

A STUDY ON MODEL FRAMEWORK DEVELOPMENT FOR JUBICARE SMART HEALTH CENTERS

Dissertation Submitted to



The IIHMR University, Jaipur

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Master of Business Administration (MBA)

in

Hospital and Health Management

By

Anupam Chadha

Under the Supervision and Guidance of

Dr Vinod Kumar SV

2024

CERTIFICATE

This is to certify that **Mr. Anupam Chadha** in partial fulfillment of the requirements for the award of the Degree of MBA Hospital and Health Management from the IIHMR University, Jaipur has successfully completed his internship at IIHMR University, Jaipur during March 15, 2024 to June 15, 2024.

Place: Jaipur

Date: 28/6/2024

A handwritten signature in blue ink, appearing to read 'Anupam Chadha', is written over the printed name.

Representative
IIHMR University, Jaipur

DECLARATION BY STUDENT

I hereby declare that this dissertation titled Model Framework Development for Jubicare Smart Health Centers is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Anupam Chadha
(Signature)

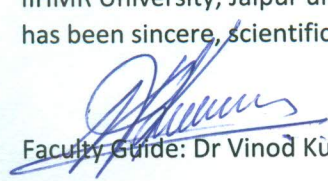
Name of Student: Anupam Chadha

Date: 28/6/2024

Appendix F: Certificate from Faculty Guide and School Dean

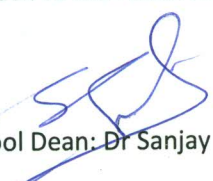
CERTIFICATE

This is to certify that dissertation titled **Model Framework Development for Jubicare Smart Health Centers** is a record of the research work undertaken by Anupam Chadha in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and his approach to the research study has been sincere, scientific, and analytical.


Faculty Guide: Dr Vinod Kumar SV

IIHMR University, Jaipur

Date: 28/6/2024


School Dean: Dr Sanjay Gupta

IIHMR University, Jaipur

Date: 28/6/2024

ABSTRACT

Title:

A Study on Model Framework Development for Jubicare Smart Health Centers

Author Name:

Anupam Chadha

Advisor Name:

Dr. Vinod Kumar SV

Keywords:

Jubicare Smart Health Centers, Healthcare Accessibility, Feasibility Study, Community-Based Approach, Tier 2, 3, and 4 Cities, Jhajjar Haryana

Abstract:

The Jubilant Bhartiya Foundation, the CSR wing of the Jubilant Bhartiya Group, aims to enhance healthcare facilities in underserved regions by addressing severe health challenges faced by geographically remote and economically challenged areas. This study assesses the feasibility of establishing Jubicare Smart Health Centres in Jhajjar, Haryana, and develops a replicable model framework for these centers in various geographic locations.

Background:

Severe health challenges in remote and economically disadvantaged areas necessitate the establishment of smart health centers to improve the accessibility, affordability, and availability of essential healthcare services.

Objective:

To assess the feasibility of establishing Jubicare Smart Health Centres in Jhajjar, Haryana, and develop a model framework that can be implemented in other geographic locations.

Methodology:

A mixed-methods approach was adopted, combining qualitative and quantitative research techniques. The qualitative phase included interviews with key stakeholders, while the quantitative phase involved household surveys using 14 selected health indicators. Data was collected from 250 households in Jhajjar over three months.

Results/Findings:

The study identified potential sites for health centers and assessed the healthcare needs of the local population. It highlighted the feasibility of establishing these centers based on community needs, infrastructure availability, and market potential. Key findings include the importance of community participation and empowerment in healthcare delivery.

Conclusions:

The feasibility study concludes that establishing Jubicare Smart Health Centres in Jhajjar, Haryana, is viable. These centers can effectively address healthcare disparities in underserved regions, promote health literacy, and empower communities to actively participate in their healthcare. The study provides a model framework that can be replicated in other

Acknowledgements

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TABLE OF CONTENTS

Chapter	Title	Page No.
I	CHAPTER 1- Introduction	7
II	CHAPTER 2- Review of Literature	8
III	CHAPTER 3- Methodology	24
IV	CHAPTER 4- Results	27
V	CHAPTER 5- Recommendations	42

LIST OF FIGURES

Table No	Table Description
1	Overview of Jhajjar
2	Selection of Areas
3	Description of Areas
4	Types of facility
5	Frequency of Visits to Health Centres
6	Mode of Transport
7	Loss of Household Income
8	Loss of Income for sick days
9	Preferred Type of Facility (Locality Wise)
10	Preferred Type of Facility (Damdama Mohalla)
11	Preferred Type of Facility (Chhawani)
12	Preferred Type of Facility (Silani Gate)
13	Specific Issues for Health Services
14	Community Expectations and Willingness
15	APL/BPL Status
16	Willingness to Pay

LIST OF TABLES

Table No	Table Description
1	Community Scenario
2	Household Income

Abbreviations

Abbreviation	Full Form
CT	Computed Tomography
EMBASE	Excerpta Medica Database
GAIA	Global AIDS Interfaith Alliance
HWCs	Health and Wellness Centres
ICU	Intensive Care Unit
MEDLINE	Medical Literature
MHCs	Mobile Health Clinics
MRI	Magnetic Resonance Imaging
PEC	Primary Eye Care
PROSPERO	International Prospective Register of Systematic Reviews
SSA	Sub-Saharan Africa
WHO	World Health Organization

CHAPTER 1

Introduction:

The Jubilant Bhartiya Foundation is the CSR wing of Jubilant Bhartiya Group. It was established in the year 2007 with the vision to bring social change with stakeholder engagements and partnerships. One of the objectives of the foundation aims to strengthen basic healthcare facilities and address the severe health challenges faced by geographically remote and economically challenged regions. These areas are the ones suffering from lack of access to quality healthcare services, which leads to rise in health disparities and

challenges for the community. To mitigate these challenges and issues, the Foundation aims to establish robust healthcare infrastructure in Tier 2, 3, and 4 cities, enhancing the accessibility, affordability, and availability of essential healthcare services. This project, titled Jubicare Smart Health Centers, seeks to bridge the healthcare gap by community-based approach and by establishing smart health clinics based on the requirements of the community.

In collaboration with the IIHMR University Jaipur, a comprehensive needs assessment will be conducted to develop a model framework for the proposed health centers. This partnership is to ensure that the framework made is evidence-based and tailored to the unique needs of the target regions. The study will employ a mixed-methods strategy combining qualitative and quantitative research techniques, to assess the feasibility and sustainability of the health centers. Under this study, in-depth interviews with key stakeholders namely district health officials, local representatives, and healthcare providers, as well as household surveys in the region shall be conducted. These efforts will give valuable insights to the healthcare needs of the communities and feasibility of the smart clinics in the target regions.

