrant workers make up a significant portion of the population. Many of these individuals migrate without sufficient identification or legal documentation, making their status precarious (United Nations Development Programme, 2009).

Low wages and the absence of sufficient job opportunities in migrants' places of origin are key factors pushing them to leave. Conversely, the promise of better employment prospects and higher income levels in urban areas serves as a strong pull. This attraction is particularly powerful in major metropolitan centers like Mumbai, widely recognized as India's financial hub. Migration outcomes vary depending on individual circumstances, bringing both benefits and challenges. While the potential for improved financial conditions is a major incentive, many economically disadvantaged migrants find themselves confined to the lower tiers of the labor market, earning minimal wages and facing significant hardships (Srivastava, 2005).

1.5 Health Care Status of Migrant Labor

According to WHO (2018), a migrant worker is a person who has migrated out of his or her own country in search of better work opportunities and who travels to different places inside or outside the country in search of such opportunities related to work. Migration can be divided into two parts viz. migration within the geographical boundaries of the country and the second one being migration outside the country. Migration within the country is called as inbound immigration, whereas migration to foreign countries is termed as outbound migration. Migration has its own set of challenges which the migrant laborers face as they migrate to the different parts of the country (Abouzahr, c. et. al., 2016). Health and healthcare are the major causes of concern for the migrant class. Better living conditions and sedentary lifestyle contribute to the medical disorders which the migrant labor face during their tenure of service in the area where they migrate into. (Dandekar, p. et. al., 2014).

A lack of proper health policies specifically to address the financial and operational concerns causes weakness for the migrant labor of the Mumbai Metropolitan Region in their healthcare status. (Brihan Mumbai Municipal Corporation Longitudinal Study Report, 2021). The livelihood and working conditions of poor migrants in urban areas are often in short supply, having a lack of basic facilities viz. potable water, cleanliness and a pollution-free environment (Singh et al., 2013). Evidence suggests that despite gaining better livelihood opportunities, migrants often encounter serious health challenges. Their ability to access healthcare is frequently hindered by regulatory hurdles, bureaucratic procedures, and socio-economic constraints. Studies from developing nations indicate that migrants are commonly marginalized when it comes to urban services, particularly public healthcare provisions (Lohiya et al., 2014). Health risks for migrants can emerge at various stages of the migration process. Factors such as unsafe travel conditions, limited access to healthcare upon arrival, exploitation in the workplace, substandard living and working

environments, discrimination, and separation from family and social support networks all contribute to the potential decline in the health of labor migrants (Dandekar et al., 2018).

1.6 Morbidity Pattern and Health Care Spending Amongst Migrant Labor

According to Indian Medical Association (2019), a cardiovascular disease commonly known as a heart disease is common term for diseases related to the heart or blood vessels. It is related with accumulation of fats inside the veins resulting in a higher risk of blood clots. The cardiovascular diseases are attributed to damage in arteries in various organs of the body. In Mumbai, migrant labor has increasingly witnessed cardiovascular diseases. It was observed that in 68 percent cases the illnesses suffered by the migrant labor in Mumbai during 2011-2021 were related to cardiovascular diseases. Stressful work conditions and long working hours accompanied with lack of proper diet form the major cause of cardiovascular diseases amongst the migrant labor. The rising impact of healthcare expenditure for migrant labor in Mumbai on the treatment of cardiovascular diseases has been a cause of concern. With a steep rise in patients with health complications, migrant labor in Mumbai is marching towards being unfit section of population in the city (Brihan Mumbai Municipal Corporation Longitudinal Study Report, 2021).

However, rapid changes in the lifestyle have attributed to this rising number of migrant labors with cardiovascular diseases in metro cities like Mumbai. The study had a sole objective to find out and collect the evidence from literature published on per capita basis in case of mean healthcare expenditure by migrant labor in Mumbai on treatment of cardiovascular diseases. It was observed that out of 166 studies, 82 studies were noted as they met the criteria for the inclusion. So, the conclusions of the current study suggested that the mean and median of the healthcare expenditure incurred per annum by migrant labor in Mumbai was a plagued situation in Mumbai. Thus, the spending constitutes to be 68 percent. Lack of holistic explanation of expenditure on treatment of cardiovascular diseases and of the increased volume of patients produce the voluptuous healthcare standard based on the quality of healthcare provided. Thus, the shortcomings felt by the main studies reviewed affected richness in current research. An enabler for development and suggested process and structured for conclusive and holistic research of healthcare (Dandekar, 2018).

Treatment for cardiovascular ailments constitutes 36 percent of an average migrant income. This puts Mumbai amongst the top 8 cities worldwide in relation to the amount expended by the migrant worker for treating the cardiovascular diseases. This indeed has a long-lasting and devastating impact on the overall healthcare expenses incurred by a migrant laborer's family. Such an economic burden has left less amount of disposable income in the hands of migrant labor for spending on the necessities of the migrant labor and his/her family. As per central statistical

organization survey report 2019, a migrant labor spends around 41 percent of its disposal income on healthcare expenses of which around 79 percent is on account of treatment of cardiovascular diseases (Brihan Mumbai Municipal Corporation Longitudinal Study Report, 2021).

These health issues have been a common cause of concern in the female migrant population. While women in general face various forms of marginalization, female migrants are particularly vulnerable. For instance, in Shanghai, internal migrant women were found to have a higher risk of maternal mortality compared to permanent residents (Dandekar et al., 2012). These disparities in maternal and infant mortality are largely linked to unequal access to maternal healthcare services. Additionally, when it comes to other key health factors such as women's nutritional status recent internal migrants tend to be at a disadvantage (Dwivedi et al., 2007). A high amount of opportunities in western India like Maharashtra, Gujarat and Madhya Pradesh have witnessed great amount of migration due to these factors. Whereas, Maharashtra witnesses the higher amount of migration and Mumbai forms the epicenter of migration for workers. Laborers usually migrated into Mumbai in search of better employment opportunities and better pay. Lack of opportunities and good pay in native places are the detrimental factors which have led to the higher amount of migration in the last decade (Mundu & Bhagat, 2012). Within the Maharashtra state, Mumbai has been a hub of migrant workers. The reason could be attributed to the employment opportunities that the city provides. For the year 2019-20, 65 percent of the total migration into India was witnessed alone in Mumbai (Ministry of Labor and Employment, 2019). Health of migrant workers has been a prime cause of concern in the past decade as a result of changing lifestyles of migrant workers, the quality of diet consumed by them and their awareness about the health precautions that are expected to be taken by them. It has been observed that the amount of healthcare support resorted to by these migrant workers has reduced in the current decade as compared to the previous decade (Brihan Mumbai Municipal Corporation Longitudinal Study Report, 2021).

1.7 Health Care Financing in India

The financing of healthcare facilities is amongst the primary challenges in the developing nations. The healthcare related financing measures have been improved on the four prime and contemporary lines in Indian economy (Nagpal, 2014). The biggest methodology to finance healthcare requirements in India is the out-of-pocket expenditure (Gumber et. al., 1997). It was observed in numerous studies that beyond 75 percent of the healthcare related spending is of out-of-pocket nature in Indian economy (Randall et al., 2000). It has been observed that higher out of pocket spending leads to considerable economic burden on the economically underprivileged and thus is the prime cause of the impoverishment (Narayan et al., 2007). A high dependency on the out-of-

pocket expenditure can lead to a serious policy challenge in the coming years (Visaria & Gumber, 2009). Further, general tax revenues are the ways of funding for the central and state government's share in the healthcare related payout (Forgia & Nagpal, 2012). Income from tax is considered as the fairest system of financing and ways to mobilize the economic resources (Rao et al., 2005).

The public expenditure spent on healthcare requirements is low in India and beneficiaries of low public spending are not economically underprivileged but also those who belong to the economically higher sections of the society (Ahuja, 2004). The third methodology is to finance the healthcare from the social insurance standpoint particularly for the formalized private sector agencies and the employees from the government sector (Forgia & Nagpal, 2012). These policies are generally mandatory and mostly funded through collaborative contributions from the employee as well as the employers. Further benefits are extended to the patients from the partial government subsidies as well (Gupta & Trivedi, 2014). The fourth pillar of the healthcare related funding or financing is the health insurance offered by the private sector players in the economy which has largely originated in the later parts of 1980's (Nagpal, 2014). However, India solely could not depend on the health insurance offered by the private sector for the achievement of the holistic coverage as a result of the hefty premiums and very little coverage in return of the costly healthcare financing services (Rao, 2015).

1.8 Health Insurance and its Types

Health insurance in a minuscule sense means an individualistic or group-oriented purchasing of healthcare-related coverage before paying the premium to the insurance offering company (Bhat & Jain, 2016). However, in the larger sense, it meant an arrangement targeted to help to defer, delay, reduce, or altogether obviate the payment of the healthcare-related expenditure incurred by the individuals and the households (Majumdar, 2009). Generally, health insurance includes insurance covering disability long-term nursing, or related care-oriented needs (Anita, 2007). It can be availed through a government-sponsored social insurance scheme or through the public and private general insurance companies (Rajan & Dhunna, 2012). The essence of health insurance programme is prepayment and risk pooling. Health insurance spreads financial risk among many individuals, which lowers the direct cost of medical services when they are needed and may encourage greater use of healthcare resources (Zweifel & Manning, 2011).

Health insurance can be offered by government agencies, community-based groups, private sector companies, or through collaborative efforts among them. It fulfills two key roles such as psychological and financial. On a psychological level, it provides reassurance by giving individuals a sense of protection during serious health crises. On the financial side, it guarantees access to medical services, supplies, or financial support during such events, safeguarding

policyholders and their families from potential economic distress (Zweifel & Manning, 2000). Although many nations have well-established health insurance systems, India's health insurance sector is still in its early stages and presents significant growth potential. The main types of health insurance available in India are outlined below:

1.8.1 Mandatory Health Insurance Schemes

The mandatory health insurance scheme covers specific population groups, whether they contribute to the scheme or not. There are basically two types of mandatory health insurance schemes as defined as:

(a) Employee's State Insurance Scheme:

Employee state insurance scheme (ESIS) was introduced in 1948 and provides cash and medical benefits to the insured population. It is being managed by the employee's state insurance corporation (ESIC), a government owned enterprise and specifically covers the public sector employees (Ellis et al., 2000).

(b) Central Government Health Scheme:

The central government health scheme (CGHS) was introduced in 1954, to provide comprehensive health coverage to the employees the families of the central government. The beneficiaries of the central government health scheme include the employees of the central government, members of the parliament and supreme court and high court judges (Sahoo & Das, 2011).

1.8.2 Private Health Insurance Schemes

Private health insurance is typically defined as a voluntary, profit-oriented, and commercial form of coverage (WHO, 2004). It may be offered by either public or private general insurance providers. Under this system, individuals pay premiums to an insurance company, which then pools comparable risks and offers financial protection against potential health-related expenses (Devadasan & Nandraj, 2006).

1.8.3 Community based Health Insurance

Community-based health insurance (CBHI) has emerged as a strategy to both enhance healthcare access for low-income populations and shield them from financial hardship caused by high out-of-pocket medical expenses (Devadasan et al., 2004). These schemes are typically operated by non-governmental organizations or charitable trusts (PHFI, 2011). Under CBHI models, participants contribute a fixed annual premium for a defined set of healthcare services. The premium is

generally uniform for all members, regardless of income, and does not follow a progressive structure.

1.8.4 Government Sponsored Health Insurance Schemes

The government-sponsored health insurance schemes (GSHIS) are designed to cover secondary and tertiary medical treatments (Srinivasan, 2011). These programs are typically financed either by the central or state government, which pays a fixed premium to an insurance provider. In some instances, an autonomous agency established by the government is responsible for funding. These schemes offer insurance coverage for a specified list of medical procedures and conditions to eligible beneficiaries (Forgia & Nagpal, 2012).

1.8.5 Ayushman Bharat Scheme

Ayushman Bharat Scheme was launched as a flagship scheme by the government of India on the basis of the recommendations of the NHP 2017, to achieve the mission of universal health coverage (UHC). This initiative has been structured to meet the sustainable development goals (SDGS) and its related commitment, which is to include everyone within the reach of the government healthcare schemes. Ayushman Bharat signifies a move away from a disjointed and sector-specific healthcare system toward a more unified, needs-based model of care. The program introduces comprehensive reforms aimed at strengthening the entire healthcare framework, with a focus on preventive services, health education, and outpatient care spanning primary to tertiary levels.

1.9 Need of the Study

The health status of migrant workers is cause of concern in the Mumbai metropolitan region. Every single day about 8300 migrant workers die due to complications and causes related to health issues worldwide in which India shares about 20 percent to it (Alkema et al., 2016). It was observed that 30 percent of the migrant workers deaths had a direct relation with the affordability and extent of healthcare utilization by the migrant workers (Niti Aayog, 2019). In order to decrease the mortality rate, focus was laid on the proper utilization of healthcare services by the migrant workers. The direct cost and hidden cost are the main barriers in the institutional healthcare facility for the migrant workers. The direct cost and hidden cost account for 55 percent of the total cost at an institutional healthcare facility (Acharya et al., 2016). However, in current scenario, percentage of institutional healthcare facility in India is 78.9 percent. Maharashtra is the state with low institutional healthcare facility percentage than the national value as mentioned in NFHS (Ministry of Health and Family Welfare, 2017). Maharashtra hospital-population ratio is 0.79 hospitals per

lakh persons which is much less than other states of India where there are 2.20 hospitals per lakh persons (Dadhwal and Bhutani, 2017). The state is ranked at 18th position out of 36 states and union territories in institutional healthcare rate and ranked at 17th position for at least three clinical visits which shows that migrant workers are not much aware about the importance of every part of health care delivery in the state (Niti Aayog, 2017).

Health vulnerabilities of labor migrants within the ASEAN region also extend to health security threats such as influenza pandemics and other public health emergencies of international concern. The health vulnerabilities faced by migrant workers are huge and posed a huge economic burden on them and the families. There is a lack of social protection, long working hours and irregular nature of job pushed many of them into catastrophic health expenses due to health care utilization. It was observed that various legal, socio- cultural, behavioral, linguistic and economic obstacles restrict many migrant worker's awareness and access to health and social services. These income groups do not have any regular unions and are not getting This limitation also affects their inclusion in national level efforts for pandemic preparedness, mitigation, and response (Dandekar et al., 2018).

1.10 Research Objectives

The study has been conducted in the Mumbai Metropolitan Region to achieve the objectives. The specific objectives of the present study are as follows:

- (i) To study the socio-demographic and economic characteristics of migrant workers.
- (ii) To analyze the morbidity pattern and healthcare utilization of migrant workers.
- (iii) To estimate the healthcare costs and coping mechanisms of the migrant workers.
- (iv) To examine the quality of healthcare services utilized by the migrant workers.
- (v) To suggest policy measures to improve the health of migrant workers.

1.11 The Structure of the Study

The present study is organized into eight comprehensive chapters, each addressing a key aspect of the research. Chapter I provides a broad introduction to the topic, outlining the scope, significance, and objectives of the study. Chapter II presents a detailed review of existing literature relevant to the study, identifying significant research gaps that this investigation seeks to address. Chapter III elaborates on the research methodology, including data sources, sampling techniques, and analytical tools employed to ensure the reliability and validity of the findings. Chapter IV explores the socio-demographic and economic profile of migrant laborers in the Mumbai Metropolitan Region,

providing essential background information for understanding their healthcare needs and vulnerabilities. Chapter V examines the patterns of healthcare utilization and the coping strategies adopted by migrant workers to manage health-related challenges in an urban context. Chapter VI focuses on catastrophic health expenditures among migrant laborer and analyses the financial burden and out-of-pocket expenses associated with healthcare access. Chapter VII assesses the quality of healthcare services accessed by the migrant labor force, highlighting disparities, constraints, and service delivery issues. Finally, Chapter VIII presents a summary of the key findings, draws conclusions based on the evidence, and outlines policy recommendations aimed at improving healthcare accessibility and affordability for migrant laborers in Mumbai.

CHAPTER II

REVIEW OF LITERATURE

The chapter highlights the previous studies on healthcare utilization, cost, coping strategies and related dimensions of migrant labor. In this chapter a comprehensive review of the literature has been carried out at both national and international levels to emphasize the various issues associated with the present study. The literature draws attention to the research gaps and provides insight to the researchers and academicians on various dimensions. The literature is reviewed on various aspects such as socio- demographic and economic characteristics of migrant labor, morbidity pattern, healthcare utilization, healthcare cost and coping strategies, catastrophic expenditure and quality of healthcare services utilized.

2.1 Socio-Demographic and Economic Characteristics

There are several socio-economic factors that affect the health status of individuals and society, such as caste, religion, occupation, income, education level and awareness about healthcare complications. The collection of all these determinants could be referred to as socio-economic determinants (Rayappa et al., 2019). The studies on socio-economic determinants considered social cohesion and cohabiting with individuals from the same social status (caste) to be significant determinants (Pickett and Pearl, 2001; Rios et al., 2011; Broberg et al., 2018). The socio-economic determinants have traditionally been classified as education, income and employment (Agardh et al., 2016). A study by Kapur (2001) examined the education level, family income, and demographic characteristics, including age, location, and marital status, as significant socio-economic determinants that influenced healthcare utilization among migrant labor in Mumbai. It was also observed that illiterates and jobless, especially those living in zones where there was a lesser quality of healthcare infrastructure were more prone to healthcare complications. According to Shamshirgaran et al. (2013) healthcare complications were more evident amongst individuals who were non-working or unemployed, with meagre education and low- income level as compared to those who were comparatively more educated, consumed a healthy diet and had a comparatively higher income level.

The changes in the overall lifestyle, conditions and status of living, as well as the economic status, were the significant determinants of healthcare complications faced by the marginalized workers, including migrant labour and slum workers (Gwatidzo and Williams, 2017). Numerous studies put forth the change in lifestyle patterns (rapid dietary change and low involvement in

physical activities) because of urbanization as a substantial socio-economic determinant of chronic diseases amongst individuals (Lockwood et al., 2018). The association of socio-economic determinants such as educational, demographic characteristics and occupational status with healthcare complications was evaluated among the working class in the nation and links were established between the level of income, extent of literacy, level of employment, financial literacy and medical awareness amongst the individuals and the extent of healthcare complications faced by the individuals under the study (Misra et al., 2011). The relationship between the socio-economic determinants and the nature of outpatient care, inpatient care and chronic disease was studied to understand the linkages and associations between these factors (Fone et al., 2016). The study has identified a significant association between the healthcare utilization and socio-economic variables of the study.

2.2 Morbidity Pattern and Healthcare Utilization by Migrant Labor

Understanding the provision, utilization of healthcare services and their determinants is a difficult task, especially when the healthcare sector is heterogeneous in nature. The healthcare utilization is categorized as (a) curative care (inpatient and outpatient care) (b) preventive care (c) promotive care, i.e., disease control, education and promotion of health (Sarkar, 2015). Most of the studies on health of migrant labor had taken into consideration the curative care dimension of healthcare utilization (Kangas et al., 2016; Greenough et al., 2017; Sarkar, 2018; Huang 2019; Joshi, 2013; Grupp, 2016; Maiya, 2020; Umakanth, 2020; Wang, 2021). According to Mody et al. (2017) healthcare utilization, such as emergency visits, hospital and nursing home admissions, accounted for higher utilization cost per annum in the United States for treating chronic diseases (Huang et al., 2011). A study by Kumptala et al. (2013) found that healthcare utilization accounted for a higher percentage share of the total cost of illness for treating, preventing and controlling medical complications in South-Asian economies.

The awareness of the right to access health services is one the important aspect of securing accessibility of services. However, previous studies showed that a lack of awareness of health issues amongst migrant workers significantly contributed to a lack of awareness and reluctance to access healthcare services causing health-related complications (Nikiema et al., 2009; Geleto et al., 2019). A study from Maharashtra highlighted that there was a lack of awareness regarding the need for utilization of healthcare services and availability of healthcare facilities in the nearby vicinity. A need was expressed to create awareness through health education regarding the importance of clinical visits and utilization of health care services, as the availability of healthcare facilities for the treatment of healthcare complications (Dabade et al., 2013).

Men's level of knowledge regarding health issues and their involvement is important to frame policies regarding awareness of men and enhancing their engagement in their family's health. Men's awareness about the need for healthcare utilization to address the morbidities acts as an enabler towards early treatment of healthcare complications (Mersha, 2018). It was found that a shortage of staff, lack of awareness of health, affordability, or financial crisis were the main barriers regarding the accessibility of healthcare services (Tsawe and Susuman, 2014). A study by Sheth et al. (2013) and Aregbeshola and Khan (2018) suggested that in order to encourage migrant workers to utilize healthcare services, policymakers need to frame policies keeping the migrant workers in mind. It was concluded that awareness through social media, educational programs, community participation, campaigns and awareness can help to frame better policies and coverage in the areas where migrant workers dwell. These strategies play a better role in the accessibility of healthcare facilities (Ranjit et al., 2010; Sheth et al., 2013; Tsawe and Susuman, 2014). The correlation between migrant literacy with an awareness about healthcare facilities was observed. Further, a positive correlation between the level of income and frequency of access to healthcare facilities was also observed. Whereas, low levels of income, lack of awareness and short stay at a particular place are some of the factors underlying higher rates of migrant worker's deaths. Hence, awareness related to the utilization of healthcare services by migrant workers is needed. Grupp et al. (2016) found that healthcare utilization services such as outpatient physicians, hospitalization and rehabilitative care accounted for more than half of the total cost of illness. The presence of different medical complications and comorbidities has an independent effect on the larger utilization of healthcare services. A large number of comorbidities among patients results in extensive use of medical healthcare services such as general practitioner care, specialist care, hospitalization and hospital care. It was promulgated that the extent of healthcare utilization services such as hospitalization for chronic diseases, by patients with comorbidity is significantly higher as compared to the non-comorbidity patients. Awareness about the necessity and easy accessibility of healthcare facilities also played a pivotal role in the treatment of co-morbidities (Hutter et al., 2012; Subramaniam et al., 2013).

Morbidity as an indicator of medical conditions is highly dependent on the factors surrounding the migrant population. The rise in morbidity was linked to the situations through which the migrant population lived their lives. The morbidity has been a serious cause of concern amongst the population of migrant labor (Dabhade et. al, 2016). The co- morbidities amongst the migrant population have been on the rise, especially amongst the migrant population staying within the different zones of the Mumbai Metropolitan Region due to a sedentary lifestyle, lack of a clean diet etc. It was found that a lack of water and sanitation facilities has led to the migrant population being prone to communicable diseases, especially those living in the urban settlements (Brihan Mumbai Municipal Corporation Longitudinal Study Report, 2021).

The rise in morbidity has led to an increase in the requirement for healthcare services, which has necessitated the availability and access to decent healthcare facilities providing qualitative healthcare services to the people in need of these services. Affordability of healthcare services is also an important factor to be considered in this context. Affordable healthcare services ensure availability of healthcare services to the patients in need without discriminating based on financial capability (Manoharan, 2014). The higher dependence on government hospitals for healthcare services, such as outpatient visits, has been observed by migrant labor as an indicator of lower income levels amongst immigrants. The factors such as higher income, higher education and availability of health insurance induce the migrant workers to use private clinics, regardless of free public health care centers run by the central as well as state government (Sundar, 2015; Sudha et al., 2015; Russell, 2016). According to Zhou et al. (2013) utilization of both outpatient and inpatient services in private clinics was pro-rich both in rural and urban China. In India, for general illness (GI), around 70 to 80 percent of the respondents look for healthcare services in hospitals, with the vast majority of patients being slum workers visiting either government hospitals/clinics or NGO facilities. Household monthly income, occupation of the household also influences utilization of health care positively (Mitchell et al., 2011; Joshi et al., 2013). The demographic factors like age, caste, and religion, availability of rooms, number of clinical visits, and amplification of public health infrastructure influence the utilization of healthcare services. The higher a migrant laborer is educated, the more is their likelihood to utilize the health care services (Deepak et al., 2018). However, age has also shown that with an increase in age the people become more cautious to utilize the healthcare services.

2.3 Healthcare Cost

According to Rice et al. (2005) economic costs of illness remain a key factor influencing decisions about resource distribution within the healthcare sector. These costs reflect the financial impact of disease and early mortality on society. It is suggested that the cost estimation of disease is a major prerequisite for making decisions, setting up of priorities and assessing health budget (Hodgson and Meiners, 2012). Changik (2014) mentioned that the cost of illness (COI), often referred to as the burden of disease (BOD) and it reflects the extensive effects of diseases on health outcomes across countries, regions, communities, and individuals. Although some countries have made efforts to reduce the cost of health services in recent years, skilled healthcare remains too expensive for many migrant workers. Due to frequent service utilization and higher cost of visits, healthcare costs are significantly higher (Kes et al., 2015). The hidden cost is a barrier to institutional healthcare for migrant workers in Mumbai. Households having lower income tend to spend a higher percentage of their income on seeking healthcare than households having higher income (Bidgoli et

al., 2015). The variation in out-of-pocket expenditure (OOPE) was influenced by the type of healthcare facility, the place of the healthcare facility, and complications in health issues of migrant workers. It was observed that out-of-pocket healthcare spending was found to be influenced by various factors including a family's financial condition, educational level of women, and the occurrence of medical complications (Acharya et al., 2016; Govil et al., 2016). However, poorest migrant Indian households spent almost twice and Kenya households spent almost ten times as much on seeking care. More than 60 percent of the migrant laborers spent their savings, whereas 40 percent of the migrant workers were so poor that they could not afford payments and forgone the treatment. Taking money from a spouse or any other household member and using personal savings were the most common coping mechanisms. The higher costs occurred due to any health-related complications, resulting in an increase in the expenditure (Kes et al., 2015). The factors like quality of healthcare services, family monthly income and travel time between hospital and respondent's house were found to be significant with the hidden cost of healthcare services provided by the hospital (Acharya et al., 2016). The advent of healthcare complications has a long-lasting impact on the life of the patient. It just does not affect emotionally and mentally, but also impacts the financial outlay on healthcare. The cardiovascular diseases, such as stroke, aortic disease, peripheral arterial disease and coronary heart disease, are the major cardiovascular diseases that are generally observed in the metropolitan cities due to the unsustainable lifestyles and hectic lives of the migrant labor, which results in migrants turning into patients in the long run. Though there have been a lot of insurance schemes prevalent in the market, yet the rising costs of the healthcare expenditure are catastrophic for the migrant labor (Dandekar et. al.). It has been observed that out of the total healthcare expenditure incurred for the treatment of the cardiovascular disease, around 67 percent is incurred by the migrant labor, whereas the balance 33 percent is covered by insurance. The reasons for insurance coverage being a lower proportion are the eligibility norms refusing insurance amount in certain cases. Further, non-payment of the insurance premium is an important reason for the denial of the insurance amount. However, it constitutes 35 percent, whereas the latter constitutes 42 percent of the total population.

The categorization of the healthcare costs varies from the incidence of disease to the morbidity, along with the financial aspects. Therefore, a precise understanding of cost of illness is fundamental for either healthcare policy formulation or achieving policy efficiency. Whereas, in 23 percent of the cases, it is the operational difficulties that ensure denial of the insurance amount. The frequency of the expenditure on the treatment of the cardiovascular disease can be seen as recurring biannually in 38 percent of the cases in the case of peripheral arterial disease, 36 percent of the cases in the case of aortic disease, 14 percent in case of stroke and 12 percent in case of coronary heart disease (Brihan Mumbai Municipal Corporation Longitudinal Study Report, 2021). The economic burden of healthcare costs has posed serious considerations on the migrant labour (Gerald et al., 2009; Leese, 2011; Jonsson, 2012; Songer and Ettaro, 2013; Barcelo, 2013; Hogan, 2014; Chodick et al., 2015; Ramachandran, 2017; Kapur, 2017; Tharkar, 2019; Shivaprakash, 2019; Chandra, 2019; Acharya, 2020; Eshwari, 2020, Nath et al., 2020; Oberoi and Kansra, 2020). According to Jonsson (2018) comorbidities alone account for 2- 3 percent of the total healthcare budget in every country. However, a study by Zhang et al. (2010) estimated the healthcare costs to be \$ 1,200 billion globally. It was identified that serious illness is associated with many co- morbidities. Macrovascular complication of chronic diseases broadly includes coronary and peripheral arterial disease and compute a huge burden on the households (Akari et al., 2013; Kumpatla et al., 2013).