Objectives: To assess the feasibility for Smart Health Centres in Jhajjar, Haryana

- a. To identify potential sites for the facility with respect to infrastructure and quality of care.
- b. To identify the specific healthcare needs of the local population in the target region
- c. To analyse the market potential for a new health facility, including potential patient volumes and capacity to pay.
- d. To develop a model framework for replicating Jubicare health centres in different geographic locations.

CHAPTER 2

Review of Literature

Literature Review 1:

Acceptability, Feasibility, and Cost of Telemedicine for Nonacute Headaches: A Randomized Study Comparing Video and Traditional Consultations

Objectives:

In this case, the objective was to assess whether patients and clinicians considered telemedicine consultations for non-acute headache as acceptable and feasible and, most importantly, whether it is less costly than the traditional face-to-face visit.

Methodology:

Synthesis of the findings from at least two papers, which could include meta-analysis of RCTs, observational studies, and/or cost analysis reports. The review entailed data extraction and meta-analysis depending on the type of studies reviewed.

Duration:

The reviewed studies covered approximately 10 years of research on workspace design.

Key Findings:

- o Telemedicine proved only a slight difference from face-to-face consultation on the quality of care for headaches.

- o A number of the respondents mentioned that it has cut travel and facility costs.

High PAT with a good outcome which suggests that telemedicine may conquer geographical barriers in order to meet patient's health needs.

Literature Review 2:

Approaches to the follow-up care procedure of patient in Intensive Care Unit and safely implement of intervention.

Objectives:

To evaluate different models of care delivery mainly telemedicine and in person care for follow up care after ICU discharge.

Methodology:

Synthesis of meta-ethical, meta-ontological, hermeneutical and other phenomenological analyses of follow-up care in ICU clinical trials, cohorts as well as qualitative studies. Consisted of results of patients' outcomes, recruitment efficiency, and correspondingly, follow-up compliance rates.

Duration:

Research carried out in the last fifteen years.

Key Findings:

The models of follow-up care for patients after ICU stays often encountered difficulties with low enrollment and high rates of subjects' attrition.

- o Telemedicine follow-up has shown potential; however, these interventions' effectiveness could not be backed up by ample evidence.

- o Follow-up conducted in person was less effective in terms of enrollment and attrition rates, thus indicating the concept's need for better and more versatile follow-up care systems.

Literature Review 3:

The Use Of Mobile Health Clinics In Enhancing Availability Of Health Services

Objectives:

The extent of utilization of the MHCs in enhancing the health status of the poor and vulnerable population groups.

Methodology:

An extensive literature review on observational studies, program evaluations, and cost-benefit analyses of MHC.

Duration:

Different works of the last two decades.

Key Findings:

- o MHCs greatly opened up access to health facilities in the rural and other uninhabited calibrated urban areas.
- o Patients stated that they were satisfied with MHCs because easy to access and readily available.
- o Cost-effectiveness was revealed to be possible for MHCs however, they were discovered to struggle with issues concerning financing, staff provision, and development of links with primary healthcare systems.

Literature Review 4:

CHWs' Education and Training in Low Resource Contexts

Objectives:

As the specific objectives The purpose of this paper is to assess the effectiveness of CHW programs on the health of populace residing in rural, and other developing regions.

Methodology:

Assessment of the most recent intervention research, randomized clinical trials, and other evaluations of activities involving CHWs.

Duration:

Literature research completed for the last twenty-five years.

Key Findings:

- o CHW programs achieved positive changes in the health status of women, infants, and youths and maternal, child, and communicable diseases as well as chronic diseases.
- o CHWs were central in enhancing healthcare and improving health literacy among the rural and under privileged groups.
- o The extent and sustainability of CHW programs were largely determined by the level of training and supervision, as well as a clear linkage to the existing health facilities.

Literature Review 5:

Effectiveness of HL Interventions and its relationship with Health Outcomes

Objectives:

Health literacy can be defined as the process through which an individual acquires, understands, and applies health-related information to make sound health decisions. The primary purpose of using health literacy is to evaluate the effectiveness of different kinds of interventions on patients' health.

Methodology:

Health literacy intervention-based randomized controlled trial and observational research and program evaluation.

Duration:

Literature survey carried out during the past one and half decade.

Key Findings:

- o Health literacy interventions impacted patients' knowledge, self-management, and their general compliance to treatment regimens.

Some of the successful interventions were education sessions, coaching, as well as the use of technology.

Candidates identified challenges which include; Patients' literacy, and the interventions need to fit the cultural and contextual niches of the intervention setting.

Literature Review 6:

Challenges faced by African Elderly People in Accessing Health Care

Objectives:

To examine the existing literature concerning perceived obstacles in rural healthcare and investigate possible methods of overcoming them.

Methodology:

Synthesis of existing literature that contains general and systematic reports on the determinants of healthcare access, such as patient self-attitude and health system analysis.

Duration: Nearly 20 years.

Key Findings:

- o Some of the key factors observed were challenges in transportation, high costs and shortage of the health personnel.

- O Telemedicine and movement of mobile clinics proved to be efficient solutions to enhance always access.

- o The success of the outlined interventions in the healthcare sector of such regions, however, depended on having community support and favorable policies that supported such initiatives.

Literature Review 7:

An Assessment of the Use of Telehealth in Chronic Disease Management

Objectives:

To assess the impact of the program and discern the efficacy of telehealth interventions when treating persons with chronic health conditions.

Methodology:

Literature review of RCTs, cohort studies, and meta-analyses, whereby telehealth is the intervention for chronic disease management.

Duration: Published research based over the last 20 years.

Key Findings:

- o It was also helpful in the administration of chronic disease including diabetes, hypertension, and cardiovascular diseases where telehealth showed benefit in the remote areas.
- o Outcomes captured were enhancement of health status, number of hospitalizations, and charges for diseases.
- o Some threats are technology acceptance facilitators, patient involvement concerns, and legal restrictions among others.

Literature Review 8:

This study was on the Effects of health education on preventive health behaviour.

Objectives:

To evaluate the extent to which health education programs have an influence on the promotion of preventive health behaviors.

Methodology:

Critical analysis of intervention based research and program evaluation studies concerning the use of behaviour change theories in health education.

Duration: Different researches of the last two decades.

Key Findings:

- o Health education program initiatives facilitated a noteworthy enhancement of the preventive health measures including the use of vaccinations, change in diet and exercise regimens.
- o The successful programs were characterized by being interactive, culturally appropriate, and based on community participation.
- o The, the sustainability of the outcome of the health education programs depended on the consistent education of the members of the society.

Literature Review 9:

This paper aims to identify the best strategies that can be used to enhance the quality of health care provided to the poor and vulnerable population.

Objectives:

To review and select possible approaches for enhancing the outlook on the health care quality in the areas of limited income.

Methodology:

This will be a systematic review of published articles in quality improvement programs, capacity building programs and patient self-management interventions.

Duration:

Several researches that have been undertaken in the last a quarter of a century.

Key Findings:

- o There were capacity enhancement, quality improvement and patient centeredness.

- o Data and technology were also found to have been of significance in bettering the endeavors aiming at improving quality.
- o It required commitment from the health-care providers and policy makers, involvement of the community, grasping the local context and a long term approach.

Literature Review 10:

How can community based health interventional be made cheap?

Objectives:

When one is interested in the comparative assessment of the cost of one health intervention in relation to another.

Methodology:

Systematic analysis of all published research articles on cost-effectiveness and cost-utility of community health interventions published in and after 1st January 2000 and program evaluations, cost-benefit analysis of integrated community health interventions.

Duration: Different researches that has been undertaken in the last two decades.

Key Findings:

- o Vaccination operations, mother and child health activities, and disease control measures were economically efficient and effective in enhancing the health of the people in the community.
- o All these interventions pointed to the fact that interventions need to be sustained, people need to own the process, and governments as well as NGOs' support is necessary.
- o Unfortunately, sustenance of these interventions required continuous reinvestment and more importantly the participation of the communities.

Tabular Form for Literature Reviews

Author	Study Location	Sample Size	Sample Techniques	Salient features
Kai Ivar Müller ^{1, 2} Author Orcid Image ; Karl Bjørnar Alstadhaug ^{2, 3} Author Orcid Image ; Svein Ivar Bekkelund ^{1, 2} Author Orcid Image	Norway	402	open-labeled noninferiority randomized clinical trial	1. Telemedicine vs. Traditional Consultations: The study compares the effectiveness and cost savings of telemedicine consultations to traditional in-person visits for patients with non-acute headaches in Northern Norway. 2. Geographic and Demographic Focus: The study involves patients from remote and rural areas, addressing access challenges due to Northern Norway's severe physical terrain and unpredictable weather. 3. Outcome Measures: Key outcomes include patient acceptance of telemedicine, cost and travel savings, and assessment of headache impact using tools like the Visual Analogue Scale (VAS) and HIT-6.
Stephanie Dimopoulos, MBBS a, d , Nina E. Leggett, DPT b, c, d , Adam M. Deane, MBBS PhD a, c , Kimberley J. Haines, PhD b, c, e , Yasmine Ali Abdelhamid, MBBS PhD	Australia	15 quantitative studies	15 qualitative studies	1. Comparison of Follow-Up Models: The study systematically reviews various models of outpatient ICU follow-up care, comparing in-person hospital visits to telemedicine interventions, with an emphasis on recruitment rates, retention, and intervention delivery. 2. Challenges and Factors Influencing Engagement: Key

				factors affecting patient engagement in follow-up care include patient perceptions, timing and flexibility of interventions, and health system continuity. Face-to-face requirements and geographic barriers were significant obstacles to participation. 3. Potential of Telemedicine: The review highlights the potential benefits of telemedicine for ICU follow-up care, particularly in improving recruitment and retention rates by offering flexible, non-hospital-based interventions. It emphasizes the need for further research on telemedicine's effectiveness and feasibility.
Ada Aghaji ,Helen E. D. Burchett,Shaffa Hameed,Clare Gilbert	Nigeria	All patients in hospital for 30 Sep 2012 to 30 march 2015	Stratified Random sampling	1.Eye Health Challenges and Prevention: Sub-Saharan Africa has a high prevalence of uncorrected presbyopia, vision loss, and childhood blindness, which can often be prevented through primary health care interventions like vaccinations, vitamin supplementation, and early disease identification. Health promotion is crucial in raising community awareness and encouraging preventive measures and timely treatment for conditions like glaucoma and cataracts. 2. Barriers to Eye Care: Significant barriers to

				eye care in SSA include cultural beliefs, financial constraints, lack of trust in services, and low awareness of treatable eye conditions. Effective health promotion strategies, including the use of mobile technology and community health workers, are necessary to overcome these challenges and improve access to eye care services. 3. Policy and Capacity Gaps: The study identifies a need for better integration of eye health promotion into national health policies and emphasizes the importance of trained health professionals, adequate educational materials, and effective supervision. Addressing these capacity gaps and promoting eye health through existing primary health care systems can significantly improve eye health outcomes in the region.
Gullapalli N Rao, Rohit C Khanna, Sashi Mohan Athota, Varda Rajshekar, Padmaja Kumari Rani	India	NA	Random Sampling	1. Global and National Burden**: Blindness is a significant global health challenge, with India accounting for a large portion of the burden. WHO estimates 285 million visually impaired individuals globally, with India alone having 62 million visually impaired and 8 million blind people. The global initiative VISION 2020: The Right to Sight, launched in 1999, aims to eliminate avoidable blindness.

				2. National Efforts and Prevalence: India initiated the National Program for Control of Blindness (NPCB) in 1978, which targeted reducing the prevalence of blindness through increased cataract surgeries. Despite these efforts, blindness prevalence slightly increased by the late 1980s, with cataract remaining the leading cause. 3. LV Prasad Eye Institute Model: The LVPEI developed a pyramidal model to deliver equitable and efficient eye care, integrating eye health with other health systems.
Marco Matteo Ciccone, Ambrogio Aquilino, Francesca Cortese, Pietro Scicchitano, Marco Sassara, Ernesto Mola, Rodolfo Rollo, Pasquale Caldarola, Francesco Giorgino, Vincenzo Pomo & Francesco Bux	India	1160	Convenient Sampling	1. India's New Primary Health Care Policy and HWCs: The introduction of HWCs in 2018 represents a significant step towards providing high-quality basic healthcare in India, integrating palliative, rehabilitative, promotional, and preventive care into the existing primary care framework. 2. Community Perception and Service Utilization: A qualitative study in Chhattisgarh revealed that community members perceived HWCs positively, valuing the increased range of curative services, especially for noncommunicable diseases like diabetes and hypertension.