There are mainly three types of costs involved in treating chronic diseases such as the cost of hospitalization, the cost of medication and the cost of transport. The migrant labor incurs 61 percent of the total treatment cost on hospital bills, followed by 31 percent on the purchase of medicines. The cost incurred to travel to a healthcare facility constitutes around 8 percent on average of the total treatment cost involved in the treatment of chronic diseases (Manikandan, 2018). The factors such as the economic status of the household, women's education, and complications in health issues were found as the determinants of out-of-pocket expenditure. Family monthly income and travel time between the hospital and the respondent's house were found to be significant, with the hidden cost of healthcare services provided by the hospital. Households with lower income tend to spend a higher proportion of their income on seeking healthcare than households having higher income. Due to frequent service utilization and higher cost of visits, healthcare costs are significantly higher (Kes et al., 2015).

2.4 Catastrophic Healthcare Expenditure

According to the World Health Organization (2010) primary function of the healthcare system is to improve population health and to safeguard households from financial catastrophic expenditure. The payments for out-of-pocket expenditure such as inpatient and outpatient services lead to catastrophic health expenditures (CHE) pushing households toward impoverishment (Bredenkamp and Gragnolati, 2011; Ghosh, 2011; Li et al., 2012; Kastor and Mohanty, 2018; Jing, 2020; Leng, 2020; Ahmet, 2021). Globally, 150 million households experience catastrophic healthcare expenditure (CHE) and approximately 100 million households are on the verge of being impoverished by health expenses (WHO, 2016). Many lower wealth nations such as India, Bangladesh, Greece, Israel, Jamaica, Nigeria, Thailand etc. experience extreme out-of-pocket expenditures, thereby, pushing households toward asset reduction, mounting debts, consumption depletion and financial risk (Xu et al., 2007; Binnendijk et al., 2011; Ghosh, 2011; Rahman et al., 2013; Jing et al., 2019; Ahmet et al., 2021). According to Aregbeshola and Khan (2017), catastrophic healthcare expenditure (CHE) refers to the financial strain experienced by households when out-of-pocket (OOP) payments for healthcare become excessively high. CHE occurs when these expenses are substantial enough to threaten a household's ability to maintain basic living standards (Xu, 2004; Xu, 2007; Gotsadze, 2009; Smith, 2012; Kronenberg and Barros, 2014; Aregbeshola and Khan, 2017).

The different threshold levels have been used in various studies to assess catastrophic expenditure in different countries (Xu et al., 2003). Some studies used 10 percent, 20 percent and 30 percent threshold levels of total household expenditure (Lu, 2004; Wagstaff, 2003; Su Ban, 2007; Sene Cisse, 2015). Whereas, other studies used a 40 percent threshold level of non-food consumption expenditure (Xu et al., 2003; Aregbeshola and Khan, 2017). Numerous studies identified determinants of catastrophic healthcare expenditure both in developed and underdeveloped economies (Xu et al., 2007; Yardim et al., 2010; Smith et al., 2012; Li et al., 2012; Gwatidzo and Williams, 2017). It was observed that lower education level, elderly household members, household size and dearth of health insurance are the major determinants (Smith, 2012). Prabhakar (2016) inferred that elderly age, gender, regional location, education and economic status were amongst the most significant determinants of catastrophic healthcare expenditure (CHE). Households with low economic status placed under the poorer wealth quintile act as a significant determinant of catastrophic healthcare expenditure (Su et al., 2006; Yardim et al., 2010; Li et al., 2012; Gwatidzo and Williams, 2017). According to Gwatidzo and Williams (2017) it was observed that almost 7 percent of people with diabetes mellitus experience catastrophic healthcare expenditure (CHE) because of high medication costs in India. According to Brinda et al. (2015), inferred that people living in rural areas with low-income levels incurred more catastrophic healthcare expenditure in India. According to Mondal et al. (2010) prevalence of chronic morbidity, inpatient care, household size and medical expenditure for illness as the significant factors influencing (CHE) in India. According to Pal (2012), it was found that age, caste and education were the key determinants of catastrophic healthcare expenditure (CHE). It was found that households from backward social groups incurred higher catastrophic expenditure as compared to households with other social groups in India. Lifestyle modification and economic status were significant determinants of diabetes mellitus and catastrophic healthcare expenditure (Gwatidzo and Williams, 2017).

2.5 Coping Strategies

Households use various coping strategies to survive from the economic repercussions of chronic illness (Bomberg, 2016; Funuyet-Salas, 2021; Murakami, 2021; Widayati, 2021). It was found that

most commonly the available cash and savings act as an instant coping response to finance the cost of illness. The previous studies have exhibited that it could be possible only for a small section of households (Wilkes et al., 1997; Gross et al., 1999; Russell, 2004; Chuma et al., 2007; Arnold et al., 2016). However, other studies on coping strategies emphasized the use of home remedies, postponement of medical appointments and the reduction of food consumption as major strategies to survive the economic burden of illness (Mutiyambizi, 2002; Henry et al., 2010; Dhanaraj, 2016). The coping strategy for spontaneous response to finance the cost of illness is done through the sale of assets by households (Wilkes et al., 1997; Damme et al., 2004; Gotsadze, 2005; Leive and Xu, 2008). The sale of productive assets such as land, farming equipment, livestock and house forms an additional source of income for households to manage the cost of disease (Binnendijk et al., 2011; Shahrawat and Rao, 2011; Quintussi et al., 2015). The most common reaction for coping with the direct and indirect cost of illness is through borrowing from friends and family, moneylenders and informal loans from employers and neighbours (Gotsadze, 2005; Munga and Gideon, 2009; Nguyen et al., 2012; Arnold et al., 2016). Financing strategies and related mechanisms for coping with the cost of illness through loans and borrowings could have an adverse consequence on households (McIntyre et al., 2005). Whereas, other coping strategies for dealing with the cost of ailment include diversification of income and selling household labor helps in managing health expenditure (Xu et al., 2003). According to Sauerborn et al. (1996), it was observed that the intra-household labor substitution and hiring external labor acted as major coping strategies to compensate for labor loss and the cost of illness. Intra- household labor substitution constitutes an intangible cost, particularly when children discontinue school to take on work activities (Dhanaraj, 2016). Mostly, developed economies have advanced community groups and social institutions, such as community insurance and tax-funded health systems that have high relevance in coping with the cost of illness (Xu et al., 2003).

2.6 Quality of Healthcare Services

The factors like lack of information, leadership and political commitments, geographical barriers, quality of healthcare facilities, affordability, introduction by health labor, lack of career enhancement and development of skills were found in health laborers (Miteniece et al., 2018). The difference in quality of care was related to the disability status, not to the caste factor (Devkota et al., 2017). The coverage level of healthcare facility utilization varied from country to country, but the quality of health services matters (Haddad et al., 2016). It was found that interaction with providers, attentiveness of providers and adequate facilities came out as the factors influencing the quality of healthcare facilities received by migrant laborers (Atinga and Baku, 2013). According to WHO (2018) quality of care refers to the extent to which healthcare services provided to individuals and patient populations improve desired health outcomes. To achieve this, healthcare

must be safe, effective, timely, efficient, equitable and people-centered. The coverage level of healthcare facility utilization varied from country to country, but the quality of health services matters (Haddad et al., 2016). The factors like lack of information, leadership and political commitments, geographical barriers viz. distance from dwelling to healthcare facility; quality of healthcare facilities, affordability, introduction by health worker, details of inspection process, approval seeking and confidential protection, lack of career enhancement and development of skills were found in health workers, limited and inadequate material, human resources, staff skills, poor communication between migrant workers and health professional and lack of motivation and supervision of health workers (Marthias and Trisnantoro, 2012; Kambala, 2016; Mkoka, 2014; Obeidat, 2018; John, 2019; Miteniece, 2016).

The quality of healthcare services is a detrimental factor when it comes to ensuring the availability of healthcare services for the patients in need. Quality in healthcare services can be assessed based on the SEVQUAL model suggested by Parasuraman. The SERVQUAL model provides an insight into the different aspects of quality which are essential in the delivery of healthcare services (Rajaram and Prabhakar, 2017). According to Manikandan (2018), the quality of healthcare services is largely influenced by factors such as tangibility, reliability, responsiveness, assurance, empathy, and continuous improvement. These elements serve as key indicators in assessing the standard of care provided by healthcare facilities. The difference in quality of care was related to the disability status, not to the caste factor (Devkota et al., 2017). Interaction with providers, attentiveness of providers, privacy during consultation, adequate facilities and availability of drugs came out as the factors influencing the quality of healthcare facilities received by migrant workers (Atinga and Baku, 2013).

2.7 Research Gap

Despite the growing number of internal migrants in metropolitan cities like Mumbai, the health of migrant laborers remains an underexplored domain in existing literature. A review of previous studies reveals several critical gaps that requires further research. Firstly, the socio-demographic profiles of migrant workers in Mumbai have not been examined in sufficient depth. The limited studies available primarily focus on slum dwellers or landless laborers, without offering a comprehensive understanding of the diverse migrant populations working in sectors such as construction, domestic work, and informal services. Secondly, while some research has addressed morbidity patterns and general health issues among migrants in India, there is a clear absence of studies specifically detailing the health complications and economic burden of migrant labour in Mumbai. The complexity and recurrence of health issues are often due to hazardous working and living conditions and have not been thoroughly documented or analyzed. Further, literature on

healthcare utilization by migrant laborers in Mumbai is scarce, particularly with regard to the determinants influencing their access to and choice of healthcare services. The periodicity and utilization of healthcare services and quality are seldom captured in existing studies. There is also need to analyses the catastrophic health expenditures and the economic burden faced by migrant households due to out-of- pocket healthcare spending. Additionally, most studies evaluating healthcare quality focus on private sector facilities, neglecting the experiences of migrants who largely depend on government hospitals and small clinics. There is a pressing need for an assessment of these public healthcare services from the perspective of migrant users. Finally, unique challenges faced by undocumented or illegal migrants such as fear of disclosure, discrimination, and legal exclusion from services remain largely unaddressed in the literature. These gaps highlighted the need for a holistic investigation into the healthcare utilization patterns, quality of care, and associated financial challenges faced by migrant labor in Mumbai.

CHAPTER III

RESEARCH METHODOLOGY

Research Methodology comprehensively describes the systematic process involved in addressing the research problem. It clearly articulates the research question and explains its significance. This chapter explains the research methodology used to describe the population under study, sample design, sample size, as well as the statistical tools used in data analysis. This chapter is organized into three sections. Section I outlines the sample design and the method used for estimating the sample size. Section II presents the database, key variables, and the hypotheses formulated for the study. Section III offers a comprehensive overview of the statistical tools employed for data analysis. The study adopts a descriptive research design.

SECTION I

SAMPLING DESIGN AND SAMPLE SIZE

3.1.1 Research Design

The present study is based on descriptive research design. It is a cross-sectional study based conducted in Mumbai. The data is collected from the respondents through a self- structured questionnaire.

3.1.2 Sampling Design

The present study involves a multistage sampling technique to select the zones and occupations of migrant labor from Mumbai. The first stage involved selection of the zones from Mumbai. It was planned to give a true representation of the seven different zones of Mumbai i.e., Zone 1 (Greater Mumbai), Zone 2 (Bhiwandi), Zone 3 (Kalyan and Dombivali), Zone 4 (Mira Bhayander), Zone 5 (Navi Mumbai), Zone 6 (Thane) and Zone 7 (Vasai Virar). In the present study an attempt has been made to select the migrant workers from each of the mentioned zone. Thereafter, an effort was made to select the three occupations in which the migrant laborers were predominantly employed in Mumbai. The operational definition of the migrant worker was adapted from the works of Dandekar (2016), Rangarajan (2013), Kale and Ahmed (2018), Acharya (2015) and Swaminathan (2010). Thus, a migrant worker is defined as an individual who typically works without a formal labor contract, often engages in small-scale employment, has limited education and skills, and lacks substantial resources for physical investments like premises, equipment, or machinery.

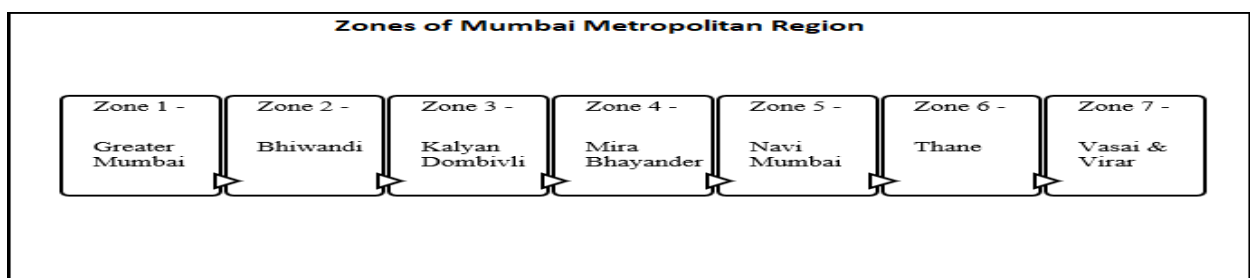
Migrant laborers working in the informal sector are generally unregistered with official authorities and do not contribute to tax or social security systems, thereby remaining outside regulatory frameworks. Normally, this kind of migrant workers operates on a small-scale basis with a small level of organization and little or no division between the labor and the capital. Three occupational groups such as construction workers, fishermen, and non-registered shopkeepers were selected for the present study. These occupational groups were selected based on the facts that (a) These occupational groups are commonly found in all the seven zones of Mumbai and; (b) The occupational group representatives and working environment of these groups allow surveying the healthcare status and utilization etc.

Figure 3.1: Administrative Map of Mumbai Containing Seven Different Zones



Source: <https://mpcb.gov.in/en/node/3761>

Figure 3.2: Seven Different Zones of Mumbai Metropolitan Region



Source: Author Compilation

Thereafter the selection of zones and identification of occupational groups, a systematic and organized approach has been followed to reach out to the final respondents to obtain the primary data. However, after deciding the sample distribution across the seven zones of Mumbai, attempt has been made to identify the key areas within each zone from where the occupational groups of construction workers, fishermen, and non- registered shopkeepers have been predominantly concentrated. This has been completed through preliminary field visits, informal discussions with local community leaders, labor contractors and municipal authorities etc. Within each selected zone, specific areas were mapped where the identified occupational groups were known to reside or work. The following were the areas:

1. In Zone 1 (Greater Mumbai) and Zone 3 (Kalyan and Dombivli), construction sites and temporary housing clusters were primary data collection locations.
2. In Zone 2 (Bhiwandi) and Zone 6 (Thane), markets and informal retail spaces were targeted for non-registered shopkeepers.
3. In Zone 4 (Mira Bhayander) and Zone 7 (Vasai Virar), coastal fishing communities were accessed to reach fishermen.
4. In Zone 5 (Navi Mumbai), mixed occupational clusters helped in accessing all three categories.

Thereafter using a stratified approach within each zone, respondents have been selected based on their occupational affiliation with a purposive approach. For the purpose of analysis, the study area was classified into seven zones. Zone 1 comprises Greater Mumbai, representing the core urban area. Zone 2 includes Bhiwandi, while Zone 3 covers Kalyan–Dombivli. Zone 4 consists of Mira–Bhayander, followed by Zone 5 comprising Navi Mumbai. Zone 6 includes Thane, and Zone 7 covers the Vasai–Virar region. This zonal classification was adopted to capture spatial variations within the Mumbai Metropolitan Region.

3.1.3 Sampling Size

The sample size is calculated at 95 percent confidence interval and the recommended margin error of 5 percent (0.05) has been considered as per the STEPS manual (World Health Organization, 2005). The total sample size estimate achieved was adjusted to accommodate the design effect (1.5). Using these values, the optimum sample size was obtained by adopting the following formulation (World Health Organization, 2005):

$$\text{Sample Size (n)} = Z^2 (p) (1-p) / e^2$$

where, Z = level of confidence whose value taken as 1.96 probability value which is associated with a 95% confidence interval, p = estimated prevalence of the risk factor and e = margin error. As per the calculations, the desired size of the sample turned out to be 476.

SECTION II

RESEARCH INSTRUMENT, CONTENT VALIDITY AND HYPOTHESIS

3.2. Research Instrument

The data has been collected with the help of structured questionnaire and questionnaire has been pre-tested questionnaire covering aspects such as socio-demographic characteristics, health status, healthcare utilization, coping mechanism, catastrophic healthcare expenditure, quality of healthcare services etc.

3.2.1 Content Validity

The term "content validity" refers to assessing content's relevance, clarity and modification. According to Kimberlin and Winterstein (2008), content validity is the degree to which the items developed to operationalize the construct provide a sufficient and representative sample of all the items that can be used to assess the target construct. The content validity is the evaluative process that assesses whether our questionnaire includes activities pertinent to the area (Dar & Mishra, 2019). According to Kumar and Sadeeq (2020), "Content validity is determined by relying on the expertise of experts with an in-depth understanding of the studied topic or concept." These subject matter experts are requested to comment on the topic, ambiguity and phrasing. Therefore, with the incorporation of the experts' recommendations, the language of the research instrument is straightforward, transparent, effective and comprehensible to the study respondents.

3.2.2 Reliability

The concept of "reliability" relates to the consistency of the findings. According to Joppe (2000), "Reliability is the degree to which results are consistent across time and appropriately represent the entire population under study; if the results of a study can be duplicated using a similar method, the research instrument is considered reliable" (Samrah and Hazarika, 2012). According to Farooq (2017), "the most commonly used approach to test reliability is Cronbach's alpha, which runs from 0 to 1 and may be used to measure the reliability of dichotomous, likert, nominal and ordinal scales." In a study by Nunnally (1978), to establish the validity of the research instrument, the threshold value of "Cronbach Alpha" should not be less than 0.70. The greater the alpha number, the greater the measure's trustworthiness, whereas alpha scores below 0.70 are regarded as unreliable. The results are presented in table 3.1. The value of "Cronbach's alpha" for risk factors, coping strategies and prevention strategies constructs was above 0.70, as presented in table 3.1, thereby certifying the reliability of all the constructs. Therefore, all the scales were established to be reliable.

Table 3.1 Reliability of Coping Mechanism, Quality Expectations and Quality Perceived

Construct	Item Code	Items Label	Cronbach's Alpha
Quality Expectations	Tangibles		
	Tan1	Availability of modern equipment	0.867
	Tan2	Visually appealing facilities	
	Tan3	Hospitals equipped to address patients' needs	
	Tan4	Nurses providing clear explanations of prescriptions	
	Tan5	Cleanliness of wards, bedding, and floor	
	Tan6	Willingness to help patients	
	Tan7	Delivering correct treatment for the first time	
	Tan8	Nurses are providing comfortable services	
	Assurance		

Assu1	Perceived Safety Under Physician’s Care	0.795
Assu2	Accuracy of patients' records	
Assu3	Hospital’s Capability to Address Health Issues	
Reliability		
Reli1	Clear Communication of Treatment by Doctors	0.973
Reli2	Professional Appearance of Doctors	
Reli3	Fulfilment of promised services	
Reli4	Accurate and Error-Free Medical Records	
Reli5	Consistency in Service Delivery	
Reli6	Provision of Basic Infrastructure (Water and Electricity)	
Responsiveness		
Resp1	Doctor’s Compassionate Attitude Toward Patients	0.986
Resp2	Personalized Attention to Patients	
Resp3	Convenient Consultation Hours	
Resp4	Clear Explanation of Prescriptions by Nurses	
Empathy		
Emp1	Polite Behavior of Hospital Staff	0.847
Emp2	Clarity in Communication	
Emp3	Attentive Listening to Patients	
Emp4	Empathy and understanding of the Patient’s Situation	

	Emp5	Sense of Warmth and Approachability	
	Emp6	Awareness of Patient Needs and Expectations	
	Satisfaction		
	Sat1	Overall rating of hospital	0.887
	Sat2	Communication with doctors	
	Sat3	Communication about medicine with pharmacist	
Quality Perceived	Tangibles		
	TanP1	Availability of modern equipment	0.816
	TanP2	Visually appealing facilities	
	TanP3	Hospitals equipped to address patients' needs	
	TanP4	Nurses providing clear explanations of prescriptions	
	TanP5	Cleanliness of wards, bedding and floor	
	TanP6	Willingness to help patients	
	TanP7	Delivering correct treatment for first time	
	TanP8	Nurses are providing comfortable services	
	Assurance		
	Assu1	Perceived safety under Physician's care	0.913
	Assu2	Accuracy of patients' records	
	Assu3	Hospital's capability to address health issues	
	Reliability		
	ReliP1	Clear communication of treatment by doctors	

	ReliP2	Professional appearance of doctors	0.798
	ReliP3	Fulfilment of promised services	
	ReliP4	Accurate and error-free medical records	
	ReliP5	Consistency in service delivery	
	ReliP6	Provision of basic infrastructure (Water and Electricity)	
	Responsiveness		0.835
	RespP1	Doctor's compassionate attitude toward patients	
	RespP2	Personalized attention to patients	
	RespP3	Convenient consultation hours	
	RespP4	Clear explanation of prescriptions by nurses	
	Empathy		0.901
	EmpP1	Polite behavior of hospital staff	
	EmpP2	Clarity in communication	
	EmpP3	Attentive listening to patients	
	EmpP4	Empathy and Understanding of the Patient's Situation	
	EmpP5	Sense of Warmth and Approachability	
	EmpP6	Awareness of Patient Needs and Expectations	
	Satisfaction		
	SatP1	Overall rating of the hospital	
	SatP2	Communication with doctors	

	SatP3	Communication about medicine with the pharmacist	0.934
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Source: Author Calculation

3.2.3 Hypothesis of the Study:

The following hypotheses have been formulated on the basis of the objectives of the study:

H₀₁: There is no significant association between socio-demographic variables and healthcare utilization among migrant laborers.

H₀₂: There is no significant association between socio-demographic variables and catastrophic healthcare expenditure experienced by migrant laborers.

SECTION III: STATISTICAL TOOLS

The analysis of data for the present study has been carried out with the help of the descriptive and inferential statistical tools for the achievement of the study objectives as a follow:

3.3.1 Mean

Mean ($\bar{X}$) is a fundamental concept in mathematics and statistics, commonly used in statistics to represent the central value or average of a probability distribution. “Mean is estimated by taking the sum of all observations in a data set divided by the total number of observations in a given data set” (Kumar and Sadeeq, 2020).

$$\bar{X} = \frac{\sum X}{N}$$

Where;

$\sum X$ = Summation of all observations

N = Number of observations

3.3.2 Median

The median is typically defined as the middle value in a list of numbers sorted in either ascending or descending order. In some cases, the median can provide a more accurate representation of a data set than the mean. “For an odd number of observations, the middle number is the median value and if there is an even number of observations, the median is the mean of the two middle values” (Kumar, 2016).

$$\text{Median} = \frac{(N + 1)}{2}$$

Where,

N = Total number of observations

3.3.3 Headcount

According to Ghosh (2011), “The incidence of catastrophic health expenditure is measured using the Headcount approach”. Headcount is defined as the percentage of households monthly out-of-pocket (OOP) expenditure, as the ratio of the monthly income of the household, for monthly outpatient expenditure, exceeding a specific catastrophic threshold level. The majority of studies applied use 5 percent and 10 percent as desired threshold levels. However, the present study also examined headcount at 5 percent, 10 percent, 20 percent, and 30 percent threshold levels for better insight.

$$\text{Headcount} = \frac{1}{n} \sum_{i=1}^N E_i$$

Where,

E_i = An indicator variable that equals 1 if the ratio of out-of-pocket health expenditure (O_i) to total household income or consumption (Y_i) exceeds a specified threshold z (i.e., $O_i / Y_i > z$), and 0 otherwise.

O_i = Out-of-pocket (OOP) health expenditure incurred by household i .

Y_i = Total income or consumption expenditure of household i .

z = Threshold value to define catastrophic health expenditure (commonly set at 10%, 20%, or 40%).

3.3.4 Overshoot

The headcount method highlights the percentage share of out-of-pocket spending by households beyond the threshold level, but it doesn't highlight the intensity of expenditure households spent beyond the catastrophic threshold. According to Bhojani et al. (2012, p. 4), "Overshoot measures the degree by which an average OOP expenditure (in the entire sample) crosses the given catastrophic threshold". The formula used for overshoot is:

$$\text{Overshoot} = \frac{1}{n} \sum_{i=1}^N O_i$$

Where;

$$O_i = E_i((P_i/Y_i) - Z)$$

3.3.5 Mean Positive Overshoot

According to Bhojani et al. (2012), "Mean positive overshoot (MPO) measures the degree by which the average out-of-pocket expenditure by households that have experienced catastrophe has exceeded the given threshold level". The formula for mean positive overshoot is:

$$\text{MPO} = \frac{\text{Overshoot}}{\text{Headcount}}$$

Where,

If household "j" experiences catastrophic health expenditure, the household might have spent (MPO + Threshold level) percent of income on the cost of illness.

3.3.6 Logistic Regression

This method is used when the dependent variable is categorical or nominal. As Field (2009) explains, it assesses the influence of several independent variables at once to predict which of the two categories the dependent variable belongs to. In logistic regression, a logistic transformation of the odds serves as the dependent variable:

$$\text{Log (odds)} = \text{Logit}(P) = \ln(P / (1 - P)) \quad (1)$$

Taking the above dependent variable and adding a regression equation for independent variables, logistic regression is:

$$\text{Logit}(P) = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_iX_i \quad (2)$$

The probability equation is given as:

$$P = \exp(a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_iX_i) / [1 + \exp(a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_iX_i)] \quad (3)$$

Where,

P = Probability that a case is in a particular category

exp = Exponential function

a = Intercept of the equation

b = Coefficient of the predictor variable

3.3.7 Mean Gap (G)

The catastrophic healthcare payment gap examined the average degree by which payments as a proportion of income exceed the threshold level, Z (Pradhan & Prescott, 2002; Ranson, 2002; Gopalan & Das, 2009; Mondal, 2010; Ghosh, 2011). The excess or overshoot was defined as the amount by which the payment fraction (H_i/L_i) exceeds the catastrophic threshold Z. The overshoot at a particular threshold level is given by:

$$O_i = E_i (H_i / L_i) - Z$$

Where,

O_i = Overshoot at a particular threshold level

H_i = Headcount

L_i = Consumption expenditure

Z = Threshold level

3.3.8 Mean Positive Gap (MPG)

The mean positive gap (MPG), also known as the mean positive overshoot (MPO) highlighted the mean out-of-pocket payments for health care over the threshold for all households exceeding the threshold (Joglekar, 2008). Thus, MPG is commonly used as an indicator of mean overshoot among households with catastrophic health care payments at a particular threshold level. It amplifies the intensity of the catastrophic healthcare payments (Wyszewianski, 1986; Russell, 2004; Xu et al., 2007). The mean positive gap was calculated as under:

$$MPG = \frac{G}{H}$$

Where,

G is the mean gap

H is the headcount

SECTION IV

3.4 LIMITATIONS

3.4.1 Limitations of the Present Study:

The results and conclusion of the present study cannot be applied generally, before considering the following limitations:

1. The present study is cross-sectional and do not measure the awareness level, cost estimates, and coping strategies over a period of time. Hence, cost estimates and awareness level may differ if a longitudinal study had been conducted.
2. The study is based on self-reported responses collected from the migrant laborers and can be subject to recall bias, underreporting, or overstatement, potentially affecting the accuracy of the data.
3. The present study is restricted to the Mumbai Metropolitan Region; therefore, the cultural, socio-economic, and geographical differences may vary beyond this region and the results cannot be generalized as a whole.

CHAPTER IV

SOCIO-DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

This chapter attempts to examine the socio-demographic and economic characteristics of the respondents. These socio-demographic and economic characteristics include gender, marital status, age, religion, caste, type of family, level of education, occupation, household income, possession of agricultural land, family size, head of the family, decision-making authority in family, household assets, fuel used for cooking, type and ownership of house, number of rooms in house, type of bathroom, type of toilet, availability of drinking water, source of drinking water, enrollment with BPL card, saving account, consumption expenditure and accessibility to healthcare facility. To achieve this objective, the chapter has been divided into three sections, viz. Section I elucidates the overall characteristics of respondents. Section II puts forth the characteristics of the respondents based on their occupation (construction worker, fisherman, shopkeeper, etc.). Section III evaluates the socio-demographic and economic characteristics of the respondents residing in various zones in Mumbai (Zone 1 to Zone 7).