				3. ICU Follow-up Care Models: A systematic review by Dimopoulos et al. (2024) highlights the importance of ICU aftercare for patient outcomes and cost savings. Effective follow-up care models are crucial for survivors of ICU, who need regular monitoring and support.
Shriyuta Abhishek1 , Samir Garg1* and Vikash Ranjan Keshri1	South Africa	4700	Focused Group Discussion	1. Launch and Purpose of HWCs: In 2018, India introduced HWCs to provide comprehensive primary care, transforming existing Sub Health Centers (SHCs) and Primary Health Centers (PHCs) that previously focused on infectious diseases and reproductive health. 2. Community Perception and Utilization: A qualitative study in Chhattisgarh revealed that the availability of a wider range of curative services, particularly for noncommunicable diseases like diabetes and hypertension, was a significant improvement brought about by HWCs. While services for injuries, mental health, and dental care were perceived as lacking, advances in acute illness care were noted. 3. Challenges and Recommendations: Despite the positive feedback, community members faced challenges in accessing essential services at

				higher facilities, highlighting the need for improved referral coordination from HWCs. The study concluded that people are willing to use government primary healthcare services if they are relevant, accessible, and adequately meet their curative needs.
Jane Goudge*1, Lucy Gilson1,2, Steven Russell3, Tebogo Gumede1 and Anne Mills2	India	1446 Individual	Convenient Sampling	1. Current Systems and Variations: In Northern Ireland, the after-hours cooperative system allows GPs to delegate their duties and decide on the need for consultations. The Republic of Ireland has a similar system managed by GPs, with some co-ops employing nurse triage, affecting the frequency of face-to-face consultations. 2. Potential Benefits: The introduction of cross-border out-of-hours GP services could enhance cross-border relations and cooperation in primary care. 3. Challenges and Recommendations: Establishing a cross-border service involves several obstacles, including joint registration and indemnity issues, call management, local dispensing arrangements, an equitable complaints process, and financial arrangements due to structural and funding differences between co-ops.

Adrian Moore, Carol McQuillan, Stephen McAlister, Joanna Freeman, Andrew W Murphy, Catherine Loughrey, Scott Brown	India	581977	Convenient Sampling	1. High Utilization and Efficiency: MHCs operated with high attendance rates (93% in 2012, 99% in 2013), providing essential services like HIV testing and malaria treatment to a predominantly female and child population. 2. Impact on Health Outcomes: Significant reductions in clinical malaria cases were observed after the introduction of rapid diagnostic tests (RDTs), demonstrating effective management and treatment strategies. 3. Recommendations for Improvement: The study recommends expanding MHC services to reach more rural communities, increasing male participation in HIV testing, and enhancing monitoring to ensure sustained quality and effectiveness of services.
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CHAPTER 3

Research Question and Objectives

The research question guiding this study is: "Will it be feasible to establish smart health centres in Jhajjar, Haryana?" This question will be explored through a detailed feasibility assessment. The several key objectives for the study shall be:

1. To identify potential sites for the facility with respect to infrastructure and quality of care.
2. To identify the specific healthcare needs of the local population in the target region.
3. To analyse the market potential for a new health facility, understanding their feasibility by understanding potential patient volumes and the capacity to pay.
4. To develop a model framework for replicating Jubicare health centers in different geographic locations.

These objectives will guide the research and an examination of the feasibility of establishing Smart Health Centres in Jhajjar, Haryana.

Hypothesis

Assessment of feasibility factors for implementing Smart Health Centres in Jhajjar, Haryana

- Null Hypothesis (H0): It is not feasible to start Smart Health Centres in Jhajjar, Haryana.
- Alternative Hypothesis (H1): It is feasible to start Smart Health Centres in Jhajjar, Haryana.

Methodology

The study adopts a mixed-method approach, using both qualitative and quantitative data to give a comprehensive assessment. The study shall have 2 phases. In the qualitative phase, interviews will be conducted with district health officials, local representatives, and facility providers. This phase aims to identify potential areas for the health centers,

with three specific locations in Jhajjar being considered: Damdama Mohalla, Silani Gate, and Chhawani.

In the quantitative phase, data will be captured through household surveys using 14 selected health indicators. These surveys will help assess the feasibility based on the data under each indicator category. The study will utilize questionnaires for quantitative data collection and conduct qualitative interviews.

Setting and Population

The study is set in District Jhajjar, Haryana, and focuses on the local population. Inclusion criteria for interviewees are residents of the area who have the capability to answer the questions and provide informed consent. Individuals who refuse to consent will be excluded from the study. The study tools include qualitative questionnaires for interviews with district officials and a quantitative interview checklist for household surveys.

Duration and Sample Size

The study will be conducted over three months, with data collection taking place in March 2024. Total of 250 households will be surveyed using a convenient sampling method, where one respondent of each household will be considered.

Data Analysis and Ethical Considerations

The data will be analyzed to provide understanding of feasibility. Ethical considerations include obtaining verbal consent from households, ensuring the removal of all identifiers, and informing participants about the study's purpose to ensure voluntary participation.

Implications of Research

The findings from this feasibility study will provide valuable insights into the potential for establishing Jubicare Smart Health Clinics in the identified sites. The study will determine whether these centers can sustain themselves and deliver the needed services to the community.

CHAPTER 4

Findings of the Study Carried out in Jhajjar district

The geographically remote and economically disadvantaged regions with limited access to quality healthcare services urgently need improved healthcare infrastructure to meet the demands of their growing populations. This lack of infrastructure threatens these populations by leading to significant unmet medical needs and poor health outcomes. Improving the availability, cost, and accessibility of health services in the most underprivileged communities is one way to solve this problem. The core health problems that these communities face can be addressed by creating self-sufficient, easily accessible, reasonably priced, and high-quality health centers that prioritize basic preventative and curative care as well as health promotion initiatives.

In India, the shortage of healthcare services in Tier 2 and Tier 3 cities' metropolitan areas is an urgent problem that has to be addressed right now. These are the cities with rapid population expansion and development which have several health issues. This calls for the upgrading of infrastructure to bridge the large delivery gap in healthcare if it is to respond to demand of increasing magnitude. In addition, urban primary healthcare clinics (PHCs) and urban community health centers (CHCs), which underpin these cities' healthcare systems, are at most often times understaffed and lack essential medical supplies. The reason behind this is that many patients are compelled to access private hospitals, an option that majority cannot afford because of delayed services due to overcrowding or poor quality care.

Again due to absence of specialised health care facilities like cardiac care centres, cancer treatment centres and neurology clinic; patients are forced to travel long distances mostly into big towns. This overburdens the patients financially and delays their diagnosis as well as treatment

The COVID-19 pandemic has further exposed the weaknesses of health care systems in these cities. Lack of testing centers, isolation wards and ICU's have made it difficult to control the spread of the virus as well as offer appropriate care for those infected. Hence, the healthcare system in metropolitan districts of Tier 2 and Tier 3 cities ought to be improved immediately. This can be done by establishment of specialty hospitals, increase in public funding on health, and upgrading infrastructure and human resource capacity at PHC/CHC levels. Public-private partnerships are another option for enhancing healthcare delivery.

Additionally, preventive healthcare should focus on encouraging good habits that promote healthy living such as routine check-ups instead of waiting until a person falls ill before seeking medical attention. Furthermore, digital health technologies like telemedicine and smartphone health apps can improve accessibility to healthcare services.

In conclusion, improved healthcare facilities in urban areas around Tier 2 and 3 cities are important for ensuring equitable access to medical services, improving patient outcomes and achieving SDGs related to health. Therefore, collaboration among government departments; industry players; NGOs etc will be necessary in order to achieve this goal.

Challenges in Tier 2 and Tier 3 Cities

The research further also established that the Tier 2 and Tier 3 cities have poorly developed infrastructure. These manifestations lead to excessive waiting time and congestion that delay treatment contributing negative impact to the outcome of treatment.

Lack of Medical Personnel: The health services delivery system is under threat from the shortage of human capital; particularly doctors willing to practice in such cities.

High Cost of Capital: This makes it difficult for the healthcare institutions to put up capital to acquire new technology or enhance on the existing facilities since they encounter difficulties in financing due to its high costs or limited capital.

Regulatory Challenges: Regulatory hassles and frequently ambiguous policies, at times, hinder evolution and progressive enhancement in healthcare sectors negatively as investors are reluctant to enter the field due to numerous problems.

Socioeconomic Factors: This inevitably results in people getting the right care at the right time because they cannot afford comprehensive and proper healthcare and lack knowledge on how to access it.

Cultural ideas: Culture plays a role in seeking medical care; people are often discouraged by cultural values from seeking early treatment and therefore end up receiving inadequate or treatment that is received late.

Payment Delays: There are findings suggesting that there has been delay in releasing payment to the healthcare providers especially those who have rendered their services to the government programs and hence financial constraints may be a limiting factor as far as guaranteeing the quality healthcare to the patients is concerned.

Results of the Study Carried out

Jubilant Bhartiya Foundation's Initiative

To provide a solution for the poor and remote communities who have minimum access to high-quality medical care, the Jubilant Bhartiya Foundation has proposed an idea of establishing health clinics in tier 2, 3 and 4 metropolitans. It is noteworthy that Foundation has made an important contribution aimed at bridging such healthcare disparities.

One of the main features of this initiative is community participation. The neighborhood health centers are not just isolated structures but part and parcel of neighborhoods. They

relate with residents through programs on wellness, health education or even outreach for purposes of increasing health literacy. This will facilitate early treatment seeking behavior among individuals, adherence to treatment plans and improved choices about issues pertaining their own health.

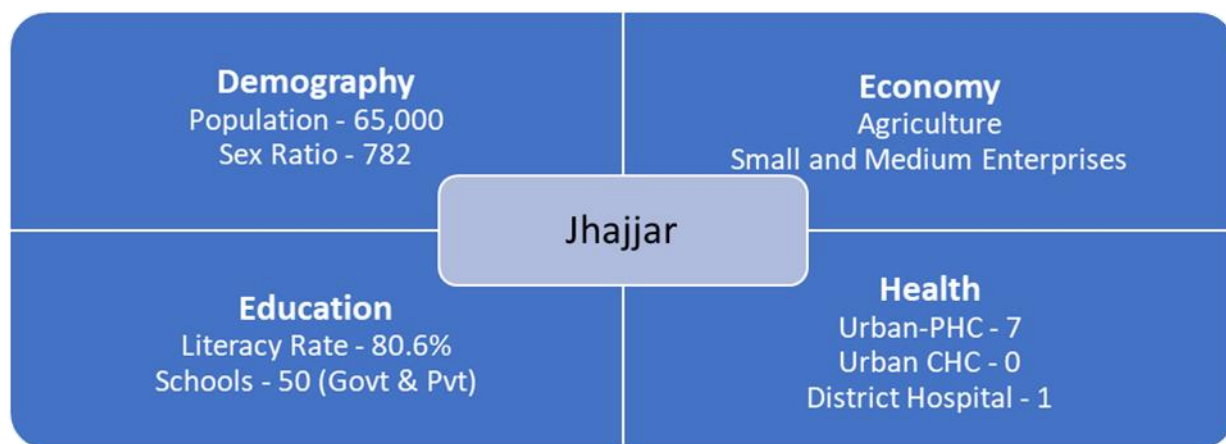
Finally, empowerment is a vital objective. Thus mission of these healthcare institutions is to enable people play active roles in their own medical care by providing them with knowledge about their entitlements besides knowing when they are sickly in order to seek for medication as well as remaining healthy and taking decisions in relation to their wellbeing. Furthermore, empowering the society means that it can support projects being carried out on health—advocate for better service provision—contribute towards policy formulation concerning good health.

Conclusion

Jubilant Bhartiya Foundation has presented a proposal to put in place health facilities in urban cities classified as Tier 2, 3 and 4 representing a significant improvement of healthcare in these areas. The knowledge of IIHMR University makes the project appear very well thought out and community oriented action for addressing health related issues. These health centers are hoping to transform the way medical care is being provided in these towns by focusing on quality, involvement of communities, empowering those who live with illness or disease and making healthcare easily available. This initiative ensures that every member of the society irrespective of their location and financial status can access healthcare thereby promoting healthy living, preventing ill health and nurturing communities. As other states try to gain universal accessibility to its citizens' public, this approach could be an example for them.

Jhajjar, Haryana

Fig 1: Overview of Jhajjar



Jhajjar town is located in the district of Haryana, Jhajjar. It lies adjacent to Gurgaon-Bhiwani, Charkhi Dadri-Delhi, Loharu-Meerut and Rewari-Rohtak important road connections. In a span of ten years from now, it will have almost sixty five thousand person residing in it. Its high level of military enlistments makes this city famous throughout the region. Small to medium scale enterprises and farming are the backbone of the economy in that province

According to Niti Aayog's ranking of larger states, Haryana ranks 12th out of 19 states concerning the Health Index. The state faces significant health challenges, including issues with the sex ratio and high rates of anemia among children, women of reproductive age, and pregnant women. Jhajjar district has the highest healthcare out-of-pocket expenditure among other districts, with the average spending for delivery in public health facilities being approximately Rs 3316. It is well-known that reducing out-of-pocket healthcare expenditure improves overall public health in the long run. Providing affordable, accessible, and quality healthcare when needed can significantly enhance health-seeking behavior and the population's health.

In this context, the Jubilant Bhartiya Foundation is committed to improving health-seeking behavior by enhancing the availability, accessibility, and affordability of healthcare services in Jhajjar. A sample survey was conducted in Jhajjar City to assess the current healthcare services and the needs of the population. The first step involved in-depth interviews with district officials, including those from the Health Department of the Municipal Council. Additionally, mapping all healthcare facilities was conducted to understand their geographic distribution across the city. Based on the interviews and facility findings, three localities were identified: Chaawni, Sailani Gate, and Damdam

Mohalla. In each locality, a household survey was conducted to understand the community's needs and identify current gaps in healthcare.