SECTION I

CHARACTERISTICS OF STUDY UNITS: OVERALL ANALYSIS

4.1.1 Demographic Distribution

Table 4.1.1 elucidates that 86.4 percent of the respondents were males and 13.6 percent were females. It was observed that majority of the respondents were between the age group of 25 to 35 years followed by those between 35 to 45 years, 18 to 25 years, upto 18 years, 45 to 55 years, 55 to 65 years and above 65 years respectively. It was found that 66.8 percent of the respondents were married, 19.8 percent were single and 13.4 percent were divorced. The mean age of the respondents was 42.3 years and the median age was 46.3 years.

Table: 4.1.1
Distribution of the Respondents by Demographic Characteristics

Characteristics	N (%)
Gender (N = 476)	
Male	411 (86.4)
Female	65 (13.6)
Total	100
Age (N = 476)	
Up to 18 years	42 (8.8)
18-25 years	60 (12.6)
25-35 years	175 (36.7)
35-45 years	121 (25.4)
45-55 years	31 (6.5)
55-65 years	26 (5.4)
Above 65 years	22 (4.6)
Total	100
Mean age (years)	42.3
Median age (years)	46.3
Marital status (N = 476)	
Single	94 (19.8)
Married	318 (66.8)
Divorced	64 (13.4)
Total	100

Source: Author's calculation based on primary data

4.1.2 Religion and Caste Distribution

Table 4.1.2 highlights that 63.7 percent of respondents were Hindus, 31.6 percent were Muslims, 4.7 percent were Christians. Further, distribution based on the caste prevalent in Mumbai revealed that 42.5 percent belonged to the general category, 26.8 percent represented scheduled caste (SC), 16.4 percent belonged to the scheduled tribe and 14.3 percent were from the other backward classes (OBC).

Table: 4.1.2
Distribution of the Respondents by Religion and Caste

Characteristics	N (%)
Religion (N = 476)	
Hindu	303 (63.7)
Muslim	150 (31.6)
Christian	22 (4.7)
Total	100
Caste (N = 476)	
General	202 (42.5)
SC	128 (26.8)
ST	78 (16.4)
OBC	68 (14.3)
Total	100

Source: Author's calculation based on primary data

4.1.3 Education and Occupation

Table 4.1.3 described that 38.3 percent of the respondents were illiterate, 7.3 percent had no formal education but were able to read and write, 23.4 percent had completed up to primary education, 17.2 percent were educated between primary to secondary, 7.5 percent were educated till senior secondary, 3.6 percent were graduate and 2.7 percent postgraduate. However, majority of the population worked as construction workers in Mumbai followed by fishing as a result of long coastline in Mumbai and lastly the remaining population worked as shopkeepers/in manufacturing related industries.

Table: 4.1.3
Distribution of Respondents by Education and Occupation

Characteristics	N (%)
Education (N = 476)	
Illiterate	182 (38.3)
No formal education (but can read & write)	35 (7.3)
Up to primary	111 (23.4)
Above primary, up-to secondary	82 (17.2)
Senior secondary school	36 (7.5)
Graduate	17 (3.6)
Postgraduate	13 (2.7)
Total	100
Occupation (N = 476)	
Construction worker	259 (54.5)
Fishermen	173 (36.4)
Shopkeeper	43 (9.1)
Total	100

Source: Author's calculation based on primary data

4.1.4 Ownership of Household Assets

Table 4.1.4 shows the details regarding the assets held by the migrant families. It was observed that most respondents had a sewing machine, a bed and an electric fan in their houses.

Table: 4.1.4
Distribution of Respondents by Ownership of Household Assets

Characteristics	N (%)
Type of assets (N = 476)	
Bed	471 (99.0)
Electric fan	469 (98.6)
Sewing machine	443 (93.0)

Chair	321 (67.5)
Table	317 (66.6)
Refrigerator	306 (64.2)
Bicycle	304 (63.9)
Motorcycle/Scooter	278 (58.4)
Television color	271 (57.0)

Mobile phone	265 (55.6)
Watch	251 (52.7)
Radio / Transistor	240 (50.5)
Washing machine	231 (48.6)
Sofa set	214 (44.9)
Laptop	153 (32.2)
Ownership of agricultural land (N = 476)	
Yes	40 (8.4)
No	436 (91.6)
Total	100
Land holding (N = 40)	
Upto 1 Guntha	333 (70.0)
1 - 2 Guntha	102 (21.5)
Above 2 Guntha	40 (8.5)
Total	100

Source: Author's calculation based on primary data

* 1 Guntha=0.025 acres. Guntha is a measure of unit used for measuring land mainly in Maharashtra, Gujarat, Andhra Pradesh, Telangana and Odisha

It was found that 57.0 percent of the respondents had colour television while 67.5 percent of the respondents had chair and 66.6 percent had table, 55.6 percent had mobile phone, 52.7 percent owned a watch, 63.9 percent owned a bicycle, 93.0 percent had a sewing machine, 64.2 percent owned a refrigerator, 48.6 percent had a washing machine, 58.4 percent had a motorcycle/scooter, 44.9 percent owned sofa set, 32.2 percent had laptops and 98.6 percent had an electric fan. A bed was found in the households of the majority of respondents, accounting for 99.0 percent of the total population under study. However, 8.4 percent of them had ownership of agricultural land in their home towns of which the majority had up to one Guntha.

4.1.5 Type and Ownership of House

Table 4.1.5 highlighted that 46.4 percent of the respondents lived in pucca houses, 44.0 percent in semi-pucca and 9.6 percent in kaccha houses. Whereas, 22.7 percent had their own houses and 77.3 percent lived in rented houses. Out of those who were living in the rented houses, majority of them paid a rent between ₹15,000- ₹20,000 followed by ₹10,000- ₹15,000, ₹5,000 -₹10,000 and up to ₹5,000. The majority of migrant population lived in shared accommodation with three or more rooms followed by two rooms and one room. It was observed that majority of the respondents had an Indian bathroom, shared toilet and continuous availability of water in their houses. A majority of the respondents used LPG gas cylinders for the purpose of cooking followed by piped gas in minor cases.

4.1.6 Household Type, Size and Decision-Making Authority

Table 4.1.6 demonstrates the details pertaining to the housing conditions and the family status of the migrant labor. It was observed from table 4.1.6 that 35.6 percent of the respondents lived in nuclear families while 64.4 percent of the respondents lived in joint families. Majority of the respondents lived in a family of 5-7 members, 24.7 percent had a family size of 3-5 members, 14.5 percent belonged to a family of 7-9 members, 8.0 percent population lived in a family of more than 9 members and 4.0 percent respondents lived in a family of upto 5 members. The mean household size was 5.67 while the median household size was 5.50 members.

Table: 4.1.6**Distribution of Respondents by Household Type, Size and Decision-Making Authority**

Characteristics	N (%)
Type of family (N = 476)	
Joint	307 (64.4)
Nuclear	169 (35.6)
Total	100
Household size (N = 476)	
Up to 5 members	19 (4.0)
5-7 members	232 (48.8)
7-9 members	69 (14.5)
More than 9 members	38 (8.0)
Total	100
Mean household size	5.67
Median household size	5.50
Head of family (N = 476)	
Grand Father	46 (9.6)
Father	184 (38.7)
Mother	112 (23.5)
Self	134 (28.2)
Total	100
Decision making-authority (N = 476)	
Grand Father	46 (9.6)
Father	184 (38.7)
Mother	112 (23.5)
Self	77 (16.2)
Joint decision making	57 (12.0)
Total	100

Source: Author's calculation based on primary data

It was found that 38.7 percent, 28.2 percent, 23.5 percent and 9.6 percent of the families had their father as the head of the family, followed by the respondent himself, mother of the respondent, and grandfather, respectively as the head of their family. Furthermore, the decision-making authority of the household was driven by the head of the family. However, where the head of the family was the respondent himself, decisions were either taken by the respondent himself or jointly by him along with his family members. A total of 16.2 percent of the family's household decisions were taken by the respondent himself, 38.7 percent were taken by the father of the respondent, 23.5 percent were taken by the mother, 9.6 percent of the grandfather and 12.0 percent families resorted to joint decision making.

Table: 4.1.5
Distribution of Respondents by Type and Ownership of House

Characteristics	N (%)
Type of house (N = 476)	
Kaccha	46 (9.6)
Semi-pucca	209 (44.0)
Pucca	221 (46.4)
Total	100
Ownership of house (N = 476)	
Own	108 (22.7)
Rented	368 (77.3)
Total	100
Monthly rent (N = 368)	
₹0 -₹5,000	27 (5.7)
₹5,000-₹10,000	114 (24.0)
₹10,000-₹15,000	153 (32.2)
₹15,000- ₹20,000	181 (38.1)
Total	100
Number of shared accommodation rooms (N = 108)	
One	79 (16.7)
Two	189 (39.8)
Three or more	207 (43.5)

Total	100
Type of bathroom (N = 476)	
No facility	14 (2.9)
Western bathroom	120 (25.2)
Indian Bathroom	342 (71.9)
Total	100
Type of toilet (N = 476)	
Own toilet	146 (30.7)
Shared toilet	330 (69.3)
Total	100
Availability of drinking water (N = 476)	
Yes	453 (95.1)
No	23 (4.9)
Total	100
Source of drinking water (N = 476)	
Tanker water	144 (30.3)
BMC Water	269 (56.5)
Packaged drinking water	63 (13.2)
Total	100
Type of fuel used for cooking (N = 476)	
LPG cylinder	356 (74.7)
Piped gas connection	120 (25.3)
Total	100

Source: Author's calculation based on primary data

4.1.7 Below Poverty Line (BPL) Card and Saving Account Holders

Table 4.1.7 described that 44.0 percent of the respondents had BPL cards and 68.5 percent of the respondents deposited their monthly income into the savings accounts, which were opened by the majority of the respondents with the banks, followed by post offices having their branches in the respondent's vicinity.

Table: 4.1.7
Distribution of Respondents by BPL Card and Saving Account

Characteristics	N (%)
Have BPL card? (N = 476)	
Yes	209 (44.0)
No	267 (56.0)
Total	100
Have saving account? (N = 476)	
Yes	326 (68.5)
No	150 (31.5)
Total	100
Type of saving account (N = 326)	
Bank	301 (63.2)
Post office	175 (36.8)
Total	100

Source: Author's calculation based on primary data

4.1.8 Income of Household

Table 4.1.8 revealed that 10.5 percent of migrant population had an annual income up to ₹ 50,000, 46.3 percent earned an income between ₹50,001- ₹1,00,000, 27.7 percent had an income level between ₹1,00,001- ₹ 1,50,000, 10.0 percent earned between ₹1,50,001- ₹2,00,000 and 5.5 percent earned above ₹2,00,000.

Table: 4.1.8

Distribution of Respondents by Annual Household Income

Characteristics	N (%)
Annual household income (N = 476)	
Up to ₹50,000	50 (10.5)
₹50,001- ₹1,00,000	220 (46.3)
₹1,00,001- ₹1,50,000	132 (27.7)
₹1,50,001- ₹2,00,000	48 (10.0)
Above ₹2,00,000	26 (5.5)
Total	100
Mean annual income (₹)	97,347.60
Median annual income (₹)	76,875.00

Source: Author's calculation based on primary data

The mean and median annual household incomes were ₹97,347.60 and ₹76,875.00 respectively, indicating a noticeable disparity and suggesting a skewed income distribution.

4.1.9 Household Monthly Consumption Expenditure

Table 4.1.9 described the monthly household consumption expenditure on various items. It was observed that majority portion of the monthly income was spent on food (61.7 percent) of total household expenditure followed by utilities, clothing, education, healthcare, recreation, travelling and miscellaneous which represented 12.2 percent, 8.5 percent, 5.6 percent, 4.2 percent, 3.8 percent and 2 percent respectively of the total household expenditure.

Table: 4.1.9
Distribution of Respondents by Monthly Household Consumption Expenditure

Characteristics	N (%)
Monthly household expenditure (N = 476)	
Food	294 (61.7)
Utilities (electricity, water, cable, phone etc.)	58 (12.2)
Clothing	40 (8.5)
Education	27 (5.6)
Health care	20 (4.2)
Recreation (including expenses on alcohol and tobacco)	18 (3.8)
Travelling	10 (2.0)
Miscellaneous	10 (2.0)
Total	100

Source: Author's calculations based on primary data

4.1.10 Distance Covered to Access Healthcare Facility

Table 4.1.10 highlights that 6.0 percent of the migrant respondents and their families were not required to cover any distance to visit the healthcare facility for seeking treatment, 37.0 percent covered a distance of up to 2 km, 30.0 percent covered a distance of 2-4 km, 12.0 percent travelled between 4-6 km and 15.0 percent covered a distance of 6 or more km to seek access to the health care facility for treatment. The mean and median distance travelled by a household to access the health care facility for treatment was 3.7 km and 3.3 km respectively.

Table: 4.1.0
Distribution of the Household by Distance Covered to Access Health Facility

Characteristics	N (%)
Distance covered to access the health facility (N = 476)	
Healthcare facility in vicinity	29 (6.0)
Upto 2 km	176 (37.0)
2-4 km	143 (30.0)

4-6 km	57 (12.0)
More than 6 km	71 (15.0)
Total	100
Mean distance (km)	3.7
Median distance (km)	3.3

Source: Author's calculation based on primary data

SECTION II

CHARACTERISTICS OF STUDY UNITS: ZONE-WISE

4.2.1 Demographic Distribution

Table 4.2.1 shows the age-wise distribution of the migrant population across different zones reveals that the majority of migrants belonged to the age group of 25–35 years in most zones. Specifically, 49 percent of migrants in Zone 1, 40 percent in Zone 2, 45 percent in Zone 3, 46 percent in Zone 4, and 25 percent in Zone 5 fell within this age category. In contrast, the majority of migrants in Zone 6 (40 percent) belonged to the 35–45 years age group, while in Zone 7, the predominant age group was 18–25 years, accounting for 33 percent of the migrant population. In terms of marital status, it was found that majority of migrants across all zones were married. The zone-wise distribution shows that 75 percent of the migrants in Zone 1, 62 percent in Zone 2, 70 percent in Zone 3, 55 percent in Zone 4, 53 percent in Zone 5, 80 percent in Zone 6, and 66 percent in Zone 7 were married.

Table: 4.2.1

Distribution of the Respondents by Demographic Characteristics

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Gender							
Male	62	85	67	92	95	85	38
Female	38	15	33	8	5	15	62
Total	100	100	100	100	100	100	100
Age							
Up to 18 years	6	4	23	17	16	14	22
18-25 years	8	12	22	14	19	10	16

25-35 years	44	36	22	20	18	15	10
35-45 years	19	23	12	18	16	19	14
45-55 years	2	6	17	9	7	14	11
55-65 years	9	4	2	11	11	16	15
Above 65 years	12	15	2	11	13	12	12
Total	100	100	100	100	100	100	100
Mean age (years)	36.6	38.5	34.3	32.7	31.1	38.8	32.2
Median age (years)	40.1	41.1	38.9	37.6	35.4	32.9	39.7
Marital Status							
Single	32	37	29	30	36	30	40
Married	45	45	58	42	36	49	31
Divorced	23	18	13	28	28	21	29
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

4.2.2 Religion and Caste Distribution

Table 4.2.2 reveals the religion-wise distribution of the migrant population across different zones reveals that the majority of migrants belonged to the Hindu religion. Specifically, 83 percent of migrants in Zone 1, 84 percent in Zone 2, 87 percent in Zone 3, 63 percent in Zone 4, 57 percent in Zone 5, 49 percent in Zone 6, and 62 percent in Zone 7 fell within this category. In terms of caste, it was found that majority of migrants across all zones belonged to the general caste. The zone-wise distribution shows that 49 percent of the migrants in Zone 1, 44 percent in Zone 3, 48 percent in Zone 4, 50 percent in Zone 5, and 51 percent in Zone 6 were from the general caste. In contrast, the majority of the migrants in Zone 2 (39 percent) and Zone 7 (37 percent) belonged to the scheduled caste.

Table: 4.2.2
Distribution of the Respondents by Religion and Caste

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Religion							
Hindu	60	48	47	53	51	62	55
Muslim	20	38	32	27	33	31	35
Christian	20	14	21	20	16	7	10
Total	100	100	100	100	100	100	100
Caste							
General	42	43	49	47	46	47	48
SC	21	20	26	32	39	33	27
ST	21	20	15	13	5	8	5
OBC	16	17	10	8	10	12	20
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

4.2.3 Education and Occupation

Table 4.2.3 shows the analysis of the education-wise distribution of the migrant population across different zones reveals that the majority of migrants were illiterate. Specifically, 30 percent of migrants in Zone 1, 39 percent in Zone 2, 62 percent in Zone 3, 32 percent in Zone 4, and 30 percent in Zone 5 fell within this education category. In contrast, the majority of migrants in Zone 6 (31 percent) and Zone 7 (48 percent) had completed up to primary education. In terms of occupational status, it was found that majority of migrants across all zones worked as construction workers. The zone-wise distribution shows that 84 percent of the migrants in Zone 1, 61 percent in Zone 2, 69 percent in Zone 3, 64 percent in Zone 4, 85 percent in Zone 5, 42 percent in Zone 6, and 84 percent in Zone 7 worked as construction workers.

Table: 4.2.3
Distribution of Respondents by Education and Occupation

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Education							
Illiterate	30	39	62	32	30	31	29
No formal education (but can read & write)	10	10	8	5	4	5	5
Up to Primary	28	23	13	25	30	31	48
Above primary, up-to secondary	20	15	9	20	15	13	10
Senior Secondary School	6	9	6	9	13	5	2
Graduate	5	5	2	1	2	10	2
Postgraduate	1	0	0	7	6	5	5
Total	100	100	100	100	100	100	100

Occupation							
Construction Worker	84	61	69	64	85	42	84
Fishermen	10	30	22	30	15	54	15
Shopkeeper	6	9	9	6	0	4	0
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

4.2.4 Ownership of Household Assets

Table 4.2.4 shows the ownership of household assets of the migrant population across different zones reveals that the majority of migrants owned a bed. Specifically, it was observed from table 4.2.4 that 10 percent of migrants in Zone 1, 10 percent in Zone 2, 9 percent in Zone 3, 7 percent in Zone 4, 4 percent in Zone 5, 5 percent in Zone 6, and 2 percent in Zone 7 fell within this category. In terms of ownership of agricultural land, it was found that majority of migrants across all zones did not own any agricultural land. The zone-wise distribution shows that 90 percent of the migrants in Zone 1, 92 percent in Zone 2, 96 percent in Zone 3, 95 percent in Zone 4, 92 percent in Zone 5, 88 percent in Zone 6, and 88 percent in Zone 7 did not own any agricultural land.

Table: 4.2.4

Distribution of Respondents by Ownership of Household Assets

Characteristics	Zones						
Type of assets	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Bed	10	10	9	7	4	5	2
Electric fan	6	6	6	6	7	6	10
Sewing Machine	7	8	7	7	7	5	6
Chair	6	6	6	9	7	6	7
Table	6	6	6	5	9	7	8
Refrigerator	6	6	6	5	9	7	8
Bicycle	6	6	6	5	9	7	8
Motor cycle/Scooter	6	7	7	6	7	7	7
Television color	6	7	7	6	7	7	7
Mobile phone	6	7	7	6	7	7	7
Watch	7	7	7	8	6	7	6
Radio / Transistor	7	7	7	8	6	7	6
Washing machine	7	7	7	7	6	7	6
Second Sofa set	7	7	7	7	6	7	6
Laptop	7	7	7	7	6	7	6
Ownership of agricultural land							
Yes	10	8	4	5	8	12	12
No	90	92	96	95	92	88	88

Total	100	100	100	100	100	100	100
Land holding							
Upto 1 Guntha	57	57	80	67	80	100	67
1 - 2 Guntha	29	43	20	17	0	0	33
Above 2 Guntha	14	0	0	17	20	0	0
Total	100	100	100	100	100	100	0

Source: Author's calculation based on primary data

* 1 Guntha=0.025 acres.

Guntha is a measure of unit used for measuring land mainly in Maharashtra, Gujarat, Andhra Pradesh, Telangana and Odisha

4.2.5 Type and Ownership of House

Table 4.2.5 shows the type of the house owned by the migrant population across different zones reveals that the majority of migrants lived in pucca houses. Specifically, 45 percent of migrants in Zone 1, 44 percent in Zone 2, 48 percent in Zone 3, 49 percent in Zone 4, 48 percent in Zone 5, 45 percent in Zone 6, and 46 percent in Zone 7 fell within this category. In terms of ownership of the house, it was found that majority of migrants stayed in rented houses. The zone-wise distribution shows that 78 percent of the migrants in Zone 1, 76 percent in Zone 2, 77 percent in Zone 3, 76 percent in Zone 4, 77 percent in Zone 5, 78 percent in Zone 6, and 79 percent in Zone 7 stayed in rented houses. In terms of availability of drinking water, it was found that majority of migrant houses had potable drinking water facility from Brihanmumbai Municipal Corporation (BMC). The zone- wise distribution shows that 96 percent of the migrants in Zone 1, 94 percent in Zone 2, 94 percent in Zone 3, 93 percent in Zone 4, 97 percent in Zone 5, 96 percent in Zone 6, and 96 percent in Zone 7 had potable drinking water facility available in their household from BMC. In terms of usage of LPG fuel for cooking, it was found that majority of migrant houses used LPG fuel for cooking. The zone-wise distribution shows that 76 percent of the migrants in Zone 1, 74 percent in Zone 2, 73 percent in Zone 3, 73 percent in Zone 4, 74 percent in Zone 5, 74 percent in Zone 6, and 80 percent in Zone 7 used LPG fuel for cooking.

Table: 4.2.5
Distribution of Respondents by Type and Ownership of House

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Type of house							
Kaccha	12	13	6	4	11	10	13
Semi-pucca	43	43	46	47	42	44	41
Pucca	45	44	48	49	48	45	46
Total	100	100	100	100	100	100	100
Ownership of house							
Own	22	24	23	24	23	22	21
Rented	78	76	77	76	77	78	79
Total	100	100	100	100	100	100	100
Monthly rent							
₹0 -₹5,000	5	7	8	10	4	3	2
₹ 5,000-₹10,000	22	23	26	25	24	25	24
₹10,000-₹15,000	33	32	29	28	34	35	36
₹15,000-₹20,000	39	39	37	38	38	38	38
Total	100	100	100	100	100	100	100
No. of shared accommodation rooms							
One	22	18	15	15	16	14	16
Two	39	44	39	38	41	38	41

Three or more	40	38	47	47	43	48	43
Total	100	100	100	100	100	100	100
Type of bathroom							
No facility	3	4	5	4	1	1	1
Western bathroom	24	25	26	26	26	25	25
Indian Bathroom	73	71	69	70	72	74	74
Total	100	100	100	100	100	100	100
Type of toilet							
Own toilet	29	32	34	32	30	27	29
Shared toilet	71	68	66	68	70	73	71
Total	100	100	100	100	100	100	100
Availability of drinking water							
Yes	96	94	94	93	97	96	96
No	4	6	6	7	3	4	4
Total	100	100	100	100	100	100	100
Source of drinking water							
Tanker water	31	29	34	33	27	30	29
BMC Water	56	57	55	56	58	57	57
Packaged drinking Water	13	14	11	11	15	13	14
Total	100	100	100	100	100	100	100
Type of fuel used for cooking							
LPG cylinder	76	74	73	73	74	74	80
Piped gas Connection	24	26	27	27	26	26	20
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

4.2.6 Household Type, Size and Decision-Making Authority

An analysis of the household type-wise distribution of the migrant population across different zones as shown in table 4.2.6 reveals that the majority of migrants lived in joint families. Specifically, 54 percent of migrants in Zone 1, 61 percent in Zone 2, 73 percent in Zone 3, 65 percent in Zone 4, 67 percent in Zone 5, 61 percent in Zone 6, and 61 percent in Zone 7 fell within this category. In terms of decision-making authority, it was found that the decisions in case of majority of migrants across all zones were taken by the father. The zone- wise distribution shows that the decisions in the family in case of 39 percent of the migrants in Zone 1, 38 percent in Zone 2, 41 percent in Zone 3, 38 percent in Zone 4, 40 percent in Zone 5, 37 percent in Zone 6, and 39 percent in Zone 7 were taken by the father.

Table: 4.2.6

Distribution of Respondents by Household Type, Size and Decision-Making Authority

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Type of family							
Joint	54	61	73	65	67	61	61
Nuclear	46	39	27	35	33	39	39
Total	100	100	100	100	100	100	100
Household size							
Up to 5 members	3	5	7	1	3	5	4
5-7 members	51	42	45	51	61	55	35
7-9 members	14	34	13	17	17	22	36
More than 9 Members	31	19	35	30	20	17	25
Total	100	100	100	100	100	100	100
Head of family							
Grand Father	7	10	9	11	9	11	11
Father	36	37	34	41	37	42	43
Mother	24	24	24	21	25	25	23
Self	33	29	33	27	29	22	23
Total	100	100	100	100	100	100	100
Decision making-authority							
Grand Father	9	12	9	12	8	10	9
Father	39	38	41	38	40	37	39
Mother	24	25	23	22	25	26	21
Self	16	14	16	17	15	16	18
Joint decision Making	12	12	12	12	12	11	13

Total	100	100	100	100	100	100	100
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Source: Author's calculation based on primary data

4.2.7 Below Poverty Line (BPL) card and Saving Account Holders

Table 4.2.7 depicts that BPL card ownership of the migrant population across different zones reveals that the majority of migrants did not hold a BPL card in all zones. Specifically, 53 percent of migrants in Zone 1, 56 percent in Zone 2, 58 percent in Zone 3, 56 percent in Zone 4, 58 percent in Zone 5, 54 percent in Zone 6, and 59 percent in Zone 7 fell within this category. In terms of holding a savings account, it was found that majority of migrants across all zones held a savings account. The zone-wise distribution shows that 70 percent of the migrants in Zone 1, 69 percent in Zone 2, 65 percent in Zone 3, 67 percent in Zone 4, 69 percent in Zone 5, 72 percent in Zone 6, and 69 percent in Zone 7 held a savings account.

Table: 4.2.7
Distribution of Respondents by BPL Card and Saving Account

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Have BPL card?							
Yes	47	44	42	44	42	46	41
No	53	56	58	56	58	54	59
Total	100	100	100	100	100	100	100
Have saving account?							
Yes	70	69	65	67	69	72	69
No	30	31	35	33	31	28	31

Total	100	100	100	100	100	100	100
Type of saving account							
Bank	59	61	59	53	72	67	67
Post office	41	39	41	47	28	33	33
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

4.2.8 Income of Household

Table 4.2.8 shows the analysis of the income distribution of the migrant population across different zones reveals that the majority of migrants earned an annual income between ₹ 50,001- ₹1,00,000 in all zones. Specifically, 38 percent of migrants in Zone 1, 45 percent in Zone 2, 50 percent in Zone 3, 57 percent in Zone 4, 43 percent in Zone 5, 53 percent in Zone 6, and 41 percent in Zone 7 fell within this income category.

Table: 4.2.8
Distribution of Respondents by Annual Household Income

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Annual household income							
Up to ₹50,000	9	5	14	13	9	11	8
₹50,001-₹1,00,000	38	45	50	57	43	53	41
₹1,00,001-₹1,50,000	34	23	25	21	29	21	33
₹1,50,001-₹2,00,000	13	20	6	6	14	9	11
₹2,00,000 and above	7	8	5	4	5	5	7
Total	100	100	100	100	100	100	100
Mean annual income (₹)	97347.6	98342.3	96454.3	99212.2	97884.3	98242.3	99121.2
Median annual income (₹)	76875.0	77432.4	76858.9	76120.4	76440.6	78429.1	77353.6

Source: Author's calculation based on primary data

The mean and median annual household income was highest in Zone 4 (₹99,212.20) and Zone 2 (₹77,432.40) respectively.

4.2.9 Household Monthly Consumption Expenditure

Table 4.2.9 reveals the monthly household consumption-wise distribution of the migrant population across different zones reveals that the majority of migrants spent on food in all zones. Specifically, 59 percent of migrants in Zone 1, 60 percent in Zone 2, 59 percent in Zone 3, 52 percent in Zone 4, 70 percent in Zone 5, 61 percent in Zone 6, and 67 percent in Zone 7 fell within this category.