Fig 2 : Selection of Areas

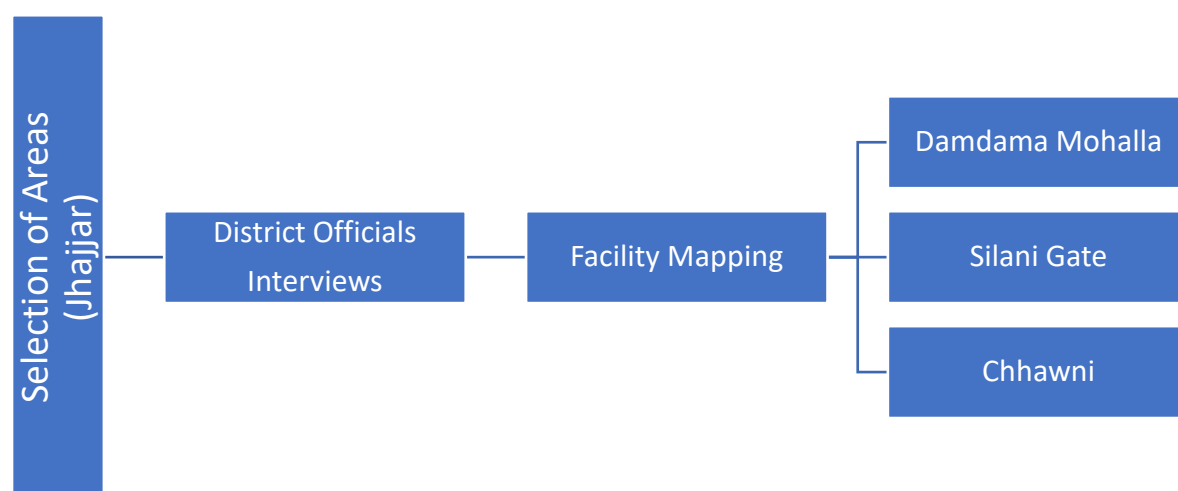
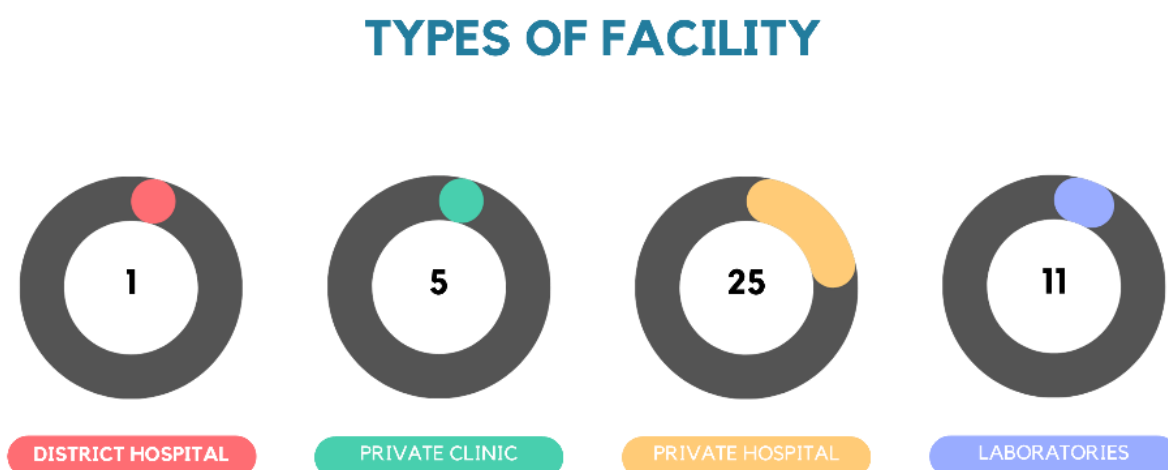


Fig 3: Description of Areas

DAMDAMA MOHALLA	Damdama Mohalla is the area in Jhajjar City, where most of the migrant workers prefer to stay as the living expenses in this area is low. There are no health facilities in the vicinity, nearest facility is a private hospitals which is costlier for the population staying in this area.
SILANI GATE	Silani Gate is another area in the Jhajjar city where a mixed population lives belonging to low to high income household. Also many facilities are available, nevertheless the health facilities are scattered and on the costlier end in terms of cost of healthcare.
CHHAWNI	Chhawani area in the city is also popular for migrant population, as similar to damdama cost of living is much lower compared to other areas. However there are several health facilities are functional which are specially catering to low socio economic status households.

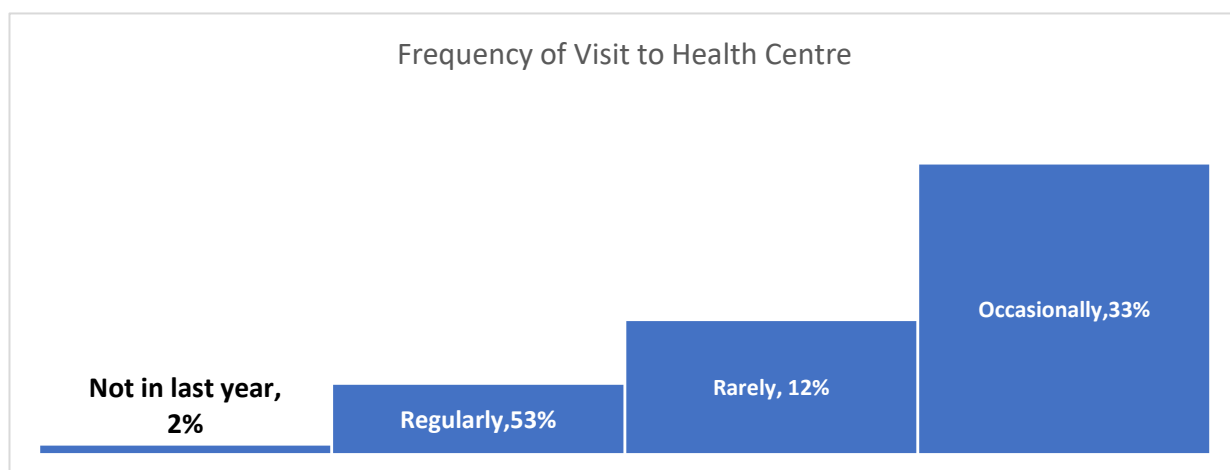
Current Scenario

Fig 4 :Facility Types



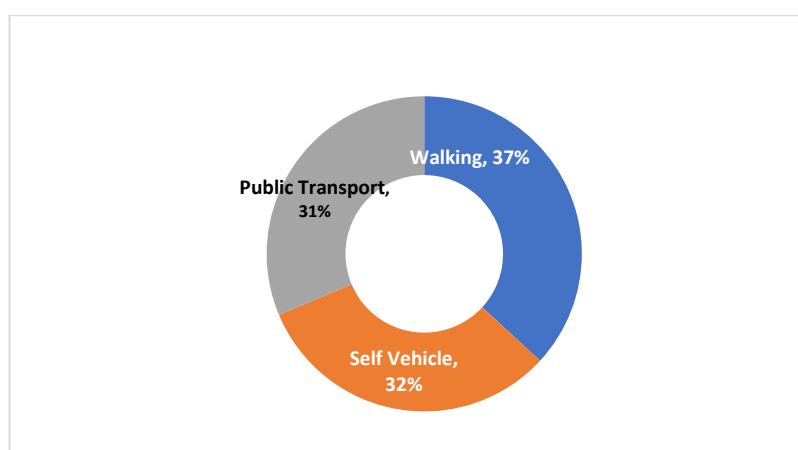
Understanding the current health infrastructure in Jhajjar is crucial for analyzing the population's needs and requirements. The city has one district hospital, known as the civil hospital, located in the western part of the city near the state highway. Although it is within the city limits, its position on the outskirts makes it less accessible for residents in the far eastern areas of the city. Additionally, there are a number of private healthcare facilities in Jhajjar, mostly in the western and northwest regions. These institutions include hospitals, clinics, and laboratories. As a result, people who live in other places frequently need to travel a long way to get these services.

Fig-5: Frequency of Visit to Health Centre



A key consideration in determining the population's demands is how frequently they visit medical institutions. Most people who live in Jhajjar (86%) go to the doctor at least once or twice a month. Due to long wait and travel times, a large percentage of the population misses work because of this high frequency, which forces them to take time off.

Fig 6: Mode of Transport



Another critical aspect of the health system is the accessibility of services in the population's living area. This assessment found that most respondents preferred healthcare facilities within walking distance to minimize travel time and expenses. This

preference aligns with studies conducted in urban areas of various cities, which indicate that distance to healthcare facilities significantly impacts healthcare-seeking behavior. Additionally, the mode of transportation chosen to access healthcare services is closely linked to household income. Lower-class households are more likely to favor walking over driving, and this preference is also seen in individuals who utilize public transit. The data gathered for this assessment as well as the literature both support this correlation.

Table 1

Community Scenario

Household Details

Name of the Area	Total Household	Total Members	Males	Females
Damdama Mohalla	95	534	341	193
Silani Gate	69	406	257	149
Chhawani	57	318	200	118
Total	221	1258	798	460

A total of 221 households were surveyed in Jhajjar, spanning three areas of the city. On average, each household comprised at least five members, with a gender distribution of 798 males (63%) and 460 females (37%).

Table 2

Household Income

Locality	Total Household	Mean Household Income (Annual)
Damdama Mohalla	88	180420.5
Silani Gate	51	214176.5
Chhawani	67	311701.5

Total	206	231475.7
Note – 15 Household denied providing information on household income		

Damdama Mohalla in Jhajjar City is predominantly home to migrant workers, which is evident in its lower average household income. Following Damdama Mohalla, Silani Gate and Chhawani have the next lowest household incomes. Silani Gate and Chhawani feature a mixed population with both low and high household incomes.

Fig 7: Household Loss of Income

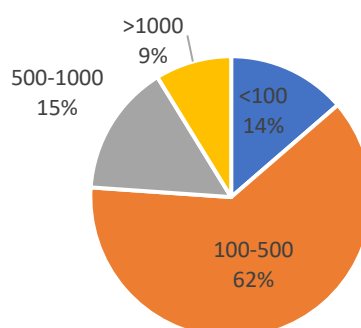


Fig 8: Loss of income for Sick days

When individuals fall ill, they often have to take time off work to focus on their health, which can place a significant strain on household income and responsibilities. This is particularly burdensome if the illness progresses to a severe condition or becomes chronic. In Jhajjar, many residents work as daily wage earners, and their absence from work means they are not paid for those days, creating a substantial financial burden on their households. According to the survey, 14% of households lose less than 100 rupees daily, 62% lose between 100-500 rupees, and 24% lose more than 500 rupees each day they miss work. This financial strain is further compounded by out-of-pocket healthcare expenses.

Fig 9: Preferred type of facility (locality-wise)