Table: 4.2.9
Distribution of Respondents by Monthly Household Consumption Expenditure

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Monthly household expenditure							
Food	59	60	59	52	70	61	67
Utilities (electricity, water, cable, phone etc.)	13	15	10	12	12	12	12
Clothing	13	12	5	3	7	10	9
Education	5	3	8	12	3	5	4
Health care	5	2	7	8	2	4	3
Recreation	3	2	5	8	2	4	3
Leisurely Traveling	2	3	2	3	2	1	1
Miscellaneous	2	3	3	2	1	3	1
Total	100	100	100	100	100	100	100

Source: Author's calculations based on primary data

4.2.10 Distance Covered to Access Healthcare Facility

Table 4.2.10 shows the analysis of the distance covered by the migrant population to access healthcare facility across different zones reveals that the highest mean distance was traveled in Zone 4 (3.9 km) while the highest median distance was traveled in Zone 5 (3.4 km).

Table: 4.2.10
Distribution of the Household by Distance Covered to Access Health Facility

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Distance covered to access the health facility							
Healthcare facility in the vicinity	6	5	7	6	7	5	6
Upto 2 km	38	39	35	38	36	39	35
2-4 km	31	34	26	31	28	33	29
4-6 km	12	10	14	11	13	11	13
More than 6 km	13	11	19	14	16	12	16
Total	100	100	100	100	100	100	100
Mean distance (km)	3.6	3.5	3.8	3.9	3.2	3.5	3.3
Median distance (km)	2.8	2.7	3.1	3.2	3.4	2.9	3.2

Source: Author's calculation based on primary data

The above analysis of the migrant population across different zones reveals the majority of the migrant labor were males aged 25-35 years. The highest number of migrant laborers belonged to the Hindu religion and were part of the scheduled caste community. They were illiterate and predominantly worked as construction workers. However, apart from working as construction workers, they also practiced fishing as an occupation due to the vast coastline in Mumbai. The majority of the migrant laborers opened a savings account with a nationalized bank as a part of the initiatives taken by their principal employer.

A large portion of the monthly income was spent on food and utilities. Monthly income was also spent on clothing, education, healthcare, recreation, traveling, and other miscellaneous expenses. In the event of chronic disease, hospitalization, or periodic illness, the migrant laborers had to travel significant distances from their residence to access the healthcare facility. The majority of migrant laborers did not own any agricultural land but worked as landless laborers in villages. This necessitated their migration to Mumbai in search of better opportunities. The migrant laborers stayed in joint families in Mumbai. In most households, decision-making authority was vested with the father or with another senior patriarchal member in the family in the father's absence.

CHAPTER V

HEALTHCARE UTILIZATION, COST AND COPING STRATEGIES

Morbidity is a global health emergency that affects people at their productive age, impoverishes families and leads to fatality progression (Morrish et al., 2001; Kumpatla et al., 2013 and Unnikrishnan et al., 2016). As a syndrome, morbidity accounts for prolonged and multifarious repercussions on people such as advancement in complications, loss of quality life and health deterioration (Nath et al., 2020). The economic burden of healthcare is expected to increase as a consequence of rising environmental change, demographic transition, urbanization and lifestyle modifications (Zimmet et al., 2001). With a rise in epidemiological conditions the cost of treatment and management of healthcare diseases is on the upsurge. The cost of treating healthcare issues and its associated complications can pose a significant economic burden both at individual and household levels. Therefore, chronic nature and rising epidemic of healthcare diseases have adverse socio-economic implications and even lead to indebtedness (Cavanagh et al., 2012; Akari et al., 2013 and Eshwari et al., 2019). Considering the same, in the present chapter an attempt has been made to estimate and compares the healthcare utilization, cost and coping strategies related to periodic illness, hospitalization and chronic diseases among households in Mumbai. Thus, present chapter aims to estimate the cost of healthcare utilization, type of health care utility and complications by socio-demographic variables. The present chapter has been categorized into two different sections. Section I, estimate and compares the healthcare utilization, cost and coping strategies of periodic illness, hospitalization and chronic disease among migrant labor in Mumbai. Section II discusses the healthcare utilization, cost and coping strategies amongst migrant labor zone wise to draw meaningful policy implications.

SECTION I

Healthcare Utilization, Cost and Coping Strategies: Overall analysis

5.1.1 Healthcare Utilization Among Migrant Labor for Outpatient Care

This section examines the healthcare utilization related to outpatient care on the basis of type of illness, severity of illness, utilization of healthcare facility, coping strategies and direct and indirect cost of periodic illness.

5.1.1.1 Type and Severity of Illness Experienced for Outpatient Care

Table 5.1.2.1 elucidates that 64 percent of the respondents experienced periodic illness. It was observed that majority of the respondents suffered from cold/fever followed by stomach ache and other related problems. It was found that 38 percent of the respondents experienced very serious illness followed by 29.1 percent who experienced quite serious illness. It was observed that 14.7 percent of the population of migrant labor did not have serious illness.

Table: 5.1.1.1

Distribution of the Respondents by Type and Severity of Periodic Illness	
Characteristics	N (%)
Did any member of the family suffer from illness? (N = 476)	
Yes	305 (64)
No	171 (36)
Total	476 (100)
Type of illness (N = 305)	
Cold/Fever	46 (15)
Cold/Cough	37 (12)
Stomach ache/ Other related problem	43 (14)
Malaria	21 (7)
Typhoid	21 (7)
Headache	9 (3)
Diarrhea	15 (5)

Pneumonia	12 (4)
Body ache/ Backache	24 (8)
Gastric problem/ Acidity	31 (10)
Breathing problem	18 (6)
Swelling in the body	24 (8)
Dehydration	3 (1)
Total	305 (100)
Severity of illness (N = 305)	
Not serious	45 (14.7)
Quite serious	89 (29.1)
Very serious	116 (38.0)
Don't know	56 (18.2)
Total	305 (100)

Source: Author's calculation based on primary data

5.1.1.2 Utilization and Access to Healthcare Facility for Outpatient Care

Table 5.1.1.2 elucidates the distribution of the respondents by utilization and access to healthcare facility for outpatient care. It was observed that 86 percent of the respondents utilized outpatient care and majority of the respondents preferred private hospital followed by government hospital. It was found that 34 percent of the respondents experienced difficulty in accessibility to the healthcare facility. The mean distance travelled by migrant labor to access healthcare facility was 2.86 km. The respondents covered a median distance of 2 km to visit the healthcare facility. Those migrant labor who could not seek care were unable to get away from work in majority (46.2 percent) of the cases.

Table: 5.1.1.2

Distribution of the Respondents by Utilization and Access to Healthcare Facility of Outpatient Care

Characteristics	N (%)
Have you utilized healthcare facility for illness? (N = 305)	
Yes	262 (86)
No	43 (14)
Total	305 (100)
Type of healthcare facility visited? (N = 262)	

Private Hospital	178 (67.9)
Government hospital	64 (24.4)
Private clinic	7 (2.8)
RMP/Local doctor	3 (1.3)
Charitable hospital	9 (3.6)
Total	262 (100)
Visited facility was easily accessible? (N = 262)	
Yes	173 (66)
No	89 (34)
Total	262 (100)
Distance covered to visit healthcare facility (N = 89)	
Mean distance (km)	2.86
Median distance (km)	2.00
Reason for not seeking care (N = 43)	
Could not get away due to work	20 (46.2)
Did not have money	10 (23.1)
Minor complaints do not call professional assistance	13 (30.8)
Total	43 (100)
Any self-treatment taken? (N = 43)	
Yes	7 (15.4)
No	36 (84.6)
Total	43 (100)

Source: Author's calculation based on primary data

5.1.1.3 Healthcare Expenditure and Coping Mechanism for Outpatient Care

Table 5.1.1.3 elucidates the amount of money spent on the outpatient care. The mean and median expenditure incurred by the respondents are ₹283.68 and ₹80 respectively. The mean direct and indirect cost of female respondents was highest as compared to male respondents.

Table 5.1.1.3

Healthcare Expenditure and Coping Mechanism for Outpatient Care	
Characteristics	N (%)
Amount of money spent on outpatient care (N = 262)	
Mean expenditure (₹)	283.68
Median expenditure (₹)	80.0
Coping mechanism (N = 262)	
Own money	197 (75.2)
Borrowed from neighbor	31 (11.8)
Borrowed from friends	23 (8.9)
Support from relatives	10 (3.7)
Borrowed from employer	1 (0.4)
Total	262 (100)

Source: Author's calculation based on primary data

5.1.1.4 Indirect Cost of Outpatient Care

Table 5.1.1.4 shows that 12.4 percent of the respondents suffers a wage loss due to outpatient care. The mean and median man-day loss were 2.9 and 2.0 days respectively. Whereas, mean and median money loss due to illness were ₹453.1 and ₹600.0, respectively. This shows that the indirect cost of outpatient care is much higher than the direct cost of illness, as the migrant labor cannot work during illness and thus suffers from wage loss.

Table: 5.1.1.4

Distribution of the Respondents by Indirect Cost of Outpatient Care

Characteristics	N (%)
Did you take leave / suffer wage loss due to illness? (N=305)	
Yes	38 (12.4)
No	267 (87.6)
Total	305 (100)
If yes, how many man days did you loss? (N=38)	
Mean days	2.9

Median days	2.0
How much money did you lose?	
Mean money loss (₹)	453.1
Median money loss (₹)	600.0

Source: Author's calculation based on primary data

5.1.2 Healthcare Utilization for Inpatient Care

This section examines the healthcare utilization related to inpatient care on the basis of type of illness, severity of illness, utilization of healthcare facility, coping strategies and direct and indirect cost of inpatient care.

5.1.2.1 Type and Severity of Illness for Inpatient Care

Table 5.1.2.1 elucidates that 62 percent of the respondents experienced inpatient care. It was observed that the majority of the respondents suffered from diarrhea followed by malaria and respiratory issues. It was found that 38 percent of the respondents experienced a very serious illness followed by 29.1 percent who experienced a quite serious illness. It was observed that 15.9 percent of the population of migrant labor did not have a serious illness.

Table: 5.1.2.1

Distribution of the Respondents by Type and Severity of Inpatient Care

Characteristics	N (%)
Have you experienced inpatient care? (N = 476)	
Yes	295 (62)
No	181 (38)
Total	476 (100)
Type of illness (N = 295)	
Malaria	44 (15)
Typhoid	30 (10)
Diarrhea	53 (18)

Pneumonia	24 (8)
Arthritis	32 (11)
Gastric problem/ Acidity	35 (12)
Respiratory issues	38 (13)
Dehydration	38 (13)
Total	295 (100)
Severity of illness (N = 295)	
Not serious	47 (15.9)
Lack of awareness	50 (17.0)
Quite serious	86 (29.1)
Very serious	112 (38.0)
Total	295 (100)

Source: Author's calculation based on primary data

5.1.2.2 Utilization and Access to the Healthcare Facility for Inpatient Care

Table 5.1.2.2 elucidates the distribution of the respondents by utilization and access to healthcare facility for inpatient care. It was observed that majority of the respondents preferred private hospital, followed by government hospital. It was found that 40 percent of the respondents experienced difficulty in accessibility to the healthcare facility. The mean distance travelled by migrant labor to access healthcare facility was 2.86 km. The respondents covered a median distance of 2 km to visit the healthcare facility.

Table: 5.1.2.2

Distribution of the Respondents by Utilization and Access to Healthcare Facility

Characteristics	N (%)
Type of healthcare facility visited? (N = 295)	
Private Hospital	197 (66.8)
Government hospital	75 (25.4)
Private clinic	6 (2.0)
Charitable hospital	17 (5.8)
Total	295 (100)
Visited facility was easily accessible? (N = 295)	
Yes	177 (60)
No	118 (40)
Total	295 (100)

Distance covered to visit healthcare facility (N = 118)	
Mean distance (km)	2.86
Median distance (km)	2.00

Source: Author's calculation based on primary data

5.1.2.3 Healthcare Expenditure and Coping Mechanism for Inpatient Care

Table 5.1.2.3 elucidates the amount of money spent on inpatient care. The mean and median expenditure were ₹259.45 and ₹88 respectively, indicating high variability in costs. Most respondents (75.2%) used their own money, while others relied on borrowing from neighbors (11.8%), friends (8.9%), and relatives (3.7%) for financial support.

Table 5.1.2.3

Healthcare Expenditure and Coping Mechanism for Inpatient Care

Characteristics	N (%)
Amount of money spent on inpatient care (N = 295)	
Mean expenditure (₹)	259.45
Median expenditure (₹)	88.0
Coping mechanism (N = 295)	
Own money	222 (75.2)
Borrowed from neighbour	35 (11.8)
Borrowed from friends	26 (8.9)
Support from relatives	11 (3.7)
Borrowed from employer	1 (0.4)
Total	295 (100)

Source: Author's calculation based on primary data

5.1.2.4 Indirect Cost of Inpatient Care

Table 5.1.2.4 shows that 16.3 percent of the respondents suffered a wage loss due to inpatient care. The mean and median man-day losses were 3.9 and 3.0 days, respectively, whereas the mean and median money loss due to illness were ₹466.7 and ₹588 respectively. This shows that the indirect cost of inpatient care is much higher than the direct cost of illness as the migrant labor could not work during illness and suffered from wage loss.

Table: 5.1.2.4**Distribution of the Respondents by Indirect Cost of Inpatient Care**

Characteristics	N (%)
Did you take leave / suffer wage loss due to illness? (N=295)	
Yes	48 (16.3)
No	247 (83.7)
Total	295 (100)
If yes, how many man days did you loss? (N=48)	
Mean days	3.9
Median days	3.0
How much money did you lose?	
Mean money loss (₹)	466.7
Median money loss (₹)	588.0
Did the accompanying person took leave / suffer wage loss? (N=277)	
Yes	40 (14.6)
No	237 (85.4)
Total	277 (100)
If yes, how many man days did you loss? (N=40)	
Mean days	3.9
Median days	3.0
How much money did you lose?	
Mean money loss (₹)	434.6
Median money loss (₹)	576.0

Source: Author's calculation based on primary data

5.1.3 Healthcare Utilization of Chronic Disease

This section examines the healthcare utilization related to chronic disease on the basis of type of illness, severity of illness, utilization of healthcare facility, coping strategies and direct and indirect cost of chronic disease.

5.1.3.1 Type and Severity of Illness for Chronic Disease

Table 5.1.3.1 elucidates that 56 percent of the respondent suffered from chronic disease. It was observed that majority of the respondents suffered from diabetes, high blood pressure followed by tuberculosis and heart disease. It was found that 23.8 percent of the respondents suffered from diabetes and high blood pressure followed by 17.7 percent who suffered from tuberculosis. It was observed that 14.9 percent of the population of migrant labor suffered from chronic heart diseases.

Table: 5.1.3.1

Distribution of the Respondents by Type and Severity of Chronic Disease

Characteristics	N (%)
Have you suffered from chronic disease? (N = 476)	
Yes	267 (56)
No	209 (44)
Total	476 (100)
Type of chronic illness (N = 267)	
Diabetes	64 (23.8)
High blood pressure	64 (23.8)
Tuberculosis	47 (17.7)
Heart disease	40 (14.9)
Chronic asthma	24 (8.9)
Cataract	19 (7.3)
Arthritis	10 (3.6)
Total	267 (100)

Source: Author's calculation based on primary data

5.1.3.2 Utilization and Access to the Healthcare Facility for Chronic Disease

Table 5.1.3.2 elucidates the distribution of the respondents by utilization and access to healthcare facilities for chronic disease. Table 5.1.3.2 highlights that the majority of the respondents preferred a private hospital, followed by a government hospital. It was found that 46 percent of the respondents experienced difficulty in accessibility to healthcare facility. The mean distance travelled by migrant labor to access a healthcare facility was 2.86 km. The respondents covered a median distance of 2 km to visit the healthcare facility.

Table: 5.1.3.2**Distribution of the Respondents by Utilization and Access to Healthcare Facility**

Characteristics	N (%)
Have you utilized health facility for chronic disease? (N=267)	
Yes	210 (78.7)
No	57 (21.3)
Total	267 (100)
Type of healthcare facility visited? (N = 210)	
Private Hospital	133 (63.4)
Government hospital	60 (28.6)
Private clinic	5 (2.2)
RMP/Local doctor	5 (2.4)
Charitable hospital	7 (3.4)
Total	210 (100)
Visited facility was easily accessible? (N = 210)	
Yes	113 (54)
No	97 (46)
Total	210 (100)
Distance covered to visit healthcare facility (N = 97)	
Mean distance (km)	2.86
Median distance (km)	2.00

Source: Author's calculation based on primary data

5.1.3.3 Healthcare Expenditure and Coping Mechanism for Chronic Disease

Table 5.1.3.3 elucidates the amount of money spent on chronic disease. The mean and median expenditure was ₹243.68 and ₹79 respectively. The mean direct and indirect cost of female respondents was highest as compared to male respondents.

Table 5.1.3.3**Healthcare Expenditure and Coping Mechanism for Chronic Disease**

Characteristics	N (%)
Amount of money spent on chronic disease (N = 267)	
Mean expenditure (₹)	243.68
Median expenditure (₹)	79.0

Coping mechanism (N = 267)	
Own money	201 (75.2)
Borrowed from neighbour	32 (11.8)
Borrowed from friends	24 (8.9)
Support from relatives	10 (3.7)
Borrowed from employer	1 (0.4)
Total	267 (100)

Source: Author's calculation based on primary data

5.1.3.4 Indirect Cost of Chronic Disease

Table 5.1.3.4 shows that 15.8 percent of the respondents suffered a wage loss due to chronic disease. The mean and median man-day losses were 3.6 and 3.3 days, respectively, whereas mean and median money loss due to illness were ₹434.6 and ₹575 respectively. This clearly shows that indirect cost of inpatient care is much higher than the direct cost of chronic disease as the migrant labor cannot work during chronic illness and suffer from wage loss.

Table: 5.1.3.4
Distribution of the Respondents by Indirect Cost of Chronic Disease

Characteristics	N (%)
Did you take leave / suffer wage loss due to chronic illness? (N=267)	
Yes	42 (15.8)
No	225 (84.2)
Total	267 (100)
If yes, how many man days did you loss? (N=42)	
Mean days	3.6
Median days	3.3
How much money did you lose?	
Mean money loss (₹)	434.6
Median money loss (₹)	575.0
Did the accompanying person take leave / suffer wage loss? (N=267)	
Yes	39 (14.6)
No	228 (85.4)

Total	267 (100)
If yes, how many man-days did you lose? (N=39)	
Mean days	3.6
Median days	3.3
How much money did you lose?	
Mean money loss (₹)	434.6
Median money loss (₹)	575.0

Source: Author's calculation based on primary data

SECTION II

Healthcare Utilization, Cost and Coping Strategies: Zone-Wise Analysis

5.2.1 Healthcare Utilization of Outpatient Care

This section examines the healthcare utilization across seven zones of Mumbai related to outpatient care on the basis of type of illness, severity of illness, utilization of healthcare facility, coping strategies and direct and indirect cost of periodic illness etc.

5.2.1.1 Type and Severity of Illness for Outpatient Care

Table 5.2.1.1 shows the distribution related to the type and severity of periodic illness experienced by the migrant population across different zones. This distribution reveals that most migrants who experienced periodic illness suffered from cold/fever in most zones. Specifically, 15 percent of migrants in Zone I, 13 percent in Zone II, 15 percent in Zone III, 10 percent in Zone IV, 9 percent in Zone V, 15 percent in Zone VI, and 15 percent in Zone VII fell within this category. In terms of severity of illness, it was found that the majority of migrants across all zones experienced very serious illness. The zone-wise distribution shows that 38 percent of the migrants in Zone I, 38 percent in Zone II, 39 percent in Zone III, 38 percent in Zone IV, 38 percent in Zone V, 39 percent in Zone VI, and 38 percent in Zone VII experienced very serious illness.

Table: 5.2.1.1**Distribution of the Respondents by Type and Severity of Periodic Illness**

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Did any member of the family suffer from illness? (N = 476)							
Yes	64	63	57	62	60	54	64
No	36	37	43	38	40	46	36
Total	100	100	100	100	100	100	100
Type of illness							
Cold/Fever	15	13	15	10	9	15	15
Cold/Cough	12	14	12	17	18	12	12
Stomach ache/ Other related problem	14	14	14	13	14	14	14
Malaria	7	9	7	8	7	7	7
Typhoid	7	5	7	7	10	7	7
Headache	3	3	3	3	3	3	3
Diarrhea	5	6	5	6	2	5	5
Pneumonia	4	3	4	5	4	4	4
Body ache/ Backache	8	8	8	6	8	8	8
Gastric problem/ Acidity	10	11	10	10	10	10	10
Breathing problem	6	7	6	6	6	6	6
Swelling in the body	8	6	8	8	8	8	8
Dehydration	1	1	1	1	1	1	1
Total	100	100	100	100	100	100	100
Severity of illness							
Not serious	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Don't know	18.2	17.2	19.2	18.2	18.2	19.2	17.2
Quite serious	29.1	30.1	27.1	29.1	29.1	27.1	30.1
Very serious	38.0	38.0	39.0	38.0	38.0	39.0	38.0
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

5.2.1.2 Utilization and Access to the Healthcare Facility for Outpatient Care

Table 5.2.1.2 shows the distribution related to the healthcare utilization and access to the healthcare facility for outpatient care by the migrant population across different zones. This distribution reveals that most migrants preferred private hospitals in most zones. Specifically, 67.9 percent of migrants in Zone I, 58.5 percent in Zone II, 57 percent in Zone III, 66.3 percent in Zone IV, 53.7 percent in Zone V, 61.1 percent in Zone VI, and 60.8 percent in Zone VII fell within this category. In terms of severity of illness, it was found that the majority of migrants across all zones experienced very serious illness. The zone- wise distribution shows that 38 percent of the migrants in Zone I, 38 percent in Zone II, 39 percent in Zone III, 38 percent in Zone IV, 38 percent in Zone V, 39 percent in Zone VI, and 38 percent in Zone VII preferred private hospitals for their treatment. The zone-wise distribution further revealed that 66 percent of the migrants in Zone I, 61 percent in Zone II, 60 percent in Zone III, 62 percent in Zone IV, 60 percent in Zone V, 65 percent in Zone VI, and 66 percent in Zone VII faced difficulty in accessibility to the healthcare facility due to lack of connectivity to the private hospitals preferred by the migrant population for their treatment. The mean and median distance travelled by migrant labor to access a healthcare facility was highest in Zone II (2.86 km & 2.20 km) respectively. This difficulty in accessibility to healthcare facilities led to the majority of the migrant respondents resorting to self-treatment. Specifically, 84.6 percent in Zone I, 85.4 percent in Zone II, 84.8 percent in Zone III, 82.9 percent in Zone IV, 83.4 percent in Zone V, 84 percent in Zone VI, and 84.1 percent in Zone VII resorted to self-treatment to cure their periodic illness.

Table: 5.2.1.2

Distribution of the Respondents by Utilization and Access to Healthcare Facilities

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Have you utilized a healthcare facility for illness?							
Yes	86	73	81	80	85	78	87
No	14	27	19	20	15	22	13
Total	100	100	100	100	100	100	100
Type of healthcare facility visited?							
Private Hospital	67.9	58.5	57.0	66.3	53.7	61.1	60.8
Government hospital	24.4	16.5	13.6	14.6	24.6	20.3	20.7
Private clinic	2.8	15.0	10.4	2.1	9.8	10.4	9.8
RMP/Local doctor	1.3	8.0	12.0	7.0	4.4	4.5	4.4
Charitable hospital	3.6	2.0	7.0	10.0	7.5	3.7	4.3
Total	100	100	100	100	100	100	100
Visited facility was easily accessible?							
Yes	66	61	60	62	60	65	66
No	34	39	40	38	40	35	34
Total	100	100	100	100	100	100	100
Distance covered to visit healthcare facility							
Mean distance (km)	2.77	2.86	2.68	2.54	2.60	2.62	2.73
Median distance (km)	2.00	2.20	2.15	2.10	2.15	2.18	2.08
Reason for not seeking care							
Could not get away due to work	46.2	44.8	45.5	42.7	47.9	45.0	45.0
Did not have money	23.1	22.2	25.5	26.8	23.6	25.0	30.0
Minor complaints do not call professional assistance	30.8	33.0	29.0	30.5	28.5	30.0	25.0
Total	100	100	100	100	100	100	100
Any self-treatment taken?							
Yes	84.6	85.4	84.8	82.9	83.4	84.0	84.1
No	15.4	14.6	15.2	17.1	16.6	16.0	15.9
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

5.2.1.3 Healthcare Expenditure and Coping Mechanism for Outpatient Care

Table 5.2.1.3 reveals the amount of money spent by migrant respondents on their outpatient care. The mean and median expenditures on outpatient care was the highest in Zone V. The distribution of money spent on outpatient care highlighted that the majority of expenditure on outpatient care was arranged out of own funds. Specifically, 75.2 percent in Zone I, 74.6 percent in Zone II, 76.1 percent in Zone III, 74.5 percent in Zone IV, 79 percent in Zone V, 77.6 percent in Zone VI, and 74.5 percent in Zone VII spent on outpatient care out of their own money.

Table 5.2.1.3
Healthcare Expenditure and Coping Mechanism for Outpatient Care

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Amount of money spent on outpatient care							
Mean expenditure (₹)	283.68	277.54	276.42	275.50	294.80	272.32	276.54
Median expenditure (₹)	80.0	79.0	81.0	82.0	84.0	80.0	81.0
Coping mechanism							
Own money	75.2	74.6	76.1	74.5	79.0	77.6	74.5
Support from relatives	11.8	11.6	11.7	11.3	11.0	12.2	11.3
Borrowed from friends	8.9	8.7	8.5	8.2	6.3	7.4	8.2
Borrowed from neighbor	3.7	3.5	3.4	5.2	3.0	2.5	5.2
Borrowed from employer	0.4	1.6	0.3	0.8	0.7	0.3	0.8
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

5.2.1.4 Indirect Cost of Outpatient Care

Table 5.2.1.4 shows the wage loss suffered by the respondents due to outpatient care. The mean and median man-day loss were highest in Zone I (2.9 days) and Zone VI (29.1 days). In contrast, the wage loss suffered by migrant respondents was the lowest in Zone VII (2.5 and 1.6 days, respectively). The indirect cost of outpatient care was much higher than the direct cost of illness since the migrant labor could not work during the period of illness, which led to wage loss.

Table: 5.2.1.4**Distribution of the Respondents by Indirect Cost of Outpatient Care**

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Did you take leave / suffer wage loss due to illness?							
Yes	12.4	11.8	12.6	11.6	11.3	12.2	12.9
No	87.6	88.2	87.4	88.4	88.7	87.8	87.1
Total	100	100	100	100	100	100	100
If yes, how many man days did you lose?							
Mean days	2.9	2.8	2.6	2.8	2.6	2.9	2.5
Median days	2.0	1.9	1.7	1.9	1.7	2.1	1.6
How much money did you lose?							
Mean money loss (₹)	453.1	454.6	453.1	454.6	453.1	453.1	454.6
Median money loss (₹)	600.0	610.0	600.0	610.0	600.0	600.0	610.0

Source: Author's calculation based on primary data

5.2.2 Healthcare Utilization of Inpatient Care

This section examines the healthcare utilization related to inpatient care on the basis of type of illness, severity of illness, utilization of healthcare facility, coping strategies and direct and indirect cost of inpatient care in seven different zones of the Mumbai.

5.2.2.1 Type and Severity of Illness for Inpatient Care

Table 5.2.2.1 shows the distribution related to the type and severity of illness that led to the inpatient care by the migrant population across different zones. This distribution reveals that most migrants who sought inpatient care suffered from gastric problems in most zones. Specifically, it was observed that 18 percent of migrants in Zone I, 16 percent in Zone II, 19 percent in Zone III, 14 percent in Zone IV, 10 percent in Zone V, 19 percent in Zone VI, and 12 percent in Zone VII fell within this category. In terms of severity of illness, it was found that the majority of migrants across all zones experienced very serious illness. The zone-wise distribution shows that 38 percent of the migrants in Zone I, 37 percent in Zone II, 38.8 percent in Zone III, 38 percent in Zone IV,

38 percent in Zone V, 38 percent in Zone VI, and 38 percent in Zone VII experienced very serious illness.

Table: 5.2.2.1
Distribution of the Respondents by Type and Severity of Inpatient Care

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Have you experienced inpatient care? (N = 476)							
Yes	62	60	61	62	63	64	65
No	38	40	39	38	37	36	35
Total	100	100	100	100	100	100	100
Type of illness							
Malaria	12	17	14	12	17	7	12
Typhoid	13	18	14	12	17	12	12
Diarrhea	10	10	12	16	12	9	7
Pneumonia	10	5	8	10	5	14	10
Arthritis	11	10	10	10	10	10	15
Gastric problem	18	16	19	14	10	19	12
Respiratory issues	16	12	11	16	16	14	17
Dehydration	10	12	12	10	13	15	15
Total	100	100	100	100	100	100	100
Severity of illness							
Not serious	15.9	13.9	14.7	15.9	14.7	14.7	15.9
Don't know	17.0	19.0	17.3	17.0	18.2	18.2	17.0
Quite serious	29.1	30.1	29.2	29.1	29.1	29.1	29.1
Very serious	38.0	37.0	38.8	38.0	38.0	38.0	38.0
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

5.2.2.2 Utilization and Access to the Healthcare Facility for Inpatient Care

Table 5.2.2.2 shows the distribution related to the healthcare utilization and access to the healthcare facility for inpatient care by the migrant population across different zones. This distribution reveals that most migrants preferred private hospitals in most of the zones. Specifically, 66.8 percent of migrants in Zone I, 58.5 percent in Zone II, 57 percent in Zone III, 66.3 percent in Zone IV, 53.7 percent in Zone V, 57 percent in Zone VI, and 60.8 percent in Zone VII fell within this category. The zone-wise distribution revealed that 40 percent of the migrants in Zone I, 39 percent in Zone II, 38 percent in Zone III, 40 percent in Zone IV, 36 percent in Zone V, 32 percent in Zone VI, and 39 percent in Zone VII faced difficulty in accessibility to the healthcare facility due to lack of connectivity to the private hospitals preferred by the migrant population for their treatment. The mean and median distance travelled by migrant labor to access a healthcare facility was highest in Zone II (2.96 km & 2.30 km) respectively.

Table: 5.2.2.2

Distribution of the Respondents by utilization and access to the healthcare facility of Inpatient Care

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Type of healthcare facility visited?							
Private hospital	66.8	58.5	57.0	66.3	53.7	57.0	60.8
Government hospital	25.4	16.5	13.6	14.6	24.6	13.6	20.7
Private clinic	2.0	15.0	10.4	2.1	9.8	10.4	9.8
Charitable hospital	5.8	10.0	19.0	17.0	11.9	19.0	8.7
Total	100	100	100	100	100	100	100
Visited facility was easily accessible?							
Yes	60	61	62	60	64	68	61
No	40	39	38	40	36	32	39
Total	100	100	100	100	100	100	100
Distance covered to visit healthcare facility							
Mean distance (km)	2.77	2.96	2.68	2.54	2.60	2.62	2.73
Median distance (km)	2.00	2.30	2.15	2.10	2.15	2.18	2.08

Source: Author's calculation based on primary data

5.2.2.3 Healthcare Expenditure and Coping Mechanism for Inpatient Care

Table 5.2.2.3 shows the amount of money spent on inpatient care across various zones. The mean and median expenditures were the highest in Zone V as ₹294.9 and ₹84.1 respectively. The distribution of money spent on outpatient care highlighted that the majority of expenditure on outpatient care was arranged out of own funds. Specifically, 75.2 percent in Zone I, 74.6 percent in Zone II, 76.1 percent in Zone III, 74.5 percent in Zone IV, 79 percent in Zone V, 77.6 percent in Zone VI, and 74.5 percent in Zone VII spent on outpatient care out of their own money.

Table 5.2.2.3

Healthcare Expenditure and Coping Mechanism for Inpatient Care

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Amount of money spent on outpatient care							
Mean expenditure (₹)	283.68	277.54	276.42	275.50	294.90	272.32	276.54
Median expenditure (₹)	80.0	79.0	81.0	82.0	84.1	80.0	81.0
Coping mechanism							
Own money	75.2	74.6	76.1	74.5	79.0	77.6	74.5
Support from relatives	11.8	11.6	11.7	11.3	11.0	12.2	11.3
Borrowed from friends	8.9	8.7	8.5	8.2	6.3	7.4	8.2
Borrowed from neighbor	3.7	3.5	3.4	5.2	3.0	2.5	5.2
Borrowed from employer	0.4	1.6	0.3	0.8	0.7	0.3	0.8
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

5.2.2.4 Indirect Cost of Inpatient Care

Table 5.2.2.4 revealed the wage loss suffered by the migrant respondents due to inpatient care. The mean and median man-day losses was highest in Zone I of 2.9 days and Zone VI 2.2 days respectively. Whereas, it was lowest in Zone VII of 2.5 and 1.6 days respectively. The indirect cost of inpatient care was much higher than the direct cost of illness since the migrant labor could not work during the period of illness which led to wage loss.

Table: 5.2.2.4
Distribution of the Respondents by Indirect Cost of Inpatient Care

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Did you take leave / suffer wage loss due to hospitalization?							
Yes	12.4	11.8	12.6	11.6	11.3	12.2	12.9
No	87.6	88.2	87.4	88.4	88.7	87.8	87.1
Total	100	100	100	100	100	100	100
If yes, how many man days did you lose?							
Mean days	2.9	2.8	2.6	2.8	2.6	2.9	2.5
Median days	2.0	1.9	1.7	1.9	1.7	2.2	1.6
How much money did you lose?							
Mean money loss (₹)	453.1	454.6	453.1	454.6	453.1	453.1	454.6
Median money loss (₹)	600.0	610.0	600.0	610.0	600.0	600.0	610.0

Source: Author's calculation based on primary data

5.2.3 Healthcare Utilization of Chronic Disease

This section examines the healthcare utilization related to chronic disease on the basis of type of illness, severity of illness, utilization of healthcare facility, coping strategies and direct and indirect cost of chronic disease in seven different zones of the Mumbai.

5.2.3.1 Type and Severity of Illness for Chronic Disease

Table 5.2.3.1 shows the distribution related to the type of chronic disease experienced by the migrant respondent across different zones. This distribution reveals that most migrants who visited healthcare facilities for treatment of chronic diseases suffered from diabetes in most zones. Specifically, it was found that 23.8 percent of migrants in Zone I, 22.8 percent in Zone II, 25.9 percent in Zone III, 23.8 percent in Zone IV, 20.8 percent in Zone V, 23.8 percent in Zone VI and 19.8 percent in Zone VII fell within this category.

Table: 5.2.3.1

Distribution of the Respondents by Type and Severity of Chronic Disease

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Have you suffered from chronic disease? (N = 476)							
Yes	56	52	50	55	53	57	59
No	44	48	50	45	47	43	41
Total	100	100	100	100	100	100	100
Type of chronic illness							
Diabetes	23.8	22.8	25.9	23.8	20.8	23.8	19.8
High blood pressure	23.8	24.8	21.9	23.8	26.8	23.8	20.8
Tuberculosis	17.7	16.7	19.8	17.7	18.7	17.7	22.7
Heart disease	14.9	13.9	12.6	14.9	13.9	14.9	16.9
Chronic asthma	8.9	9.9	8.7	8.9	5.9	8.9	7.9
Cataract	7.3	8.5	7.5	7.3	8.3	7.3	7.3
Arthritis	3.6	3.4	3.6	3.6	5.6	3.6	4.6
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

5.2.3.2 Utilization and Access to the Healthcare Facility for Chronic Disease

Table 5.2.3.2 shows the distribution related to the healthcare utilization and access to the

healthcare facility for treatment of chronic disease by the migrant population across different zones. This distribution reveals that most migrants preferred private hospitals in most zones. Specifically, it has been observed that 63.4 percent of migrants in Zone I, 58.5 percent in Zone II, 57 percent in Zone III, 66.3 percent in Zone IV, 53.7 percent in Zone V, 57 percent in Zone VI, and 60.8 percent in Zone VII fell within this category. The mean and median distance travelled by migrant labor to access a healthcare facility was highest in Zone II (2.86 km & 2.20 km) respectively.

Table: 5.2.3.2

**Distribution of the Respondents by Utilization and Access to Healthcare Facilities
of Chronic Disease**

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Have you utilized health facility for chronic disease?							
Yes	78.7	76.5	75.0	77.0	78.4	79.4	74.3
No	21.3	23.5	25.0	23.0	21.6	20.6	25.7
Total	100	100	100	100	100	100	100
Type of healthcare facility visited?							
Private Hospital	63.4	58.5	57.0	66.3	53.7	57.0	60.8
Government hospital	28.6	16.5	13.6	14.6	24.6	13.6	20.7
Private clinic	2.2	15.0	10.4	2.1	9.8	10.4	9.8
RMP/Local doctor	2.4	8.0	12.0	7.0	4.4	12.0	4.4
Charitable hospital	3.4	2.0	7.0	10.0	7.5	7.0	4.3
Total	100	100	100	100	100	100	100
Visited facility was easily accessible?							
Yes	54	61	62	60	64	68	61
No	46	39	38	40	36	32	39
Total	100	100	100	100	100	100	100
Distance covered to visit healthcare facility							
Mean distance (km)	2.86	2.77	2.68	2.54	2.60	2.62	2.73
Median distance (km)	2.20	2.19	2.15	2.10	2.15	2.18	2.08

Source: Author's calculation based on primary data

5.2.3.3 Healthcare Expenditure and Coping Mechanism for Chronic Disease

Table 5.2.3.3 shows the amount of money spent on the treatment of chronic disease. The mean and median expenditures were the highest in Zone V of ₹294.80 and ₹84 respectively. The distribution of money spent on outpatient care highlighted that the majority of expenditure on outpatient care was arranged out of own funds. Specifically, 75.2 percent in Zone I, 74.6 percent in Zone II, 76.1 percent in Zone III, 74.5 percent in Zone IV, 79 percent in Zone V, 77.6 percent in Zone VI, and 74.5 percent in Zone VII spent on outpatient care out of their own money.

Table 5.2.3.3
Healthcare Expenditure and Coping Mechanism for Chronic Disease

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Amount of money spent on treatment of chronic disease							
Mean expenditure (₹)	283.68	277.54	276.42	275.50	294.80	272.32	276.54
Median expenditure (₹)	80.0	79.0	81.0	82.0	84.0	80.0	81.0
Coping mechanism							
Own money	75.2	74.6	76.1	74.5	79.0	77.6	74.5
Support from relatives	11.8	11.6	11.7	11.3	11.0	12.2	11.3
Borrowed from friends	8.9	8.7	8.5	8.2	6.3	7.4	8.2
Borrowed from neighbor	3.7	3.5	3.4	5.2	3.0	2.5	5.2
Borrowed from employer	0.4	1.6	0.3	0.8	0.7	0.3	0.8
Total	100	100	100	100	100	100	100

Source: Author's calculation based on primary data

5.2.3.4 Indirect Cost of Chronic Disease

Table 5.2.3.4 revealed the wage loss suffered by the respondents due to the treatment of chronic disease. The mean and median man-day loss were highest in Zone I and Zone VI (2.9 and 2.0 days, respectively). In contrast, they were the lowest in Zone VII (2.5 and 1.6 days, respectively). The

indirect cost for treatment of chronic disease was much higher than the direct cost for treatment of chronic disease since the migrant labor could not work during the period of illness, which led to wage loss.

Table: 5.2.3.4
Distribution of the Respondents by Indirect Cost of Chronic Disease

Characteristics	Zone I (%)	Zone II (%)	Zone III (%)	Zone IV (%)	Zone V (%)	Zone VI (%)	Zone VII (%)
Did you take leave / suffer wage loss due to chronic illness?							
Yes	12.4	11.8	12.6	11.6	11.3	12.2	12.9
No	87.6	88.2	87.4	88.4	88.7	87.8	87.1
Total	100	100	100	100	100	100	100
If yes, how many man days did you loss?							
Mean days	2.9	2.8	2.6	2.8	2.6	2.9	2.5
Median days	2.0	1.9	1.7	1.9	1.7	2.0	1.6
How much money did you lose?							
Mean money loss (₹)	453.1	454.6	453.1	454.6	453.1	453.1	454.6
Median money loss (₹)	600.0	610.0	600.0	610.0	600.0	600.0	610.0

Source: Author's calculation based on primary data

The above discussion summarizes the healthcare utilization, cost and coping strategies by migrant labor in the Mumbai. It was found that 41.0 percent of the migrant household suffered from illness in the past two months at the time of the survey. The main cause of illness was cold/cough followed by cold fever, headache, wound, malaria, typhoid, stomach-related problems, cholera, chicken pox, dehydration, gastric problem/ acidity, diarrhea, pneumonia, body ache/backache and blood pressure. The mean and median healthcare expenditure on the outpatient care was ₹ 283.68 and ₹80.0 respectively. It was observed that 12.4 percent of respondents suffered mean and median money loss of ₹453.1 and ₹600.0, respectively. The zone-wise comparison had shown that 43.0 percent each from Zone I, II and Zone III, VI and VII, followed by 36.7 percent from Zone IV and V, reported illness episodes. The majority of the respondents availed of the outpatient care from all the zones. The mean healthcare expenditure on outpatient care was ₹359.0, ₹336.0, and ₹139.0 in Zones III, IV, and VII, respectively. However, the mean wage loss to respondents due to outpatient care was ₹630.0, ₹594.0, and ₹460.0 in Zones III, IV, and VII, respectively.

The mean healthcare expenditure on inpatient care was highest in Zone IV (₹21,858.8), followed by Zone III (₹21,416.7) and Zone VII (₹20,951.7), respectively. The wage loss due to inpatient care was ₹3,289.19, ₹2,825.0, and ₹3,993.0 in Zone III, Zone IV, and Zone VII, respectively. This has shown a high economic burden among migrant labor to utilize healthcare services.

CHAPTER VI

CATASTROPHIC HEALTHCARE EXPENDITURE AMONG MIGRANT LABOUR IN MUMBAI

The catastrophic healthcare expenditure is a global phenomenon that affects people at their productive age, impoverishes families and leads to a huge financial burden (Morrish, 2002; Kumpatla, 2014; and Unnikrishnan, 2016). However, catastrophic healthcare expenditure accounts for prolonged and enduring financial repercussions on people, such as increasing loans, loss of wealth and savings (Nath et al., 2020). The economic burden of healthcare is expected to increase as a consequence of rising comorbidities, demographic transition, urbanization and lifestyle modifications. This has a long-lasting socio-economic impact on the households. This leads to households resorting to greater dependence on the healthcare facilities and increasing their healthcare expenditure (Zimmet et al., 2001; Padmanabhan, 2015). The cost of treatment and management for healthcare diseases has increased with a rise in epidemiological conditions. The cost of treating healthcare issues and their associated complications poses a huge economic burden both at the individual and household levels. Therefore, chronic nature and rising epidemic of healthcare diseases have adverse economic implications on asset exhaustion and indebtedness (Cavanagh, 2013; Akari, 2012; Eshwari, 2019). This chapter explores catastrophic healthcare expenditures and their determinants related to outpatient care, inpatient care, and chronic diseases among migrant households in Mumbai. It is divided into two sections: Section I estimates and compares the incidence and intensity of catastrophic healthcare spending for outpatient care, inpatient care, and chronic conditions within the migrant labor population. Section II focuses on identifying the factors that influence catastrophic healthcare expenditures for these same categories among migrant workers in Mumbai.

SECTION I

Incidence and Intensity of Catastrophic Healthcare Expenditure in Mumbai

6.1.1 Incidence and Intensity of Catastrophic Healthcare Expenditure (CHE) for outpatient care in Mumbai.

Table 6.1.1 shows that the incidence (headcount) of catastrophic health expenditure (CHE) for outpatient care among respondents was 79.42 percent, followed by 74.32 percent, 22.45 percent and 8.88 percent at 5 percent, 10 percent, 20 percent and 30 percent threshold levels, respectively. The intensity (overshoot) of catastrophe for the respondents at the 5 percent threshold level was 6.64 percent. Further, the intensity of catastrophic health expenditure for migrant respondents was 4.86 percent at 10 percent, 2.60 percent at 20 percent and 0.48 percent at 30 percent catastrophic threshold level. The mean positive overshoot of outpatient care was highest at 20 percent and lowest at 10 percent. The mean positive overshoot of outpatient care was 12.74 percent at the 5 percent threshold level, 6.62 percent at the 10 percent threshold level, 11.86 percent at the 20 percent threshold level and 10.30 percent at the 30 percent threshold level.

Table 6.1.1: Incidence and Intensity of Catastrophic Healthcare Expenditure for Outpatient Care in Mumbai

Measures of Catastrophic Healthcare Expenditure (CHE)	Threshold level to measure catastrophic healthcare expenditure (CHE)			
	5%	10%	20%	30%
Headcount (%)	79.42	74.32	22.45	08.88
Overshoot (%)	06.64	04.86	02.60	00.48
Mean Positive Overshoot (%)	12.74	06.62	11.86	10.30

Source: Author's calculation based on primary data

6.1.2. Incidence and Intensity of Catastrophic Healthcare Expenditure (CHE) for Inpatient care in Mumbai.

Table 6.1.2 shows that the incidence (headcount) of catastrophic health expenditure (CHE) for outpatient care among the respondents and it was found that 68.06 percent followed by 40.86 percent, 22.83 percent and 8.71 percent at 5 percent, 10 percent, 20 percent and 30 percent threshold levels respectively. The intensity (overshoot) of catastrophic for the respondents at the

5 percent threshold level was 8.84 percent. Further, intensity of catastrophic health expenditure for migrant respondents was 5.65 percent at 10 percent, 3.59 percent at 20 percent and 2.12 percent at 30 percent catastrophic threshold level. The mean positive overshoot of outpatient care was highest at 30 percent and lowest at 5 percent. The mean positive overshoot of outpatient care was 12.87 percent at the 5 percent threshold level, 14.82 percent at the 10 percent threshold level, 16.76 percent at the 20 percent threshold level and 22.66 percent at the 30 percent threshold level.

Table 6.1.2: Incidence and Intensity of Catastrophic Healthcare Expenditure for Inpatient Care in Mumbai

Measures of Catastrophic Healthcare Expenditure (CHE)	Threshold level to measure catastrophic healthcare expenditure (CHE)			
	5%	10%	20%	30%
Headcount (%)	68.06	40.86	22.83	08.71
Overshoot (%)	08.84	05.65	03.59	02.12
Mean Positive Overshoot (%)	12.87	14.82	16.76	22.66

Source: Author calculation based on primary data

6.1.3. Incidence and Intensity of Catastrophic Healthcare Expenditure (CHE) for Chronic Disease in Mumbai.

Table 6.1.3 shows that the incidence (headcount) of catastrophic health expenditure (CHE) for outpatient care among respondents was 88.65 percent, followed by 63.76 percent, 16.87 percent and 6.48 percent at 5 percent, 10 percent, 20 percent and 30 percent threshold levels, respectively. The intensity (overshoot) of catastrophe for the respondents at the 5 percent threshold level was 8.85 percent. Further, the intensity of catastrophic health expenditure for migrant respondents was 6.33 percent at 10 percent, 2.50 percent at 20 percent and 0.60 percent at 30 percent catastrophic threshold level. The mean positive overshoot of outpatient care was highest at 20 percent and lowest at 10 percent. The mean positive overshoot of outpatient care was 11.66 percent at the 5 percent threshold level, 9.41 percent at the 10 percent threshold level, 12.65 percent at the 20 percent threshold level and 10.98 percent at the 30 percent threshold level.

Table 6.1.3: Incidence and Intensity of Catastrophic Healthcare Expenditure for Chronic Disease in Mumbai

Measures of Catastrophic Healthcare Expenditure (CHE)	Threshold level to measure catastrophic healthcare expenditure (CHE)			
	30%	10%	20%	5%
Headcount (%)	88.65	63.76	16.87	06.48
Overshoot (%)	08.85	06.33	02.50	00.60
Mean Positive Overshoot (%)	11.66	09.41	12.65	10.98

Source: Author calculation based on primary data

SECTION II

Determinants of Catastrophic Healthcare Expenditure in Mumbai

6.2.1. Determinants of Catastrophic Healthcare Expenditure (CHE) for Outpatient Care in Mumbai

It has been observed on the basis of the empirical findings as shown in table 6.2.1 that there are many socio-demographic variables which significantly affect the likelihood of incurring a catastrophic health expenditure (CHE) for outpatient care among the migrant laborers in Mumbai. It has been inferred that zone of residence of the migrant labor has emerged as a significant determinant. It has been observed that with all zones (Zone I to Zone VII) showing lower odds of incurring CHE compared to the reference category. This clearly suggests that geographic location of the migrant within the city plays an important role in financial vulnerability to catastrophic health care expenditure and it may be due to varying access to healthcare facilities and service costs involved in a specific zone.

Thereafter, gender of the migrant has also found significantly associated with the catastrophic healthcare expenditure, particularly at the 5 percent and 20 percent thresholds, where both males and females faced more than twice the risk of catastrophic healthcare expenditure indicating that outpatient healthcare costs pose a burden across genders too especially under lower and higher spending conditions. The age-wise analysis revealed that those in the 41–60 age group faces significantly higher odds of catastrophic healthcare expenditure at the 5 percent threshold, while those aged 60 and above are particularly affected at the 10 percent level. This shows the vulnerability of middle-aged and elderly migrant labourers of the financial stress due

to outpatient care. The work status of the migrant labourer is another serious factor for the catastrophic healthcare expenditure. It has been identified that salaried individuals are at significantly higher risk of catastrophic healthcare expenditure at the 5 percent threshold, while homemakers show extremely high odds of catastrophic healthcare expenditure at both the 10 percent and 20 percent thresholds, pointing to a severe lack of financial protection for non-earning members of households. The income level strongly influences the chances of incurring the catastrophic healthcare expenditure among migrant labourers. It has been observed that labourers earning below ₹15,000 to ₹30,000 per month face significantly higher chances/odds of catastrophic spending at all thresholds, with odds increasing drastically at the 20 percent level. In contrast, households earning above ₹60,000 show lower and statistically insignificant odds, reinforcing the correlation between low income and financial hardship due to healthcare costs.

However, variables such as marital status, education level, family type and household size were not found statistically significant in influencing the catastrophic healthcare expenditure across thresholds, suggesting these demographic variables are not strong predictors of the catastrophic healthcare expenditure of the migrant labourers. The model's goodness-of-fit indicators support the robustness of these findings. The Omnibus Test is significant at all thresholds ($p = 0.000$), indicating the overall models are valid. The Hosmer and Lemeshow test show a good model fit (non-significant p -values), and Nagelkerke R^2 values range from 0.162 to 0.209, indicating a moderate level of explanatory power. Thus, the empirical results show the relevance of income, employment status, gender, age, and residential zone in determining the catastrophic healthcare expenditure for the outpatient care. These findings highlight the urgent need for targeted policy interventions such as income-based health subsidies, expanded public health services, and financial protection mechanisms for vulnerable groups like homemakers, salaried workers, and low-income households in urban areas like Mumbai.

Table 6.2.1: Determinants of Catastrophic Healthcare Expenditure for Outpatient Care in Mumbai

Socio- Demographic Variables	Threshold Level to Measure Catastrophic Health Expenditure (CHE)					
	5%		10%		20%	
	Odd Ratios (OR)	p-value	Odd Ratios (OR)	p-value	Odd Ratios (OR)	p-value
Zone						

Zone I	0.572	0.019*	0.647	0.017**	0.529	0.029***
Zone II	0.372	0.013*	0.647	0.027**	0.529	0.029***
Zone III	0.348	0.021*	0.643	0.022**	0.544	0.027***
Zone IV	0.572	0.041*	0.647	0.021**	0.529	0.029***
Zone V	0.594	0.016*	0.639	0.019**	0.636	0.023***
Zone VI	0.516	0.015*	0.627	0.038**	0.619	0.021***
Zone VII	0.372	0.014*	0.647	0.037**	0.529	0.029***
Gender						
Male	2.574	0.046*	1.197	0.572	2.551	0.015***
Female	2.492	0.038*	1.175	0.568	2.538	0.013***
Age						
Below 20 years	3.379	0.772	1.344	0.826	0.489	0.453
21- 40 years	3.344	0.850	1.268	0.844	0.465	0.437
41- 60 years	2.771	0.034*	1.647	0.125	0.716	0.509
60 years and above	0.989	0.960	1.490	0.036**	0.643	0.114
Marital Status						
Single	0.502	0.112	1.000	0.998	1.148	0.788
Married	0.472	0.108	1.000	0.925	1.167	0.795
Education						
Primary	1.212	0.875	0.150	0.108	0.614	0.703
Secondary	0.635	0.690	0.185	0.135	0.657	0.723
Graduation	0.981	0.987	0.160	0.103	0.751	0.807
Post-Graduation	0.907	0.931	0.187	0.135	0.586	0.648
Illiterate	2.075	0.569	0.227	0.202	0.310	0.384
Work Status						
Business	1.759	0.274	1.966	0.107	0.967	0.957
Student	1.379	0.409	1.047	0.894	0.857	0.765
Homemaker	0.714	0.999	13.441	0.022**	15.413	0.002***
Retired	0.958	0.943	1.096	0.834	0.470	0.205
Salaried	3.561	0.020*	1.699	0.221	0.986	0.983
Income						
Below ₹ 15,000	2.448	0.045*	3.939	0.000**	9.164	0.000***
₹ 15,000- ₹ 30,000	2.448	0.045*	3.939	0.000**	9.164	0.000***

₹ 30,000- ₹ 45,000	1.998	0.055	2.463	0.001**	4.824	0.004***
₹ 45,000 - ₹ 60,000	1.079	0.829	1.876	0.027**	3.513	0.021***
₹ 60,000 and above	0.922	0.827	1.235	0.485	1.458	0.545
Family Type						
Joint	1.213	0.443	1.154	0.476	1.333	0.349
Nuclear	1.062	0.398	1.147	0.448	1.200	0.326
Household Size						
Up to 3 members	0.711	0.440	1.399	0.349	1.82	0.223
4-6 members	0.696	0.507	1.289	0.319	1.68	0.212
6 members and above	0.999	0.997	0.949	0.815	0.973	0.937
Model Summary						
<i>Omnibus Test of Model</i>	Sig. = 0.000		Sig. = 0.000		Sig. = 0.000	
<i>Hosmer & Lemeshow Test</i>	Chi-Square = 4.137; Sig.= 0.845		Chi-Square = 6.246; Sig.= 0.620		Chi-Square = 11.125; Sig.= 0.195	
<i>Nagelkerke (R²)</i>	0.162		0.168		0.209	

Source: Authors calculation established on primary data. Note:* Significant at 5 percent threshold level

** Significant at 10 percent threshold level

*** Significant at 20 percent threshold level

6.2.2 Determinants of Catastrophic Healthcare Expenditure (CHE) for Inpatient Care in Mumbai

The results shown in table 6.2.2 revealed that there are many socio-demographic variables which influence the catastrophic healthcare expenditure for inpatient care in Mumbai. The overall model fit is confirmed by the Omnibus Test, which is significant across all thresholds ($p = 0.000$), indicating that the models explain a significant portion of variance in CHE. The Hosmer & Lemeshow test shows non-significant values ($p > 0.05$), indicating a good fit for each model. The Nagelkerke R^2 values range between 0.162 and 0.209, suggesting a moderate ability of the models to explain the variation in CHE. Similar to outpatient care, the zone of the migrant labour is found significant variable. The various zones (Zone I to Zone VII) show the odds ratios significantly less than 1 across all thresholds, indicating that individuals living in these zones are less likely to face catastrophic health care expenditure as compared to the reference zone. The findings are consistent across the various zones and thresholds underscores the relevance of the region in healthcare access and affordability while designing policies.

The results have revealed that gender is significantly associated with catastrophic healthcare expenditure. The results shows that both males and females have significantly had the higher odds of spending the catastrophic healthcare expenditure at 5 percent and 20 percent thresholds, with odds ratios above 2.5. This suggests that it is important to understand the gender pattern of healthcare utilization as it may lead to catastrophic health care expenditure. The inpatient healthcare expenditure shows that individuals with aged 41–60 years incurs significantly higher odds of facing catastrophic health care expenditure at 5 percent threshold, while those aged 60 and above show significant vulnerability at the 10 percent threshold. This depicts that middle-aged and older populations are particularly at risk of financial distress due to inpatient care due to healthcare utilization. The present work status of the migrant labour is also found associated with catastrophic health care expenditure. The workers are significantly more likely to face CHE at the 5% threshold, while homemakers have extremely high odds of catastrophic health care expenditure at the 10% and 20% thresholds, with odds ratios exceeding 13 and 15 respectively. These findings emphasized the need for the financial vulnerability of the migrant labor for the inpatient care. Whereas, income level has been found as an important predictor of catastrophic health care expenditure. The migrant workers earning below ₹15,000 to ₹30,000 per month face significantly higher odds of incurring catastrophic health care expenditure. However, variables such as marital status, education level, family type, and household size do not show any statistically significant association with catastrophic health care expenditure across any threshold levels. This suggests that these demographic variables do not influence the financial burden as not found associated. The analysis has highlighted that zone of residence, gender, age, work status, and especially income levels are the key determinants of catastrophic health expenditure for inpatient care in Mumbai. The findings shows that the need for income- sensitive health care financing policies, targeted financial protection schemes for migrant labours to mitigate the financial burden of hospitalization.

Table 6.2.2: Determinants of Catastrophic Healthcare Expenditure for Inpatient Care in Mumbai

Socio-Demographic Variables	Threshold Level to Measure Catastrophic Health Expenditure (CHE)					
	5%		10%		20%	
	Odd Ratios (OR)	p-value	Odd Ratios (OR)	p-value	Odd Ratios (OR)	p-value
Zone						
Zone I	0.572	0.019*	0.647	0.027**	0.529	0.029***
Zone II	0.572	0.019*	0.647	0.027**	0.529	0.029***
Zone III	0.548	0.021*	0.643	0.022**	0.544	0.027***
Zone IV	0.572	0.019*	0.647	0.027**	0.529	0.029***
Zone V	0.594	0.016*	0.639	0.019**	0.636	0.023***
Zone VI	0.576	0.015*	0.627	0.038**	0.619	0.021***
Zone VII	0.572	0.019*	0.647	0.027**	0.529	0.029***
Gender						
Male	2.574	0.046*	1.197	0.572	2.551	0.015***
Female	2.492	0.038*	1.175	0.568	2.538	0.013***
Age						
Below 20 years	3.379	0.772	1.344	0.826	0.489	0.453
21- 40 years	3.344	0.850	1.268	0.844	0.465	0.437
41- 60 years	2.771	0.034*	1.647	0.125	0.716	0.509
60 years and above	0.989	0.960	1.490	0.036**	0.643	0.114
Marital Status						
Single	0.502	0.112	1.000	0.998	1.148	0.788
Married	0.472	0.108	1.000	0.925	1.167	0.795
Education						
Primary	1.212	0.875	0.150	0.108	0.614	0.703
Secondary	0.635	0.690	0.185	0.135	0.657	0.723
Graduation	0.981	0.987	0.160	0.103	0.751	0.807

Post-Graduation	0.907	0.931	0.187	0.135	0.586	0.648
Illiterate	2.075	0.569	0.227	0.202	0.310	0.384
Work Status						
Business	1.759	0.274	1.966	0.107	0.967	0.957
Student	1.379	0.409	1.047	0.894	0.857	0.765
Homemaker	0.714	0.999	13.441	0.022**	15.413	0.002***
Retired	0.958	0.943	1.096	0.834	0.470	0.205
Salaried	3.561	0.020*	1.699	0.221	0.986	0.983
Income						
Below ₹ 15,000	2.448	0.045*	3.939	0.000**	9.164	0.000***
₹ 15,000- ₹ 30,000	2.448	0.045*	3.939	0.000**	9.164	0.000***
₹ 30,000- ₹ 45,000	1.998	0.055	2.463	0.001**	4.824	0.004***
₹ 45,000 - ₹ 60,000	1.079	0.829	1.876	0.027**	3.513	0.021***
₹ 60,000 and above	0.922	0.827	1.235	0.485	1.458	0.545
Family Type						
Joint	1.213	0.443	1.154	0.476	1.333	0.349
Nuclear	1.062	0.398	1.147	0.448	1.200	0.326
Household Size						
Upto 3 Members	0.711	0.440	1.399	0.349	1.82	0.223
4-6 Members	0.696	0.507	1.289	0.319	1.68	0.212
6 Members and above	0.999	0.997	0.949	0.815	0.973	0.937
Model Summary						
<i>Omnibus Test of Model</i>	Sig. = 0.000		Sig. = 0.000		Sig. = 0.000	
<i>Hosmer & Lemeshow Test</i>	Chi-Square = 4.137; Sig.= 0.845		Chi-Square = 6.246; Sig.= 0.620		Chi-Square = 11.125; Sig.= 0.195	
<i>Nagelkerke (R²)</i>	0.162		0.168		0.209	

Source: Authors calculation established on primary data. Note: * Significant at 5 percent threshold level

** Significant at 10 percent threshold level

*** Significant at 20 percent threshold level

6.2.3 Determinants of Catastrophic Healthcare Expenditure (CHE) for Chronic Disease in Mumbai

Table 6.2.3 shows that Omnibus Test of Model Coefficients is significant ($p = 0.000$) for all thresholds, indicating that the models are statistically valid. The Hosmer and Lemeshow goodness-of-fit tests are non-significant ($p > 0.05$), showing a good model fit. The Nagelkerke R^2 values, ranging from 0.162 to 0.209, reflect moderate explanatory power of the models. The findings from table 6.2.3 indicate that zone, gender, age, income, and employment status significantly affect the likelihood of incurring catastrophic health expenditure due to chronic diseases in Mumbai. The zone of residence is found significant determinant across all thresholds. Thus, it shows that migrant labourers living in Zones I to VII have significantly lower odds ($OR < 1$) of experiencing catastrophic health expenditure compared to the reference category. This suggests the need to provide better access to healthcare or have differing healthcare costs in different zone. This shows a spatial disparity in the catastrophic health expenditure for the chronic illness.

The gender is also a strong determinant of catastrophic health expenditure for the chronic disease. It was found that both males and females exhibit significantly higher odds of facing catastrophic health expenditure at the 5 percent and 20 percent thresholds, with odds ratios over 2.5, indicating a substantial economic burden across genders. These results may reflect differences in health-utilization pattern, disease prevalence, or access to care for catastrophic health expenditure. Age is found to be significant determinant of catastrophic health expenditure for the chronic illness. Migrant workers with an age 41–60 years show significantly increased odds at the 5 percent threshold, while those aged 60 years and above are significantly affected at the 10 percent threshold for incurring catastrophic health expenditure for the chronic illness. This pattern underscores that middle-aged and elderly individuals are particularly vulnerable to high healthcare costs associated with chronic conditions. It was found that migrant workers are significantly more likely to incur catastrophic health expenditure for the chronic illness at the 5 percent threshold, while homemakers show extremely high odds at both 10 percent and 20 percent thresholds (ORs of 13.441 and 15.413, respectively). These findings suggests that chronic disease-related posed a disproportionately high economic burden on non-earning members, especially women engaged in unpaid domestic roles.

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The income level is one of the most important determinants of catastrophic health expenditure for the chronic illness. The migrant workers with income below ₹15,000 to ₹30,000 faced a high and statistically significant odds of incurring catastrophic health expenditure for the chronic illness. Even the workers with income groups (₹30,000–₹45,000 and ₹45,000–₹60,000) show elevated risks of catastrophic health expenditure for the chronic illness. As compared to migrant labourers earning above ₹60,000 do not show statistically significant odds of catastrophic health expenditure for the chronic illness and thus reinforcing the direct relationship between low income and economic burden due to chronic disease care. Other socio-demographic variables such as marital status, education, family type, and household size do not show any statistically significant association with CHE. This indicates that while these factors may influence health outcomes generally, they do not independently predict the likelihood of incurring catastrophic expenses for chronic illness care in this dataset. Thus, the above analysis emphasized the need for chronic disease-specific financial protection policies, including income-based health subsidies, coverage for homemakers, and zonal improvements in public healthcare infrastructure, to reduce the economic burden on vulnerable migrant laborers.

Table 6.2.3: Determinants of Catastrophic Healthcare Expenditure for Chronic Disease in Mumbai

Socio-Demographic Variables	Threshold Level to Measure Catastrophic Health Expenditure (CHE)					
	5%		10%		20%	
	Odd Ratios (OR)	p-value	Odd Ratios (OR)	p-value	Odd Ratios (OR)	p-value
Zone						
Zone I	0.372	0.019*	0.647	0.027**	0.529	0.029***
Zone II	0.572	0.013*	0.647	0.027**	0.529	0.029***
Zone III	0.518	0.021*	0.643	0.022**	0.544	0.027***
Zone IV	0.526	0.012*	0.647	0.027**	0.529	0.029***
Zone V	0.594	0.016*	0.639	0.019**	0.636	0.023***
Zone VI	0.536	0.015*	0.627	0.038**	0.619	0.021***
Zone VII	0.372	0.011*	0.647	0.027**	0.529	0.029***
Gender						
Male	2.574	0.046*	1.197	0.572	2.551	0.015***

Female	2.492	0.038*	1.175	0.568	2.538	0.013***
Age						
Below 20 years	3.379	0.772	1.344	0.826	0.489	0.453
21- 40 years	3.344	0.850	1.268	0.844	0.465	0.437
41- 60 years	2.771	0.034*	1.647	0.125	0.716	0.509
60 years and above	0.989	0.960	1.490	0.036**	0.643	0.114
Marital Status						
Single	0.502	0.112	1.000	0.998	1.148	0.788
Married	0.472	0.108	1.000	0.925	1.167	0.795
Education						
Primary	1.212	0.875	0.150	0.108	0.614	0.703
Secondary	0.635	0.690	0.185	0.135	0.657	0.723
Graduation	0.981	0.987	0.160	0.103	0.751	0.807
Post-Graduation	0.907	0.931	0.187	0.135	0.586	0.648
Illiterate	2.075	0.569	0.227	0.202	0.310	0.384
Work Status						
Business	1.759	0.274	1.966	0.107	0.967	0.957
Student	1.379	0.409	1.047	0.894	0.857	0.765
Homemaker	0.714	0.999	13.441	0.022**	15.413	0.002***
Retired	0.958	0.943	1.096	0.834	0.470	0.205
Salaried	3.561	0.020*	1.699	0.221	0.986\	0.983
Income						
Below ₹ 15,000	2.448	0.045*	3.939	0.000**	9.164	0.000***
₹ 15,000- ₹ 30,000	2.448	0.045*	3.939	0.000**	9.164	0.000***
₹ 30,000- ₹ 45,000	1.998	0.055	2.463	0.001**	4.824	0.004***
₹ 45,000 - ₹ 60,000	1.079	0.829	1.876	0.027**	3.513	0.021***
₹ 60,000 and above	0.922	0.827	1.235	0.485	1.458	0.545
Family Type						
Joint	1.213	0.443	1.154	0.476	1.333	0.349

Nuclear	1.062	0.398	1.147	0.448	1.200	0.326
Household Size						
Up to 3 Members	0.711	0.440	1.399	0.349	1.82	0.223
4-6 Members	0.696	0.507	1.289	0.319	1.68	0.212
6 Members and above	0.999	0.997	0.949	0.815	0.973	0.937
Model Summary						
<i>Omnibus Test of Model</i>	Sig. = 0.000		Sig. = 0.000		Sig. = 0.000	
<i>Hosmer & Lemeshow Test</i>	Chi-Square = 4.137; Sig.= 0.845		Chi-Square = 6.246; Sig.= 0.620		Chi-Square = 11.125; Sig.= 0.195	
<i>Nagelkerke (R²)</i>	0.162		0.168		0.209	

Source: Authors calculation established on primary data.

Note: * Significant at 5 percent threshold level

** Significant at 10 percent threshold level

*** Significant at 20 percent threshold level

The analysis of catastrophic healthcare expenditure for outpatient, inpatient, and chronic disease care in Mumbai indicates that there exists association between healthcare utilization and socio-economics variables. It was found that zone of residence, gender, age, income, and work status are significant determinants across all types of care. It was found that migrant labor with low-income are consistently more vulnerable to catastrophic healthcare expenditure especially at higher thresholds. However, middle-aged and elderly migrant workers also face elevated financial risks. Whereas, variables such as education, marital status, family type and household size are not found significantly associated with catastrophic healthcare expenditure. These findings direct the need for targeted health financing policies, income-based subsidies, and zonal healthcare strengthening to reduce financial hardship among vulnerable migrant labors.

CHAPTER VII

QUALITY OF HEALTH CARE SERVICES UTILIZED BY MIGRANT WORKERS IN MUMBAI

According to World Health Organization (2014) quality of healthcare is defined as “*the extent to which healthcare services provided to individuals and patient populations improve desired health outcomes.*” Achieving this requires healthcare to be safe, effective, timely, efficient, equitable, and people-centred. The access to the quality healthcare is vital for maintaining their health, productivity and overall well-being of the migrant well-being. The quality of healthcare encompassed not only treatment for the periodic illnesses but also the healthcare for comorbidities, palliative care and reproductive health services, including family planning (Mkoka et al., 2015). The quality of the healthcare services has a direct impact on the health outcomes as high-quality care can reduce morbidity and mortality, prevent complications and significantly enhance the quality of life for vulnerable populations, including migrant workers (Obeidat et al., 2017; Miteniece et al., 2018). Whereas, healthcare coverage varies across the countries but quality of healthcare services plays as a crucial role of the strength and responsiveness of the healthcare system in a country (Haddad et al., 2016). There are multiple factors which influence the perceptions and realities of healthcare quality. These factors include awareness of available services, proximity to healthcare facilities, infrastructure quality, affordability, satisfaction with diagnostic processes, availability of follow-up care and the organization of regular medical camps etc. (Marthias & Trisnantoro, 2012; Kambala et al., 2015; John et al., 2018). Moreover, patient-provider interaction, provider attentiveness, privacy during consultations, adequate infrastructure and a consistent availability of essential medicines are central to the service quality, particularly in ante-natal care (ANC) settings (Atinga & Baku, 2013). The difference in quality of healthcare was related to the disability status, not with caste factor (Devkota et al., 2017). However, interaction with the providers of healthcare services, attentiveness of healthcare service providers, privacy during consultation, adequate healthcare facilities and availability of drugs came out as the factors influencing the quality of ANC (Atinga and Baku, 2013). Considering the same the present chapter examines the quality of the healthcare services utilized by the migrant labours in Mumbai.

7.1 Quality of Healthcare Services Utilized by Migrant Workers

7.1.1 Reliability and Validity of all Attributes

Table 7.1.1 The results of the factor analysis were obtained using principal component analysis (PCA) on a set of 34 items representing six underlying dimensions. The analysis was validated by a highly significant Bartlett's test of sphericity ($p = 0.001$), indicating that the correlations between items were sufficiently large for factor analysis. Additionally, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated to be 0.94, which Kaiser (1974) classifies as "marvelous." This high KMO value indicates that the sample size and data quality were excellent for conducting a reliable factor analysis. Together, these tests demonstrate that the data matrix met all necessary assumptions and was suitable for extracting meaningful factors.

As a result, all 34 items were included in the factor analysis across six distinct dimensions. These dimensions were carefully identified based on the loading of related items. The first dimension, Tangibility, included eight items related to the physical aspects and appearance of the service environment. The second dimension, Assurance, comprised three items that reflect the confidence and trustworthiness conveyed by the service providers. Reliability, the third dimension, consisted of six items focusing on the dependability and accuracy of the service delivered. Responsiveness included four items measuring the willingness and promptness of staff to assist customers. Empathy was the fifth dimension, loaded with six items capturing the caring and individualized attention offered to customers. Finally, the Satisfaction dimension contained seven items that assessed the overall contentment of respondents with the service experience. This detailed factor structure not only indicates the theoretical framework behind the measurement but also provides a robust foundation for further analysis, such as evaluating the relative importance of each dimension in explaining overall service quality.

Table 7.1.1: Reliability and Validity of all Attributes

Variable	Factor loadings	EV	Variance explained (cumulative variance explained)	Cronbach's alpha
Tangibility				
T1	0.80			
T2	0.80			

T3	0.79	5.35	17.08 (17.08)	0.96
T4	0.79			
T5	0.80			
T6	0.78			
T7	0.82			
T8	0.75			
Assurance				
A1	0.76	5.40	15.84 (32.67)	0.95
A2	0.76			
A3	0.77			
Reliability				
Re1	0.80	5.15	16.12 (50.25)	0.97
Re2	0.80			
Re3	0.81			
Re4	0.80			
Re5	0.82			
Re6	0.80			
Responsiveness				
R1	0.79	4.38	14.10 (60.46)	0.94
R2	0.77			
R3	0.78			
R4	0.78			
Empathy				
E1	0.78	4.21	13.38 (76.65)	0.93
E2	0.78			
E3	0.77			
E4	0.76			
E5	0.78			
E6	0.77			
Satisfaction				
S1	0.71	3.56	10.52 (84.42)	0.90
S2	0.72			
S3	0.81			
S4	0.76			

S5	0.75			
S6	0.80			
S7	0.72			

Source: Author's Calculation

7.1.2 Correlation of the Attributes of Service Quality

Table 7.1.2 states the correlation between the dimensions of service quality and satisfaction of healthcare services as analyzed in Table 7.1.3. The highest significant positive correlation was between assurance and tangibility, with a correlation of 0.687** in the context of customer satisfaction. The analysis reveals several significant positive correlations among the key dimensions of customer satisfaction. Tangibility and reliability show a strong positive correlation of 0.615**, indicating that tangible aspects (such as physical facilities and equipment) are closely related to reliability factors like understanding and compassion in influencing customer satisfaction.

Reliability and assurance also share a strong positive relationship (0.642**), suggesting that dependable service delivery is closely linked to the trustworthiness and competence represented by assurance. Similarly, tangibility and responsiveness are moderately positively correlated (0.545**), reflecting the connection between physical service elements and the promptness and consistency of staff responses. Assurance and responsiveness demonstrate a strong positive correlation of 0.685**, highlighting the important interplay between trust in service providers and their ability to respond effectively. Reliability and responsiveness also show a moderate positive correlation (0.581*), emphasizing their joint role in shaping overall customer satisfaction. Empathy, which reflects the care and individualized attention given to customers, correlates moderately with tangibility (0.614**), assurance (0.575**), reliability (0.610**), and responsiveness (0.587**), suggesting that empathetic service is closely tied to various other service quality dimensions. Finally, the dimension of satisfaction itself shows moderate positive correlations with all the other factors: tangibility (0.592**), assurance (0.608**), reliability (0.642**), responsiveness (0.621**), and empathy (0.623**). This consistent pattern indicates that improvements in each of these areas are associated with higher overall customer satisfaction.

Table 7.1.2 Correlation Analysis of Dimensions of Service Quality and Satisfaction

	Tangible	Assurance	Reliability	Responsiveness	Empathy	Satisfaction
Tangible	1					
Assurance	0.687**	1				
Reliability	0.615**	0.642**	1			
Responsiveness	0.545**	0.685**	0.581**	1		
Empathy	0.614**	0.575**	0.610**	0.587**	1	
Satisfaction	0.592**	0.608**	0.642**	0.621**	0.623**	1

Source: Author's Calculation

Note: **. Correlation is significant at the 0.02 level (2-tailed).

7.1.3 Multiple Regression Analysis of Dimensions of Service Quality and Satisfaction

Table 7.1.3 shows that the relationship between satisfaction and various dimensions (Tangibility, Assurance, Reliability, Responsiveness, Empathy) is positive. It was found that tangible factors had a positive influence (Std. Coefficient $\beta = 0.11$, p-value = 0.001) on the satisfaction of migrant labor utilizing the services of hospitals. This indicates that modern equipment was available and visually appealing to patients, and the hospital was capable of handling patient issues. There was an explanation of the prescription by nurses and the hospital wards and bedding were clean. The present study aligned with the results highlighted in previous literature (Ramez, 2012; Kondasani & Panda, 2015; Xesfingi & Vozikis, 2016; Windi et al., 2022). Assurance, which refers to the patient's confidence, was also found to be positively associated with satisfaction (Std. Coefficient $\beta = 0.14$, p-value = 0.001). This shows that hospital employee's attitude towards migrant labor was good, interaction with doctors was confidential, nurses were attentive towards migrant labor, doctors were knowledgeable and were capable of handling cases. The present study aligned with the results highlighted in previous literature (Ramez, 2012; Xesfingi & Vozikis, 2016; Windi et al., 2022). The third dimension, reliability, means the quality of being able to be trusted, which also has a positive influence on satisfaction (Std. Coefficient $\beta = 0.16$, p-value = 0.001). This shows that promised services were fulfilled, the reputation of doctors was good, transparency of expenses, treatment was done on time, doctors ensured the patient's wellness before discharge and services were provided at a reasonable cost. The results are aligned with (Ramez, 2012; Kondasani & Panda, 2015; Xesfingi & Vozikis, 2016; Windi et al., 2022). The fourth dimension, responsiveness, refers to attentiveness to meeting the needs or providing fast services has a positive association with satisfaction (Std. Coefficient $\beta = 0.17$, p-value = 0.006). This shows that the process of registration is simple, services are provided on time, personnel understand the specific needs, personnel are

always ready to help, nurses provide sufficient information to migrant labor and immediate response to complaints and suggestions. Our study results are aligned with (Ramez, 2012; Kondasani & Panda, 2015; Xesfingi & Vozikis, 2016). Lastly, empathy refers to the ability to understand another person's feelings or sentiments from their point of view and was found to be positively associated with the satisfaction of migrant labor utilizing healthcare services (Std. Coefficient $\beta = 0.13$, p-value = 0.001). This shows that staff are polite towards migrant labor, doctors are caring towards migrant labor, provide personalized service, nurses do well job of prescription, and doctors always meet at the time of consultancy. The study results are aligned with the studied literature (Ramez, 2012; Xesfingi & Vozikis, 2016; Windi et al., 2022).

Table 7.1.3 Multiple Regression Analysis

Variables	Unstandardized Coefficients		Standardized Coefficients	<i>T</i>	Sig.
	B	SD	Beta		
(Constant)	0.22	0.14		1.45	0.123
Tangible	0.12	0.08	0.11	3.59	0.001
Assurance	0.16	0.03	0.14	4.22	0.001
Reliability	0.17	0.02	0.16	4.35	0.001
Responsiveness	0.18	0.04	0.17	4.18	0.001
Empathy	0.14	0.06	0.13	4.21	0.001

Source: Author's Calculation

Note: Dependent Variable: Satisfaction

Predictors: (Constant), Tangible, Assurance, Reliability, Responsiveness, Empathy

SECTION II

7.2 SERVQUAL Analysis of Different Attributes

7.2.1 Tangibility

The data presented in the table highlights how patients' expectations and perceptions of their hospital experience differ across various tangible factors. These findings were collected through the use of the SERVQUAL framework. Interestingly the largest gap of 0.37 is seen in the category of providing the right treatment in the first instance. This means that the average expectation for delivery of the right treatment in the first instance is 4.69, while the perceived average is 4.32. The average expectation with respect to explanation of prescription by nurses such as 4.44, while the perceived average is 4.09. Thus, it shows a significant difference suggests that there is a noticeable disconnect between what patients anticipate in terms of the expectation of the right treatment on their initial visit and the explanation of the prescription by nurses. This could indicate an area of improvement concerning the delivery of the right treatment and explanation of the prescription to patients. Furthermore, other dimensions such as the modern equipment availability, willingness to help patients, cleanliness of wards and visually appealing facilities also display notable gaps of 0.26, 0.25, 0.15 and 0.06 respectively. This further emphasized the need for addressing factors that contribute to the overall patient experience within the hospital setting.

Table 7.2.1 Tangibles Gap

Tangibles	Expectation		Perceived		Gap
	Mean	SD	Mean	SD	
Modern equipment availability	4.38	0.76	4.12	0.85	0.26
Visually appealing facilities	4.34	0.63	4.28	0.78	0.06
Hospital capable of handling patient's problems	4.27	0.61	4.15	0.87	0.12
Explanation of the prescription by nurses	4.44	0.65	4.09	0.83	0.35
Cleanliness of wards, bedding and floor	4.37	0.67	4.22	0.89	0.15
Willingness to help patients	4.56	0.62	4.31	0.80	0.25
Delivering correct treatment for the first time	4.69	0.66	4.32	0.79	0.37
Nurses are providing comfortable services	4.50	0.64	4.40	0.84	0.10
Total	4.29	0.03	4.05	0.02	0.24

Source: Author's Calculation

7.2.2 Reliability

The analysis of the data on service quality in a hospital's healthcare services conducted using the SERVQUAL framework and it has revealed significant gaps. The gaps are especially noticeable in the reliability dimension and they provide insight into patients' perceptions of the hospital's service quality. There is a significant gap of 0.95 in the perception of doctor's attitudes towards migrant labor. The difference is quite substantial, as the average expectation is 4.26, whereas the perceived average is significantly lower at 3.31. The existence of this gap signifies a substantial gap in the manner in which patients perceive the quality of interpersonal interactions and the attitudes exhibited by doctors towards migrant labor. To align the reliability dimension with patients' expectations and foster a positive and supportive environment for migrant labor, it is imperative to address such gaps. As if the migrant laborers perceive that doctor as exhibiting negative attitudes or lacking interpersonal sensitivity, it may lead to trust deficit. This can discourage migrant labor the utilization of healthcare services even if they are available and can cause under-consumption of necessary care and adverse public health outcomes. Moreover, analysis has also identified gaps in the perception in various aspects, including the quality of services provided by the healthcare facility as well as its staff, maintenance of error- free records of the migrant labor and professional appearance of the doctors.

Addressing these gaps is crucial for instilling patient's trust in the proficiency and reliability of healthcare practitioners, resulting in an overall improvement in the level of reliability in the quality of healthcare services offered by the hospital.

Table 7.2.2 Reliability Gap

Assurance	Expectation		Perceived		Gap
	Mean	SD	Mean	SD	
Explanation of treatment properly by doctors	4.26	0.79	3.31	0.91	0.95
Doctor's professional appearance	4.28	0.62	3.35	0.89	0.93
Fulfilment of promised services	4.32	0.62	3.45	0.88	0.87
Maintenance of error-free records	4.34	0.65	3.59	0.98	0.75
Regularity of services provided by hospitals	4.35	0.62	3.63	0.91	0.72
Hospitals providing a regular water supply and electricity	4.38	0.57	3.66	0.92	0.72
Total	4.34	0.03	3.42	0.02	0.92

Source: Author's Calculation

7.2.3 Assurance

The present study highlights gaps in the assurance dimension of service quality at a hospital, as assessed using the SERVQUAL framework. However, significant gaps are evident across various indicators. Table 7.2.4 exhibits the largest disparity, measuring 0.53, exists in the perception of doctors' reputation. The average expectation is 4.35, but the perceived average is significantly lower at 3.82. This significant discrepancy underscores a distinct disparity between the perceived and anticipated standing of doctors, suggesting that patients may not hold as favorable an opinion of doctors as they initially expect. In addition, perceptual gaps range from 0.37 to 0.47 in other aspects, such as the capability of the hospital in handling the patient's problems and the accuracy in the maintenance of the patient's records. These gaps offer potential for improving the capabilities to handle the patient problems with proficiency and the maintenance of error-free records of the patient during the treatment. It is essential to address these gaps to improve the reliability of service quality, align patients' expectations with their perceptions and establish trust and confidence in the hospital's ability to deliver excellent healthcare services.

Table 7.2.3 Assurance Gap

Reliability	Expectation		Perceived		Gap
	Mean	SD	Mean	SD	
Feeling safe in the hands of the doctor	4.35	0.70	3.82	0.90	0.53
Accuracy of patient records	4.34	0.67	3.87	0.89	0.47
A hospital capable of handling patient problems	4.33	0.71	3.96	0.86	0.37
Total	4.27	0.65	3.81	0.90	0.46

Source: Author's Calculation

7.2.4 Responsiveness

Table 7.2.4 exhibits the gaps in the responsiveness dimension of service quality at a hospital, as evaluated using the widely acknowledged SERVQUAL framework. Multiple indicators demonstrate significant gaps, highlighting opportunities for improvement. The highest gap, with a margin of 0.67, relates to the care extended towards the patient. The average anticipated value is 4.34, whereas the real perception is notably lower at 3.67. The substantial gap indicates a noteworthy divergence between patient's expectations and their actual encounters during the treatment, implying that there may be an expectation for more care than initially provided during the treatment.

Furthermore, perceptual gaps range from 0.23 to 0.42 in other aspects such as the convenience in consulting hours, individual attention towards the patient and explanation of prescription by the nurses. These gaps offer potential for improving the individual attention provided to the patient during the treatment, scheduling of convenient consulting hours for the patient to allow flexibility in meeting the doctor and providing detailed explanations of medical prescriptions by the nurses in a lucid manner. This can help to foster a healthcare environment that is attentive and responsive to their needs.

Table 7.2.4 Responsiveness Gap

Responsiveness	Expectation		Perceived		Gap
	Mean	SD	Mean	SD	
Caring towards patients by doctors	4.34	0.69	3.67	0.81	0.67
Individual attention towards patients	4.27	0.57	3.85	0.79	0.42
Convenient hours for consulting doctors	4.32	0.78	3.99	0.90	0.33
Explanation of the prescription by nurses	4.25	0.68	4.02	0.88	0.23
Total	4.35	0.71	3.94	0.75	0.41

Source: Author's Calculation

7.2.5 Empathy

It was observed from table 7.2.5 the specific areas in which the empathy dimension of service quality in a hospital's healthcare services is lacking, as shown in Table 7.2.5. The SERVQUAL framework has identified substantial gaps across various indicators, highlighting the necessity for improvement. One of the most significant gaps, with a margin of 0.83, exists in the level of courtesy exhibited by hospital staff towards migrant labor. This data reveals a distinct gap between the anticipated and observed conduct of the staff, as the average expectation of patients is 4.28, whereas the average perception is merely 3.45. This gap highlights the significance of improving staff engagement with patients to closely align it with their healthcare service expectations.

In addition, perceptual gaps range from 0.22 to 0.60 in other aspects such as the knowledge of patient's wants, attainment of closeness and friendliness by the hospital staff with the patient, developing an understanding about the patient's situation, listening to the patient and providing them with the explanation of the treatment in a simplified manner. These findings indicate potential areas for improvement in multiple facets of understanding the patient's expectations about the hospital, developing a sense of closeness with the patient, giving due consideration to the patient's medical condition and providing him with the required support and listening to his complaints. In addition to this, an improvement is required in explaining the details about the treatment to the patient and his relatives in a simplified manner. To improve the empathy aspect of service quality, it is important to address these gaps. These findings can help to meet patient's expectations and promote a caring and patient-focused atmosphere in the hospital's healthcare services.

Table 7.2.5 Empathy Gap

Empathy	Expectation		Perceived		Gap
	Mean	SD	Mean	SD	
Polite attitudes of employees	4.28	0.68	3.45	0.86	0.83
Explaining the details	4.32	0.62	3.72	0.85	0.60
Listen to the patient	4.31	0.70	3.71	0.92	0.60
Understand and consider the patient's situation	4.35	0.62	3.90	0.90	0.45
A sense of closeness and friendliness	4.30	0.64	4.00	0.83	0.30
The hospital knows what the patient wants	4.38	0.48	4.16	0.85	0.22
Total	4.45	0.67	3.95	0.82	0.50

Source: Author's Calculation

7.2.6 Improvement of Health Care Service

The study's findings highlight the specific areas in which the improvement of the care service dimension of service quality in a hospital's healthcare services is lacking. The SERVQUAL framework has identified substantial gaps across various indicators, highlighting the necessity for enhancement. One of the most significant gaps, with a margin of 0.80, exists in the appropriateness of the care service provided. This data reveals a distinct gap between the anticipated and observed appropriateness in the care service, as the average expectation of patients is 4.36, whereas the average perception is merely 3.56. This gap exhibits the significance of improving appropriateness in the care service to closely align with patient expectations.

In addition, perceptual gaps range from 0.15 to 0.77 in other aspects such as recognition of efforts taken by medical staff in providing the treatment, improvement in medical conditions of the patient due to treatment, efforts taken to explain the precautions to be taken by the patient and also in preventing the occurrence of the disease in future to the patient and the community to which he/she belongs. These findings indicate potential areas for improvement in multiple facets of recognition of efforts taken by medical staff in providing the treatment, improvement in medical conditions of the patient due to treatment, efforts taken to explain the precautions to be taken by the patient and also in preventing the occurrence of the disease in future to the patient and the community to which he/she belongs. To enhance the improvement of the care service aspect of service quality, it is important to address these gaps. These findings shall help to meet patients' expectations and promote a caring and patient-focused atmosphere in the hospital's healthcare services.

Table 7.2.6 Opinion of Respondents on Improvement of Health Care Services

Parameters	Expected Mean	Perceived Mean	Gap
Appropriateness of care service provided	4.36	3.56	0.80
Recognition and efforts for the best treatment by the medical staff	4.25	3.48	0.77
Improvement in medical condition as a result of efforts and treatment	4.27	3.64	0.63
Degree of explanations to the patient to prevent related diseases	4.29	3.74	0.55

Degree of effort and willingness to prevent disease	4.28	3.86	0.42
Improvement of the disease through this hospital's treatment	4.29	4.00	0.29
Degrees of disease prevention for communities	4.32	4.17	0.15
Total	4.40	3.88	0.52

Source: Author's Calculation

SECTION III

7.3 Zone-Wise Quality of Health Care Services for Migrant Labor

7.3.1 Zone-Wise Correlation Analysis of Attributes of Service Quality

In Zone I, the strongest correlation is observed between the variables "Reliability" and "Tangibility" ($r = 0.434^{**}$). This is followed by the correlations between "Responsiveness" and "Satisfaction" ($r = 0.432^{**}$), "Reliability" and "Satisfaction" ($r = 0.428^{**}$), "Reliability" and "Empathy" ($r = 0.423^{**}$), and "Empathy" and "Satisfaction" ($r = 0.415^{**}$). Similar to Zone III, the degree of trustworthiness attributed to services in Zone I exhibits the most positive correlation with the tangible aspects of healthcare.

Whereas, in Zone II, the variable with the higher correlation coefficient is "Reliability" with "Satisfaction" ($r = 0.246^{*}$). This is followed by the correlation between "Tangibility- Satisfaction" ($r = 0.212^{*}$), "Responsiveness-Satisfaction" ($r = 0.179^{*}$), "Empathy-Satisfaction" ($r = 0.137$) and "Tangibility-Empathy" ($r = 0.126$). In the region of Zone II, as opposed to Zone III and Zone I, it is observed that the reliability-related elements of services exhibit the most significant positive correlation with customer satisfaction.

Whereas, in Zone III, it is observed that the variable "Reliability" exhibits the strongest positive correlation with the variable "Assurance" ($r = 0.879^{**}$). This is closely followed by the variables "Tangibility-Reliability" ($r = 0.869^{**}$), "Assurance-Tangibility" ($r = 0.867^{**}$), "Tangible-Empathy" ($r = 0.836^{**}$), and "Responsiveness-Assurance" ($r = 0.831^{**}$). This finding indicates a significant positive correlation between the perceived reliability of services in Zone III and assurance-related aspects of healthcare. In Zone IV, the variable with the higher correlation coefficient is "Reliability" with "Satisfaction" ($r = 0.246^{*}$). This is followed by the correlation between "Tangibility- Satisfaction" ($r = 0.212^{*}$), "Responsiveness-Satisfaction" ($r = 0.179^{*}$), "Empathy-Satisfaction" ($r = 0.137$) and "Tangibility-Empathy" ($r = 0.126$). In the region of Zone

IV, as opposed to Zone III and Zone I, it is observed that the reliability-related elements of services exhibit the most significant positive correlation with customer satisfaction.

In Zone V, it is observed that the variable "Reliability" exhibits the strongest positive correlation with the variable "Assurance" ($r = 0.879^{**}$). This is closely followed by the variables "Tangibility-Reliability" ($r = 0.869^{**}$), "Assurance-Tangibility" ($r = 0.867^{**}$), "Tangible-Empathy" ($r = 0.836^{**}$), and "Responsiveness-Assurance" ($r = 0.831^{**}$). This finding indicates a significant positive correlation between the perceived reliability of services in Zone V and assurance-related aspects of healthcare.

In Zone VI, the strongest correlation is observed between the variables "Reliability" and "Tangibility" ($r = 0.434^{**}$). This is followed by the correlations between "Responsiveness" and "Satisfaction" ($r = 0.432^{**}$), "Reliability" and "Satisfaction" ($r = 0.428^{**}$), "Reliability" and "Empathy" ($r = 0.423^{**}$), and "Empathy" and "Satisfaction" ($r = 0.415^{**}$). Similar to Zone III, the degree of trustworthiness attributed to services in Zone VI exhibits the most positive correlation with the tangible aspects of healthcare.

In Zone VII, the strongest correlation is observed between the variables "Reliability" and "Tangibility" ($r = 0.434^{**}$). This is followed by the correlations between "Responsiveness" and "Satisfaction" ($r = 0.432^{**}$), "Reliability" and "Satisfaction" ($r = 0.428^{**}$), "Reliability" and "Empathy" ($r = 0.423^{**}$), and "Empathy" and "Satisfaction" ($r = 0.415^{**}$). Similar to Zone III, the degree of trustworthiness attributed to services in Zone VII exhibits the most positive correlation with the tangible aspects of healthcare.

Table 7.3.1 Zone-Wise Correlation Analysis of Dimensions of Service Quality and Satisfaction

Zones	Aspect	Tangible	Assurance	Reliability	Responsiveness	Empathy	Satisfaction
Zone I	Tangible	1					
	Assurance	0.297 ^{**}	1				
	Reliability	0.434 ^{**}	0.367 ^{**}	1			
	Responsiveness	0.164 [*]	0.502 ^{**}	0.349 ^{**}	1		
	Empathy	0.375 ^{**}	0.323 ^{**}	0.423 ^{**}	0.278 ^{**}	1	
	Satisfaction	0.357 ^{**}	0.525 ^{**}	0.428 ^{**}	0.432 ^{**}	0.415 ^{**}	1
Zone II	Tangible	1					
	Assurance	0.020	1				
	Reliability	0.018	0.052	1			
	Responsiveness	0.050	-0.056	0.138	1		

	Empathy	0.126	0.040	0.016	-0.075	1	
	Satisfaction	0.212 [*]	0.044	0.246 [*]	0.179	0.137	1
Zone III	Tangible	1					
	Assurance	0.867 ^{**}	1				
	Reliability	0.869 ^{**}	0.879 ^{**}	1			
	Responsiveness	0.827 ^{**}	0.831 ^{**}	0.822 ^{**}	1		
	Empathy	0.836 ^{**}	0.810 ^{**}	0.824 ^{**}	0.776 ^{**}	1	
	Satisfaction	0.820 ^{**}	0.824 ^{**}	0.826 ^{**}	0.759 ^{**}	0.779 ^{**}	1
Zone IV	Tangible	1					
	Assurance	0.020	1				
	Reliability	0.018	0.052	1			
	Responsiveness	0.050	-0.056	0.138	1		
	Empathy	0.126	0.040	0.016	-0.075	1	
	Satisfaction	0.212 [*]	0.044	0.246 [*]	0.179	0.137	1
Zone V	Tangible	1					
	Assurance	0.867 ^{**}	1				
	Reliability	0.869 ^{**}	0.879 ^{**}	1			
	Responsiveness	0.827 ^{**}	0.831 ^{**}	0.822 ^{**}	1		
	Empathy	0.836 ^{**}	0.810 ^{**}	0.824 ^{**}	0.776 ^{**}	1	
	Satisfaction	0.820 ^{**}	0.824 ^{**}	0.826 ^{**}	0.759 ^{**}	0.779 ^{**}	1
Zone VI	Tangible	1					
	Assurance	0.297 ^{**}	1				
	Reliability	0.434 ^{**}	0.367 ^{**}	1			
	Responsiveness	0.164 [*]	0.502 ^{**}	0.349 ^{**}	1		
	Empathy	0.375 ^{**}	0.323 ^{**}	0.423 ^{**}	0.278 ^{**}	1	
	Satisfaction	0.357 ^{**}	0.525 ^{**}	0.428 ^{**}	0.432 ^{**}	0.415 ^{**}	1
Zone VII	Tangible	1					
	Assurance	0.297 ^{**}	1				
	Reliability	0.434 ^{**}	0.367 ^{**}	1			
	Responsiveness	0.164 [*]	0.502 ^{**}	0.349 ^{**}	1		
	Empathy	0.375 ^{**}	0.323 ^{**}	0.423 ^{**}	0.278 ^{**}	1	
	Satisfaction	0.357 ^{**}	0.525 ^{**}	0.428 ^{**}	0.432 ^{**}	0.415 ^{**}	1

Source: Author's Calculation

Note: **. Correlation is significant at the 0.01 level (2-tailed).

7.3.2 Zone-Wise Multiple Regression Analysis

In Zone I, the standardized coefficient ($B = 0.142$) demonstrates a positive relationship ($p = 0.020$) between the tangible aspect and the satisfaction aspect, suggesting that a positive tangibility leads to a favorable effect on the satisfaction aspect. The standardized coefficient ($B = 0.278$) demonstrates a neutral relationship ($p = 0.000$) between assurance and satisfaction aspect, indicating a positive influence of assurance on satisfaction aspect. The standardized coefficient ($B = 0.141$) demonstrates a positive relationship ($p = 0.024$) between reliability and satisfaction aspect, suggesting that reliability positively impacts satisfaction aspect. The analysis reveals that the standardized coefficient for responsiveness, denoted as B , is 0.174 . This coefficient is statistically significant at a level of $p = 0.005$. These findings indicate a positive relationship between responsiveness and satisfaction, suggesting that an increase in responsiveness leads to an increase in satisfaction. The standardized coefficient for empathy ($B = 0.146$) demonstrates a positive relationship ($p = 0.016$), suggesting that empathy positively impacts the Improvement of care service.

The standardized coefficient ($B = 0.175$) exhibits a positive direction in Zone II, although it reaches statistical significance ($p = 0.052$). This implies inadequate evidence to support the claim that tangibility impacts the satisfaction in Zone II. The standardized coefficient ($B = 0.024$) demonstrates a positive association; however, it is not statistically significant ($p = 0.772$), suggesting no substantial correlation between assurance and satisfaction aspect in the context of Zone II. The standardized coefficient ($B = 0.208$) demonstrates a statistically positive relationship ($p = 0.025$) between reliability and satisfaction aspect, suggesting that reliability influences satisfaction. The analysis indicates that the standardized coefficient for responsiveness ($B = 0.145$) is positive but lacks statistical significance ($p = 0.112$). This implies that there is insufficient evidence to support the claim that responsiveness positively impacts the satisfaction aspect in the context of Zone II. The standardized coefficient ($B = 0.127$) of empathy exhibits a positive direction, albeit lacking statistical significance ($p = 0.167$), thereby suggesting the absence of a significant association between empathy and satisfaction aspect in the context of Zone II.

In Zone III, the standardized coefficient ($B = 0.134$) exhibits a positive trend but lacks statistical significance ($p = 0.089$). This implies inadequate evidence to support the claim that tangible factors impact the satisfaction in Zone III. The standardized coefficient for assurance ($B = 0.184$) demonstrates a positive relationship ($p = 0.026$), suggesting that assurance has a favourable effect on the satisfaction aspect. The obtained standardized coefficient ($B = 0.212$) exhibits a positive relationship ($p = 0.004$), indicating that reliability positively impacts satisfaction. The analysis reveals that the standardized coefficient ($B = 0.116$) of responsiveness exhibits a positive direction, albeit lacking statistical significance ($p = 0.061$). This suggests that

there is no substantial association between responsiveness and satisfaction aspects in the context of Zone III. The standardized coefficient ($B = 0.252$) of empathy exhibits a positive relationship ($p = 0.001$), indicating a positive influence of empathy on satisfaction.

The standardized coefficient ($B = 0.175$) exhibits a positive direction in Zone IV, although it reaches statistical significance ($p = 0.052$). This implies inadequate evidence to support the claim that tangibility impacts the satisfaction in Zone IV. The standardized coefficient ($B = 0.024$) demonstrates a positive association; however, it is not statistically significant ($p = 0.772$), suggesting no substantial correlation between assurance and satisfaction aspect in the context of Zone IV. The standardized coefficient ($B = 0.208$) demonstrates a statistically positive relationship ($p = 0.025$) between reliability and satisfaction aspect, suggesting that reliability influences satisfaction. The analysis indicates that the standardized coefficient for responsiveness ($B = 0.145$) is positive but lacks statistical significance ($p = 0.112$). This implies that there is insufficient evidence to support the claim that responsiveness positively impacts the satisfaction aspect in the context of Zone IV. The standardized coefficient ($B = 0.127$) of empathy exhibits a positive direction, albeit lacking statistical significance ($p = 0.167$), thereby suggesting the absence of a significant association between empathy and satisfaction aspect in the context of Zone IV.

In Zone V, standardized coefficient ($B = 0.134$) exhibits a positive trend but lacks statistical significance ($p = 0.089$). This implies inadequate evidence to support the claim that tangible factors impact the satisfaction in Zone V. The standardized coefficient for assurance ($B = 0.184$) demonstrates a positive relationship ($p = 0.026$), suggesting that assurance has a favorable effect on the satisfaction aspect. The obtained standardized coefficient ($B = 0.212$) exhibits a positive relationship ($p = 0.004$), indicating that reliability positively impacts satisfaction. The analysis reveals that the standardized coefficient ($B = 0.116$) of responsiveness exhibits a positive direction, albeit lacking statistical significance ($p = 0.061$). This suggests that there is no substantial association between responsiveness and satisfaction aspects in the context of Zone V. The standardized coefficient ($B = 0.252$) of empathy exhibits a positive relationship ($p = 0.001$), indicating a positive influence of empathy on satisfaction.

In Zone VI, the standardized coefficient ($B = 0.142$) demonstrates a positive relationship ($p = 0.020$) between the tangible aspect and the satisfaction aspect, suggesting that a positive tangibility leads to a favorable effect on the satisfaction aspect. The standardized coefficient ($B = 0.278$) demonstrates a neutral relationship ($p = 0.000$) between assurance and satisfaction aspect, indicating a positive influence of assurance on satisfaction aspect. The standardized coefficient ($B = 0.141$) demonstrates a positive relationship ($p = 0.024$) between reliability and satisfaction aspect, suggesting that reliability positively impacts satisfaction aspect. The analysis reveals that the standardized coefficient for responsiveness, denoted as B , is 0.174. This coefficient is statistically

significant at a level of $p = 0.005$. These findings indicate a positive relationship between responsiveness and satisfaction, suggesting that an increase in responsiveness leads to an increase in satisfaction. The standardized coefficient for empathy ($B = 0.146$) demonstrates a positive relationship ($p = 0.016$), suggesting that empathy positively impacts the Improvement of care service.

In Zone VII, standardized coefficient ($B = 0.142$) demonstrates a positive relationship ($p = 0.020$) between the tangible aspect and the satisfaction aspect, suggesting that a positive tangibility leads to a favorable effect on the satisfaction aspect. The standardized coefficient ($B=0.278$) demonstrates a neutral relationship ($p=0.000$) between assurance and satisfaction aspect, indicating a positive influence of assurance on satisfaction aspect. The standardized coefficient ($B = 0.141$) demonstrates a positive relationship ($p=0.024$) between reliability and satisfaction aspect, suggesting that reliability positively impacts satisfaction aspect. The analysis reveals that the standardized coefficient for responsiveness, denoted as B , is 0.174. This coefficient is statistically significant at a level of $p =0.005$. These findings indicate a positive relationship between responsiveness and satisfaction, suggesting that an increase in responsiveness leads to an increase in satisfaction. The standardized coefficient for empathy ($B = 0.146$) demonstrates a positive relationship ($p = 0.016$), suggesting that empathy positively impacts the Improvement of care service.

In broader terms, the regression findings indicate that the constructs of "Assurance," "Reliability," "Responsiveness," and "Empathy" exert positive influences on satisfaction within distinct zones. However, the impact of "Tangible" exhibits variability across these zones. "Constant" denotes the intercept or baseline value of the improvement of care service when all predictor variables have a zero value. Nevertheless, this aspect does not hold much relevance in the present analysis.

Table 7.3.2 Zone-Wise Multiple Regression Analysis

Zones	Aspect	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.
		B	Std. Error	Beta		
Zone I	(Constant)	0.322	0.348		0.898	0.367
	Tangible	0.156	0.067	0.142	2.284	0.020
	Assurance	0.262	0.066	0.278	4.245	0.000
	Reliability	0.141	0.060	0.142	2.229	0.024
	Responsiveness	0.176	0.063	0.174	2.735	0.005

	Empathy	0.152	0.066	0.146	2.370	0.016
Zone II	(Constant)	-1.267	1.764		-0.769	0.427
	Tangible	0.286	0.165	0.175	1.879	0.052
	Assurance	0.080	0.287	0.024	0.276	0.772
	Reliability	0.352	0.157	0.208	2.219	0.025
	Responsiveness	0.257	0.160	0.145	1.592	0.112
	Empathy	0.289	0.160	0.127	1.379	0.167
Zone III	(Constant)	0.189	0.141		1.294	0.184
	Tangible	0.136	0.078	0.134	1.692	0.089
	Assurance	0.184	0.082	0.184	2.324	0.026
	Reliability	0.216	0.080	0.212	2.760	0.004
	Responsiveness	0.116	0.062	0.116	1.879	0.061
	Empathy	0.256	0.060	0.252	3.939	0.001
Zone IV	(Constant)	-1.267	1.764		-0.769	0.427
	Tangible	0.286	0.165	0.175	1.879	0.052
	Assurance	0.080	0.287	0.024	0.276	0.772
	Reliability	0.352	0.157	0.208	2.219	0.025
	Responsiveness	0.257	0.160	0.145	1.592	0.112
	Empathy	0.289	0.160	0.127	1.379	0.167
Zone V	(Constant)	0.189	0.141		1.294	0.184
	Tangible	0.136	0.078	0.134	1.692	0.089
	Assurance	0.184	0.082	0.184	2.324	0.026
	Reliability	0.216	0.080	0.212	2.760	0.004
	Responsiveness	0.116	0.062	0.116	1.879	0.061
	Empathy	0.256	0.060	0.252	3.939	0.001
Zone VI	(Constant)	0.322	0.348		0.898	0.367
	Tangible	0.156	0.067	0.142	2.284	0.020
	Assurance	0.262	0.066	0.278	4.245	0.000
	Reliability	0.141	0.060	0.142	2.229	0.024
	Responsiveness	0.176	0.063	0.174	2.735	0.005
	Empathy	0.152	0.066	0.146	2.370	0.016
Zone VII	(Constant)	0.322	0.348		0.898	0.367
	Tangible	0.156	0.067	0.142	2.284	0.020
	Assurance	0.262	0.066	0.278	4.245	0.000

	Reliability	0.141	0.060	0.142	2.229	0.024
	Responsiveness	0.176	0.063	0.174	2.735	0.005
	Empathy	0.152	0.066	0.146	2.370	0.016

Source: Author's Calculation

Note: Dependent Variable: Satisfaction

Predictors: (Constant), Tangible, Assurance, Reliability, Responsiveness, Empathy

This chapter focuses on the relationship between six dimensions of service quality, such as tangibility, reliability, responsiveness, empathy, assurance and satisfaction among the migrant patients. The analysis of these six dimensions was covered based on the 34 parameters, which formed a part of the study. The Bartlett Test of Sphericity and KMO values showed that the data matrix was sufficient and appropriate for the factor analysis. The SERVQUAL model aimed at conducting a gap analysis between patient's expectations and perceptions of their healthcare service quality experience. In terms of tangibility, the largest gap (0.37) was due to the inability to provide the right treatment in the first instance. In case of reliability, the most significant gap (0.95) was observed in the perception of doctor's attitude towards migrant patients. For the assurance dimension, the highest gap (0.53) pertained to the perception of the doctor's reputation. For the responsiveness dimension, the largest gap (0.67) was related to the care extended towards the migrant patient. In terms of empathy, the most significant gap (0.83) was connected to the polite attitude of the hospital staff towards the patient. The most significant gap (0.80) was also observed in the appropriateness of care service provided by the healthcare facility staff to the patient. The zone-wise correlation analysis of the attributes of service quality showed a positive correlation with the tangible, reliable, assurance-related, responsive and empathy-oriented aspects of service quality. Further, the zone-wise multiple regression analysis highlighted a positive relationship between the six dimensions of the service quality. Thus, quality of healthcare services is not only about technical efficiency but also about the lived experiences of individuals, especially the socially and economically vulnerable such as migrant laborers. Understanding and addressing the multifaceted dimensions of healthcare quality is critical for ensuring health equity and positive outcomes. The results of the study indicates that there exists an association between the socio-economic variables and the catastrophic healthcare expenditure.

CHAPTER VIII

SUMMARY, CONCLUSION, AND POLICY IMPLICATIONS

The World Health Organization (2018) defines health as “a state of complete physical, mental, and social well-being,” extending beyond the mere absence of disease or infirmity. While health care is often narrowly interpreted as medical care, the two concepts differ significantly. Medical care refers primarily to curative services, whereas health care encompasses both preventive and curative interventions aimed at promoting and maintaining the overall well-being of individuals and communities. Health care can thus be broadly understood as the array of services delivered by professionals to individuals, families, and communities with the goal of promoting, restoring, and safeguarding health. In the context of Maharashtra, the health care system is structured under three distinct administrative entities. The first is the Directorate of Health Services, which is responsible for managing primary health care facilities, including primary health centers (PHCs) across the state. The second is the Maharashtra Vyadyakiya Mandal, which administers secondary-level health institutions, such as taluka and district hospitals. The third arm, the Directorate of Medical Education and Research, oversees medical education institutions and tertiary care hospitals, ensuring the provision of advanced medical services and professional training. Health status is typically assessed through key indicators such as infant mortality rates and life expectancy for both males and females. These metrics are widely accepted and are employed in the present study as measures of population health (Bhagat, 2019). The overarching objective of health care services is to improve the health status of the population. To be effective, such services must be comprehensive, accessible, affordable, socially acceptable, and foster active community participation (IIPS, 2019).

Within the Maharashtra state, Mumbai has been a hub of migrant workers. The reason could be attributed to the employment opportunities which the city provides. For the year 2019-20, 65 percent of the total migration into India was alone witnessed in Mumbai (Ministry of Labour and Employment, 2019). Health of migrant workers has been a prime cause of concern in the past decade as a result of changing lifestyles of migrant workers, quality of diet consumed by them and their awareness about the health precautions which are expected to be taken by them. It has been observed that the amount of healthcare support resorted to by these migrant workers has reduced in the current decade as compared to the previous decade (Brihan Mumbai Municipal Corporation Longitudinal Study Report, 2021).

The nature of healthcare in the Mumbai Metropolitan Region has witnessed a lot of changes in recent years. It has been observed that the conditions of healthcare facilities available for treatment are highly dependent on the nature and extent of healthcare spending by the patients for the treatment. The amount of spending seems to be directly linked to the quality of healthcare

services utilized by the local residents. The availability of healthcare centers for treatment is dispersed on a larger piece of land, with a distance between the two nearby healthcare centers is approximately 2.5 km. It means that on average distance of 2.5 km, a patient finds a healthcare facility for treatment (Dandekar et. al., 2018).

8.1 Socio-Demographic and Economic Characteristics of Migrant Laborers

The socio-demographic and economic characteristics were considered as fundamental determinants in the study of migrant health in Mumbai. It was observed that 86.4 percent of the respondents were males and 13.6 percent were females. The majority of the respondents belonged to the age-group of 25-35 years with mean age of 42.3 years. The highest number of migrant laborers belonged to the Hindu religion and were part of the scheduled caste community. They were illiterate and predominantly worked as construction workers. However, apart from working as construction workers, they also practiced fishing as an occupation due to the vast coastline in Mumbai. The majority of the migrant laborers opened a savings account with a nationalized bank as a part of the initiatives taken by their principal employer. A large portion of the monthly income was spent on food and utilities. Monthly income was also spent on clothing, education, healthcare, recreation, traveling, and other miscellaneous expenses. In the event of chronic disease, hospitalization, or periodic illness, the migrant laborers had to travel significant distances from their residence to access the healthcare facility. The majority of migrant laborers did not own any agricultural land but worked as landless laborers in villages. This necessitated their migration to Mumbai in search of better opportunities. The migrant laborers stayed in joint families in Mumbai. In most households, decision-making authority was vested with the father or with another senior patriarchal member in the family in the father's absence. The zone-wise analysis of the socio-demographic characteristics of migrant labor revealed that Zone 5 had the highest proportion of males while Zone 7 had highest proportion of female migrant labor. The majority of migrant population in the age group of 25-35 years belonged to Zone 1 which was 49 percent of the total migrant population in the age group of 25-35 years. The religion-wise distribution revealed highest percentage of Hindus belonging to Zone 3 (87 percent), Muslims belonging to Zone 6 (47 percent) and Christians belonging to Zone 7 (8 percent). The majority of illiteracy was observed in the migrant population in Zone 3 while the highest level of literacy existed amongst migrant labor belonging to Zone 4. The majority of the migrant labor in Zone 3 stayed as a joint family with a maximum family size between 5-7 members. However, those in Zone 1 stayed as nuclear families with a maximum family size between 5-7 members. The study of zone-wise economic characteristics revealed that the migrant population belonging to Zone 6 (12 percent) and Zone 7 (12 percent) owned an agricultural land upto 1 Guntha at their native place, which constituted

a major proportion of the total migrant population under study. However, Zone 6 and Zone 7 had 22 percent and 21 percent of the migrant population residing in a self-occupied property within the municipal territories of the respective zones. The majority of the migrant population in Zone 7 (80 percent) owned a LPG cylinder, while the majority of the migrant population in Zones 3 and 4 (27 percent respectively) had a piped gas connection in their place of residence. The majority of migrant population in Zone 1 held a BPL card while those in Zone 6 held a savings account. The mean and median annual household income was highest in Zone 4 (₹ 99,212.20) and Zone 2 (₹ 77,432.40) respectively.

8.2 Morbidity Pattern and Healthcare Utilization of Migrant Laborers

The present study was undertaken to analyze the characteristics of morbidity patterns and the nature of healthcare utilization. Healthcare utilization among the migrant population was primarily divided between outpatient care, inpatient care, and treatment of chronic diseases. Outpatient care was taken to treat the periodic illness suffered by the migrant population, while inpatient care was considered where the migrant labor required hospitalization. It was found that 64.0 percent of the migrant households suffered from illness in the past two months at the time of the primary data collection. It was observed that 62.0 percent of the migrant population required hospitalization while 56.0 percent of the migrant labor required treatment of chronic disease for the past one year at the time of the primary data collection. The study revealed that the main causes of periodic illness was cold/cough, followed by cold fever, headache, wound, malaria, typhoid, stomach-related problems, cholera, chicken pox, dehydration, gastric problems/ acidity, diarrhea, pneumonia, body ache/backache, and high blood pressure. The mean and median healthcare expenditure on the treatment of periodic illnesses were ₹283.68 and ₹80.0, respectively. It was observed that 12.4 percent of respondents suffered a mean and median money loss of ₹453.1 and ₹600.0, respectively. The zone-wise comparison had shown that 43.0 percent each from Zone I, II, and Zone III, VI and VII, followed by 36.7 percent from Zone IV and V, reported illness episodes. The study further revealed that the main causes of hospitalization were gastric problems, followed by respiratory issues, malaria, typhoid, dehydration, Pneumonia and Arthritis. The mean and median healthcare expenditure on hospitalization were ₹259.45 and ₹88.0, respectively. It was observed that 14.6 percent of respondents suffered a mean and median money loss of ₹466.7 and ₹88.0, respectively. The zone-wise comparison had shown that 62.0, 60.0, 61.0, 64.0 and 65.0 percent each from Zone I, II, and Zone III, VI and VII, followed by 62.0 and 63.0 percent from Zone IV and V, required inpatient care in the form of hospitalization. The study further revealed that the main causes of chronic disease were diabetes and high blood pressure, followed by Tuberculosis, Heart Disease, Chronic asthma, Cataract and Arthritis. The mean and median

healthcare expenditure on the treatment of periodic illnesses were ₹243.68 and ₹79.0, respectively. It was observed that 14.6 percent of respondents suffered a mean and median money loss of ₹434.6 and ₹575.0, respectively. The zone-wise comparison had shown that 56.0 percent, 52.0 percent, 50.0 percent, 57.0 percent and 59.0 percent each from Zones I, II, and Zone III, VI and VII, followed by 55.0 and 53.0 percent from Zones IV and V, required treatment for chronic diseases.

8.3 Catastrophic Healthcare Expenditure and its Determinants among Migrant Laborers

The present study explains the incidence and intensity of the catastrophic healthcare expenditure, as well as identifies its determinants. The incidence (headcount) of catastrophic health expenditure (CHE) for outpatient care among respondents was 79.42 percent, followed by 74.32 percent, 22.45 percent and 8.88 percent at 5 percent, 10 percent, 20 percent and 30 percent threshold levels, respectively. The intensity (overshoot) of catastrophe for the respondents at the 5 percent threshold level was 6.64 percent. Further, the intensity of catastrophic health expenditure for migrant respondents was 4.86 percent at 10 percent, 2.60 percent at 20 percent and 0.48 percent at 30 percent catastrophic threshold level. The mean positive overshoot of outpatient care was highest at 20 percent and lowest at 10 percent. The mean positive overshoot of outpatient care was 12.74 percent at the 5 percent threshold level, 6.62 percent at the 10 percent threshold level, 11.86 percent at the 20 percent threshold level and 10.30 percent at the 30 percent threshold level. The incidence (headcount) of catastrophic health expenditure (CHE) for outpatient care among respondents was 68.06 percent, followed by 40.86 percent, 22.83 percent and 8.71 percent at 5 percent, 10 percent, 20 percent and 30 percent threshold levels, respectively. The intensity (overshoot) of catastrophe for the respondents at the 5 percent threshold level was 8.84 percent. Further, the intensity of catastrophic health expenditure for migrant respondents was 5.65 percent at 10 percent, 3.59 percent at 20 percent and 2.12 percent at 30 percent catastrophic threshold level. The mean positive overshoot of outpatient care was highest at 30 percent and lowest at 5 percent. The mean positive overshoot of outpatient care was 12.87 percent at the 5 percent threshold level, 14.82 percent at the 10 percent threshold level, 16.76 percent at the 20 percent threshold level and 22.66 percent at the 30 percent threshold level.

The key determinants of catastrophic health expenditure of migrant respondents were identified by performing a logistic regression model. It was found that the odds of incurring catastrophic health expenditure were lower among migrant respondents. Whereas, the probability of incurring catastrophic health expenditure was high among old-age migrant respondents. The logistic regression exhibits that at a 20 percent catastrophic threshold level, homemakers ($p = 0.011$), history of diseases ($p = 0.029$) and complications ($p = 0.036$) were determined as the key predictors of catastrophic healthcare expenditure. At the 10 percent threshold level, the probability

of incurring catastrophic health expenditure was high among migrant respondents with a low-income level. The results of the analysis revealed that male respondents were less likely to incur catastrophic healthcare expenditure as compared to female respondents. Irrespective of the results, respondents aged 60 years and above were twice as likely to experience catastrophic healthcare expenditure (OR = 2.761). The analysis indicated a significant association between catastrophic healthcare expenditure and several socio-economic variables, including region, gender, age, employment status, income level, and the presence of health complications among migrant populations in Mumbai. These findings underscore the need for targeted financial protection mechanisms for migrants with low socio-economic status. Based on the evidence, it is recommended that the existing government health insurance scheme, Ayushman Bharat–Sarbat Sehat Bima Yojana, be expanded to cover outpatient services and diagnostic expenses commonly incurred by migrant workers in urban settings such as Mumbai.

8.4 Quality of Healthcare Services Utilized by the Migrant Laborers

The present study evaluates the quality of healthcare services utilized by the migrant laborers by using the SERVQUAL Model (Parasuraman, 1988). The SERVQUAL model assesses the quality of healthcare services utilized by the migrant labor with the help of six dimensions viz. tangibility, assurance, reliability, responsiveness, empathy and improvement in care service. These six factors measure the satisfaction derived by migrant labor on the utilization of healthcare services in Mumbai. The present study measures the gap between the expected and perceived mean of service quality against each item within every dimension of the SERVQUAL model. The analysis of the six dimensions was covered based on the 34 parameters, which formed a part of the study. The results from the Bartlett Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) measure confirmed the adequacy of the data matrix for factor analysis, indicating that the dataset was both suitable and statistically robust for further examination. The SERVQUAL model was employed to perform a gap analysis, comparing patients' expectations with their actual perceptions of healthcare service quality, thereby assessing the overall effectiveness and responsiveness of the healthcare delivery system.

In terms of tangibility, the largest gap (0.37) was due to the inability to provide the right treatment in the first instance. In case of reliability, the most significant gap (0.95) was observed in the perception of doctor's attitude towards migrant patients. For the assurance dimension, the highest gap (0.53) pertained to the perception of the doctor's reputation. For the responsiveness dimension, the largest gap (0.67) was related to the care extended towards the migrant patient. In terms of empathy, the most significant gap (0.83) was connected to the polite attitude of the hospital staff towards the patient. The most significant gap (0.80) was also observed in the

appropriateness of care service provided by the healthcare facility staff to the patient. The zone-wise correlation analysis of the attributes of service quality showed a positive correlation with the tangible, reliable, assurance-related, responsive and empathy-oriented aspects of service quality. Further, the zone-wise multiple regression analysis highlighted a positive relationship between the six dimensions of the service quality. The quality of healthcare services is not only about technical efficiency but also about the lived experiences of individuals, especially the socially and economically vulnerable, such as migrant laborers. Understanding and addressing the multifaceted dimensions of healthcare quality is critical for ensuring health equity and positive outcomes.

8.5 Policy Implications

The following policy recommendations have been drawn based on the empirical findings of the study to address the healthcare access, affordability and financial protection for migrant workers.

1. There is a need to improve the accessibility and affordability of public healthcare services for the migrant laborers as they often face difficulties reaching government facilities and utilize costlier private hospitals as shown by the empirical findings. Thus, expanding infrastructure and ensuring affordable healthcare services in areas with high migrant populations is highly required as they do not have any health protection coverage from the employer.
2. There is a need to reduce out-of-pocket inpatient care expenses by enhancing public healthcare financing and introducing targeted financial protection schemes, as the data shows many migrant laborers still depend on the informal borrowing/coping strategies to inadequate health insurance coverage.
3. Most of the workers surveyed are engaged in informal sector and do not have any informal health protection mechanism. Thus, a need to integrate wage compensation or sickness benefit schemes into healthcare policy to offset indirect costs, as findings reveal that wage losses from illness often exceed direct medical expenses for migrant workers, deepening their financial vulnerability.
4. There is a need to expand and simplify the access to target health financing mechanisms for the migrant labourers such as cashless treatments and direct benefit transfers for the low-income migrant households, as evidenced by the high reliance on out-of-pocket and borrowed funds, to reduce inpatient care burdens.

5. The government can launch regular health screenings and deploy mobile care units to manage chronic illnesses like diabetes, hypertension, tuberculosis, and heart disease, which are shown by the study to be highly prevalent among migrant laborers, ensuring early detection and ongoing, affordable care especially near to the workplaces of the migrant workers.
6. There is a dire need to introduce short-term income protection schemes, including sickness benefits and job security provisions, as the analysis indicates that indirect wage losses due to chronic illness contribute significantly to the economic strain on migrant workers.
7. The government should make it a mandate for the employers especially in the informal sector to provide preventive healthcare services for their workers near to the workplaces. This policy measure can improve early detection, reduce health risks, and ensure better well-being among vulnerable labour groups.
8. The high rates of catastrophic health spending revealed by empirical data call for expanding public health insurance to cover both inpatient and outpatient services, increasing public health funding, and offering free or subsidized care to reduce financial hardship.
9. Considering the nature of their work, it is essential to design target health insurance, income-based subsidies and expand the public healthcare services zone-wise and income-group can help to reveal high catastrophic health expenditures among low-income, salaried, and homemaker migrant households.
10. On the basis of the empirical findings, it has been suggested to focus on the key service quality factors such as responsiveness, reliability, assurance, empathy and tangibility in healthcare delivery, as regression analysis indicates their significant impact on patient satisfaction and trust among migrant laborers.
11. Implement zone-specific training and quality improvement programs focused on assurance, empathy, and reliability, as evidenced by zone-wise regression results, to ensure consistent, equitable, and patient-centered care across all regions.

8.6 Scope for Future Research

Future research can be carried out to cover the following research areas:

- 1) Assess migrant labor's awareness, healthcare cost and coping strategies for co-morbidities using longitudinal data across time in the Mumbai Metropolitan Region.
- 2) Evaluate zone-wise knowledge and awareness of migrant labor regarding common diseases and preventive measures about healthcare issues within the Mumbai Metropolitan Region.
- 3) Compare healthcare expenditure and financial impact on migrant labor with and without health insurance coverage in Mumbai Metropolitan Region.
- 4) Examine the role of public versus private healthcare facilities in shaping healthcare choices among migrant laborers in the Mumbai Metropolitan Region.

8.7 Conclusion of the Study

The study has examined the healthcare utilization, cost, catastrophic expenditure and quality of healthcare services availed by the migrant laborers. The study has found that the workers faced a huge economic burden due to healthcare utilization. With the rise of epidemiological conditions, the cost of treating and managing healthcare conditions and comorbidities is increasing and leads to a high out-of-pocket payment for healthcare and sometime leads to catastrophic healthcare expenditure and impoverishment among migrant workers with low socio-economic status. The study clearly suggests in designing innovative awareness programs and government campaigns to educate individuals about the consequences of lifestyle modification, sedentary lifestyle, early detection etc. The government should make it a mandate for the employers especially in the informal sector to provide preventive healthcare services for their workers near to the workplaces. This policy measure can improve early detection, reduce health risks, and ensure better well-being among vulnerable labor groups. There is a need to expand and simplify the access to target health financing mechanisms for the migrant laborers such as cashless treatments and direct benefit transfers for the low-income migrant households, as evidenced by the high reliance on out-of-pocket and borrowed funds, to reduce inpatient care burdens. There is a need to improve the accessibility and affordability of public healthcare services for the migrant laborers as they often face difficulties reaching government facilities and utilize costlier private hospitals as shown by the empirical findings. Thus, expanding infrastructure and ensuring affordable healthcare services in areas with high migrant populations is highly required as they do not have any health protection coverage from the employer.

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APPENDIX-I

Questionnaire

S. No.

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Dear Respondent,

This survey is circulated to conduct a study on **Health of Migrant Labor in Mumbai Metropolitan Region**. You are requested to spare time from your busy schedule to fill this questionnaire. The information provided by you will be kept confidential and will be used for academic purpose only. Please read the questions carefully and answer your response by putting an appropriate response code against the option that best reflects your opinion. Feel free to write down any observations or remarks next to the questions or at the end of the questionnaire. Your responses are important for us.

Neel Ukidave

Research Scholar

Lovely Professional University Punjab

SECTION 1: SOCIO-DEMOGRAPHIC PROFILE

Q.No .	Questions	Coding categories	Response
1.1	Zone	(Specify).....	
1.2	Gender	Thirdgender – 1 Female – 2 Male – 3	
1.3	Age	Upto 18 years – 1 18 to 25 years – 2 25 to 35 years – 3 35 to 45 years – 4 45 to 55 years – 5 55 to 65 years – 6 65 years and above - 7	
1.4	Religion	Sikh – 1 Hindu - 2 Muslim - 3 Christian - 4 Buddhist - 5 Jain - 6 Jewish - 7 Parsi - 8 Others (Specify)..... ...	
1.5	Caste	General - 1 OBC - 2	

		SC - 3 ST - 4		
		Others - 5 (Specify)..... ...		
1.6	Marital status	Single – 1 Married – 2 Divorced - 3		
1.7	Highest qualification	Illiterate – 1 No formal education but can read and write – 2 Primary – 3 Secondary – 4 Higher Secondary – 5 Others – 6		
1.8	Occupation	Construction – 1 Fishing – 2 Shopkeeper – 3 Factories – 4 Others - 5		
1.9	Type of family	Joint – 1 Nuclear – 2		
1.10	Number of family members	Upto 2 members – 1 2 to 4 members – 2 4 to 6 members – 3 6 members and above – 4		
1.11	Number of working family members	Upto 2 members – 1 2 to 4 members – 2 4 to 6 members – 3 6 members and above – 4		
1.12	Number of children in the family	Upto 2 – 1 2 to 4 – 2 4 to 6 – 3 6 and above – 4		

1.13	Type of house	Kaccha – 1 Semi-pacca – 2 Pacca – 3		
1.14	Status of ownership of house	Self-owned – 1 Rented - 2		
1.15	Monthly income			
1.16	Whether you belong to BPL?	Yes – 1 No – 2		
1.17	Specify the state you have migrated from?			
1.18	Do you have an agricultural land in your hometown? If yes, what is its size?	No – 1 Yes - 2 (Specify Size if yes)		
1.19	Type of account held	Bank Account – 1 Post office – 2 Chit fund – 3 SHG – 4 Others – 5		
1.20	Average working hours during the day	Upto 3 hours – 1 3 to 6 hours – 2 6 to 8 hours – 3 8 hours and above – 4		
1.21	Enrollment in any health insurance scheme	Yes – 1 No – 2		

1.22	On an average, in a month how much do you spend (in Rupees) on ...	Food Utilities (electricity, water, cable, phone, etc.) Healthcare Education Recreation Savings Clothing Travelling		
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SECTION 2: MORBIDITY PATTERN & HEALTHCARE UTILIZATION

Q.No.	Questions	Coding categories	Response
2.1	Do you or your family member have any episodes of illness over the past one month?	Yes – 1 No – 2	
	If answer to 2.1 = 2, skip to next section		
2.2	What illness he/she had?	Cold/Fever - 1 Cold/Cough - 2 Stomach ache/ Other related problem - 3 Cholera - 4	

		Wound - 5 Malaria - 6 Typhoid - 7 Headache - 8 Diarrhoea - 9 Pneumonia - 10 Body ache/ Backache - 11 Gastric problem/ Acidity - 12 Breathing problem - 13 Swelling in the body - 14 Dehydration - 15 Others (Specify)		
2.3	How serious was the illness?	Not serious - 1 Do not know - 2 Quite serious - 3 Very serious - 4		
2.4	Whether any type of doctor/facility was visited for treatment?	Yes – 1 No - 2		
2.5	What type of doctor / facility was visited for treatment? (MULTIPLE RESPONSE POSSIBLE)	Government hospital - 1 Private hospital - 2 Private Clinic - 3 Homeopathic - 4 Pharmacist (govt./private) - 5 Chemist - 6 RMP/Local doctor - 7 Hakim/Faith healer - 8 Midwife - 9 Others (Specify)		

2.6	Whether the visited facility was easily accessible?	No – 1 Yes - 2		
2.7	Distance travelled to visit the facility in km	Km		
2.8	How much did your household have to spend (in rupees) for the last episode of Illness?	Consultation fee Investigation (X-ray, Test etc.) Medicine Transportation Others (specify)		
2.9	How did your household pay for this treatment? (MULTIPLE RESPONSE POSSIBLE)	Own money - 1 Borrowed money from neighbour - 2 Borrowed money from friends - 3 Borrowed money from the employer - 4 Support from relatives - 5 Sold jewellery, belongings and goods - 6 Mortgage assets - 7 Health Insurance - 8 Others (Specify).....		
2.10	Did you take leave / suffer wage loss to seek treatment?	No =1 Yes = 2		

2.11	How many man days did you lose?	Days		
2.12	How much money did you lose?	₹		
2.13	Did the accompanying person take leave / suffer wage loss?	No =1 Yes = 2		
2.14	How many man days did him/her loss?	Days		
2.15	Is yes, how much money did him/her loss?	₹		
2.16	What was the reason for not seeking care? (MULTIPLE RESPONSE POSSIBLE)	Could not get away due to work - 1 Did not have money - 2 Minor complaints that don't call for professional assistance - 3 Long wait to meet doctor - 4 Others (Specify)		
2.17	Any self-treatment taken for the illness?	No - 1 Yes - 2		

2.18	Did you or any one in your household hospitalized over the past one year?	No - 1 Yes - 2		
If answer to 2.18 = 2, skip to next section				
2.19	Why were the migrant labour hospitalized during the past one year?	Chemotherapy - 1 Cardiac issues - 2 Gastro-intestinal issues - 3 Cholera - 4 Malaria - 5 Typhoid - 6 Neurological issues - 7 Diarrhoea - 8 Pneumonia - 9 Injury due to accidents - 10 Respiratory problems - 11 Others (Specify)		
2.20	How serious was the illness?	Not serious - 1 Do not know - 2 Quite serious - 3 Very serious - 4		
2.21	Whether any type of doctor / facility was visited for treatment?	No =1 Yes =2		
2.22	What type of doctor / facility was	Government hospital =1 Private hospital =2 Private Clinic =3		

	visited for treatment? (MULTIPLE RESPONSE POSSIBLE)	Others (Specify)..... ...		
2.23	Whether the visited facility was easily accessible?	No =1 Yes =2		
2.24	Distance covered to visit facility...	km.....		
2.25	How much did your household have to spend (in Rupees) for the last episode of illness?	Hospital fee Consultation fee Investigation (X-ray, test etc.) Medicines Transport Others (Specify)..... ... Total		

2.26	How did your household pay for this treatment? (MULTIPLE RESPONSE POSSIBLE)	Own money =1 Borrowed money from neighbour =2 Borrowed money from friends =3 Borrowed money from the employer=4 Support from relatives=5 Sold jewellery, belongings and goods=6 Mortgage assets =7 Insurance =8 Others (Specify).....		
2.27	Did you take leave / suffer wage loss to seek treatment?	No =1 Yes = 2		
2.28	If yes, how many man days did you lose?	Days		
2.29	How much money did you lose?	₹		
2.30	Did the accompanying person take leave / suffer wage loss?	No =1 Yes = 2		
2.31	How many man days did him/her lose?	Days.....		

2.32	Is yes, how much money did him/her loss?	₹.....		
2.33	Did any member of your household suffer from a chronic disease?	No = 1 Yes =2		
If 2.33 = 2, skip to next section				
2.34	What chronic disease she/he had? (MULTIPLE RESPONSE POSSIBLE)	Diabetes - 1 heart disease - 2 High blood pressure - 3 High cholesterol - 4 Tuberculosis - 5 Cataract - 6 Chronic asthma - 7 Arthritis - 8 Others (Specify).....		
2.35	Did he/ she take treatment for this condition?	No =1 Yes =2		
2.36	If yes then what is the average monthly (in Rupees) cost for this?	₹		

2.37	What type of doctor / facility was visited for treatment? (MULTIPLE RESPONSE POSSIBLE)	Government hospital =1 Private hospital =2 Private clinic =3 Homeopathic =4 Others (Specify).....		
2.38	Whether the visited facility was easily accessible?	No =1 Yes =2		
2.39	Distance covered to visit facility...	Km.....		
2.40	Did you take leave / suffer wage loss to seek treatment?	No =1 Yes = 2		
2.41	If yes, how many man days did you loss?	Days		
2.42	How much money did you loss?	₹		
2.43	Did the accompanyin g person took leave / suffer wage loss?	No =1 Yes = 2		

2.44	How many man days did him/her loss?	Days.....		
2.45	Is yes, how much money did him/her loss?	₹		
2.46	If no, why is no treatment taken for this illness? (MULTIPLE RESPONSE TYPE QUESTION S)	Inconvenient =1 Cannot afford =2 Not available =3 Others (Specify).....		

SECTION 3: QUALITY OF HEALTHCARE SERVICES UTILISED

Factor	Statement	Response				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Put a “✓” below the appropriate header against each statement						
Factor 1 - Tangibility						
1.1	Modern equipment availability					
1.2	Visually appealing facilities					
1.3	Hospital capable to handle patients problems					

1.4	Explanation of prescription by nurses					
1.5	Cleanliness of wards, bedding and floor					
1.6	Willingness to help patients					
1.7	Delivering correct treatment for first time					
1.8	Nurses are providing comfortable services					
Factor 2 - Reliability						
2.1	Explanation of treatment properly by doctors					
2.2	Doctors professional appearance					
2.3	Fulfilment of promised services					
2.4	Maintenance of error free records					

2.5	Regularity of services provided by hospitals					
2.6	Hospitals providing regular water supply and electricity					
Factor 3 - Responsiveness						
3.1	Caring towards patients from doctors					
3.2	Individual attention towards patients					
3.3	Convenient hours for consulting doctors					
3.4	Explanation of prescription by nurses					
Factor 4 - Assurance						
4.1	Feeling safe in the hands of doctor					
4.2	Accuracy of patients records					
4.3	Hospital capable to handle patients problems					
Factor 5 - Empathy						
5.1	Polite attitudes of employees					
5.2	Explaining the details					

5.3	Listen to the patient					
5.4	Understand and consider the patient's situation					
5.5	A sense of closeness and friendliness					
5.6	Hospital knows what the patient wants					
Factor 6 – Improvements of care service						
6.1	Appropriateness of care service provided					
6.2	Recognition and efforts for the best treatment by the medical staff					
6.3	Improvement in medical condition as a result of efforts and treatment					
6.4	Degree of explanations to the patient to prevent related diseases					
6.5	Degree of efforts and willingness to prevent disease					

6.6	Improvement of disease through this hospital's treatment					
6.7	Degrees of disease prevention to communities					
Factor 7– Satisfaction						
7.1	Overall rating of the hospital					
7.2	Communication with doctors					
7.3	Communication about medicine with the pharmacist					

Thank you for your valuable insights and the time you took to respond.

Economic Impact of Cardiovascular Diseases on Migrant Labour: A Systematic Review

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Abstract

The systematic review article is aimed at analysing the economic impact of cardiovascular diseases on migrant labour in Mumbai. During the last decade, there has been a rise in the spread of cardiovascular diseases amongst labour migrants in Mumbai. These rising cases have been looked upon as a growing cause of concern by the government and the policymakers. Changing lifestyle and professional hardships are the detrimental factors for the rising instances of cardiovascular diseases amongst the migrant labour in Mumbai. Thus, this review article seeks to consider the economic impact of rising cardiovascular diseases on the healthcare expenditure of migrant labour in Mumbai from the related literature reviewed. Extensive literature was reviewed from Scopus, Web of Science, Springer and Google Scholar. The eligibility criterion for the literature review was based on the PICO framework (P—Population, I—Intervention, C—Comparison and O—Outcome). Studies available in the English language and indexed in Scopus, Web of Science, Springer and Google Scholar between 2011 and 2021 were considered for review. The result indicates that the median cost of medication spent by a migrant labourer for treatment of cardiovascular diseases in the Mumbai metropolitan region was estimated to be ₹22,049, ₹42,537 being the median cost of hospitalisation and ₹5,411 being the average cost spent on transport to the healthcare facility for the treatment of cardiovascular diseases. This study highlights that the treatment of cardiovascular diseases causes an economic burden on the migrant labour migrating into the Mumbai metropolitan region (MMR) and dwelling in the seven different zones into which the MMR region is divided. The study also suggests the need for the introduction of healthcare schemes to economise the treatment of cardiovascular diseases for migrant labour in the MMR region.

Keywords

Treatment of cardiovascular disease, migrant labour, catastrophic, insurance, healthcare expenditure, cardiovascular diseases, economic impact

Introduction

According to the Indian Medical Association, a cardiovascular disease, commonly known as heart disease, is a general term for conditions affecting the heart or blood vessels. It is usually associated with the deposition of fats inside the arteries, resulting in an increased risk of blood clots. Cardiovascular diseases are attributed to damage to the arteries in various organs of the body. The cardiovascular or circulatory system supplies the body with blood. It consists of heart, veins, arteries and capillaries (Lau et al., 2024; Rao et al., 2011; Satyavani et al., 2014). Cardiovascular diseases have been the most common cause of death worldwide (Volgman et al., 2018).

In Mumbai, migrant labourers have increasingly witnessed cardiovascular diseases. Around 68% cases of the illnesses suffered by the migrant labour in Mumbai during 2011–2021 were related to cardiovascular diseases. Stressful work conditions and long working hours, accompanied by a lack of proper diet, form the major causes of cardiovascular diseases amongst the migrant labour (Balarajan et al., 2011; Barua, 2005; Dhanaraj, 2016; Khoshakhlagh et al., 2024; Singla

et al., 2019). Treatment of cardiovascular diseases accounts for 36% of an average migrant household's earnings. This puts Mumbai amongst the top 10 cities worldwide in terms of the amount spent by the migrant labour on the treatment of cardiovascular diseases. This indeed has a long-lasting and devastating impact on the overall healthcare expenses incurred by a migrant labourer's family (Luengo-Fernandez et al., 2024; Quintussi et al., 2015). Such an economic burden has left less amount of disposable income in the hands of migrant labour for spending on the necessities of the migrant labour and their family. A migrant labourer spends around 41% of their disposable income on healthcare expenses, of which around 79% is on account of treatment of cardiovascular diseases (Albasheer et al., 2024; Glynn et al., 2011).

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