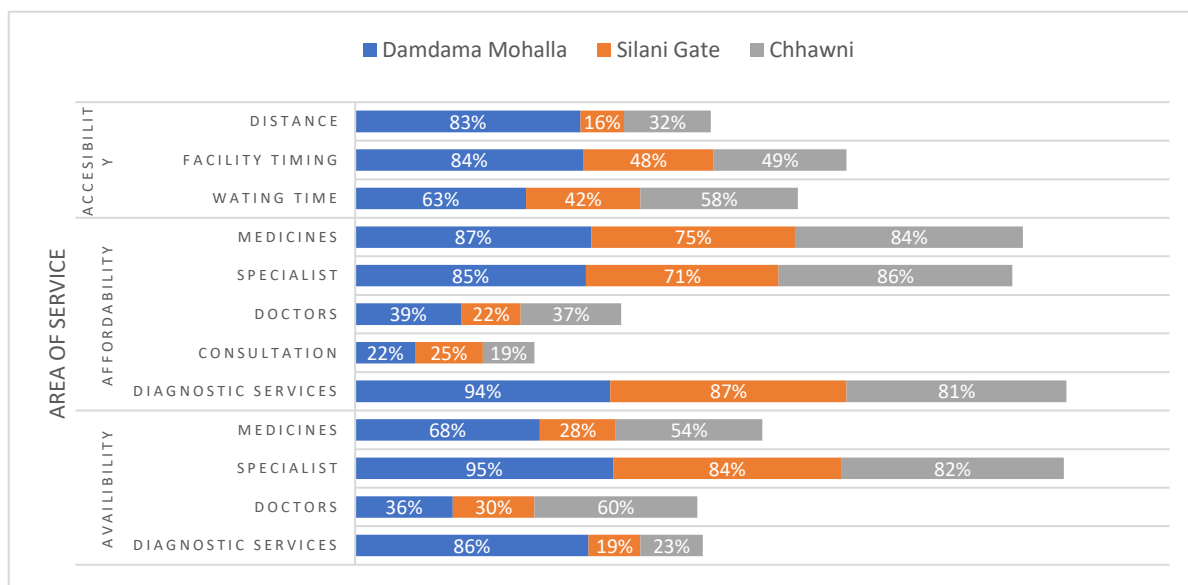


Fig 10 : Reasons for facility Usages: Damdama Mohalla

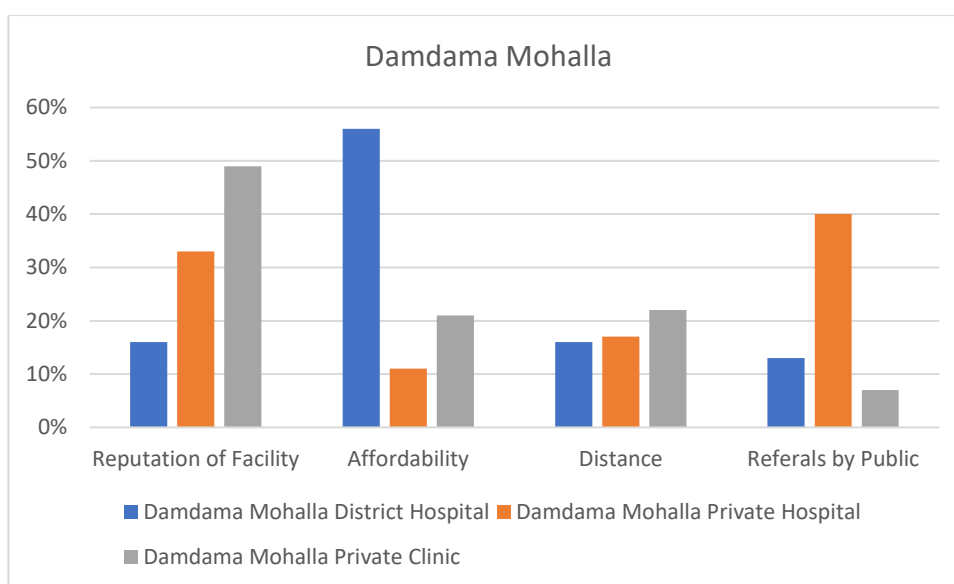


Fig 11 : Reasons for facility Usages: Chhawani

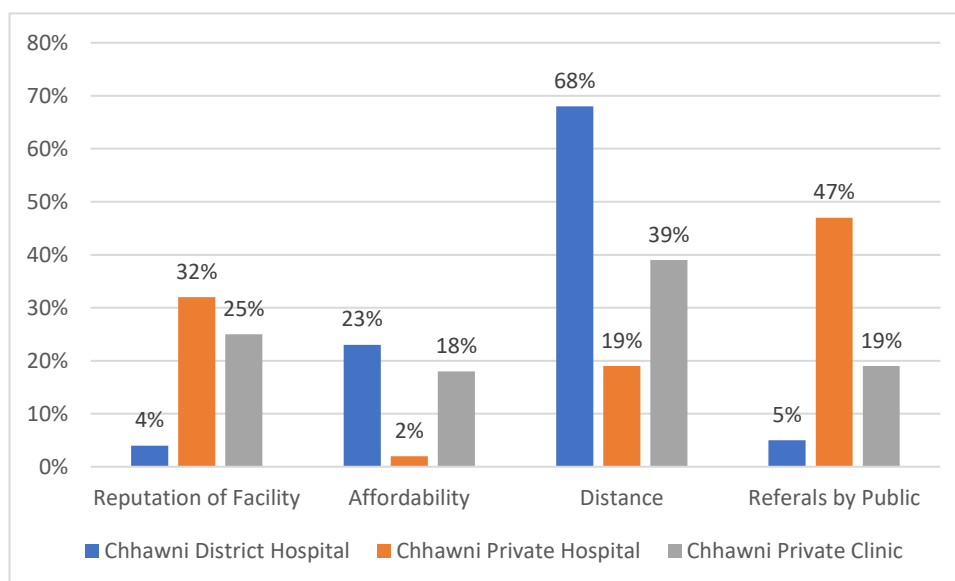


Fig 12 : Reasons for facility Usages Silani Gate

Silani Gate			
Reasons	District Hospital	Private Hospital	Private Clinic
Reputation of Facility	9%	28%	35%
Affordable	54%	9%	12%
Distance	28%	25%	43%
Recommendation by Public	10%	39%	10%

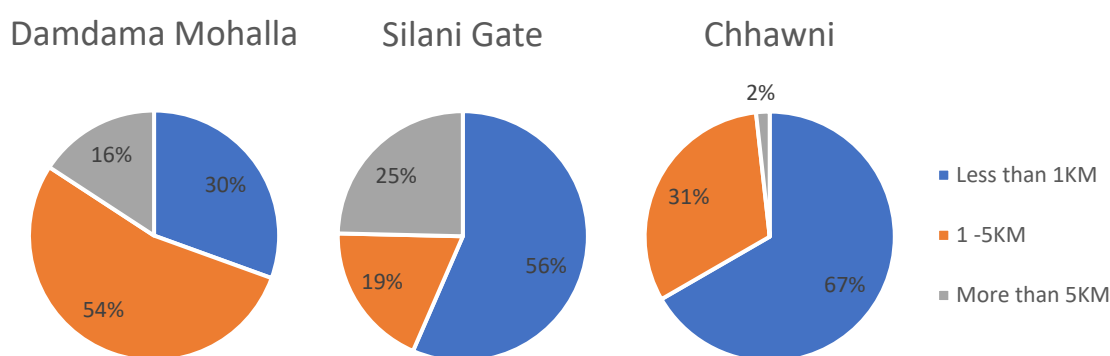
Fig 13 : Specific Issues of Health Services

Area	Services	Damdama Mohalla	Silani Gate	Chhawani
Availability	Diagnostic Services	86%	19%	23%
	Doctors	36%	30%	60%
	Specialist	95%	84%	82%
	Medicines	68%	28%	54%
Affordability	Diagnostic Services	94%	87%	81%
	Consultation	22%	25%	19%
	Doctors	39%	22%	37%
	Specialist	85%	71%	86%
Accessability	Medicines	87%	75%	84%
	Waiting Time	63%	42%	58%
	Facility Timing	84%	48%	49%
	Distance	83%	16%	32%

Diagnostic Services in the above table refers to diagnostic services like X-Rays, CT Scans and various radiology and laboratory services required by the public as per responses.

Households were surveyed extensively across three main categories: availability, affordability, and accessibility of healthcare services. In Damdama Mohalla, specific concerns included the availability of diagnostic tests and specialists, the affordability of diagnostic tests, specialist fees, and medicines, as well as accessibility issues related to facility timings and distance. In the Silani Gate area, significant concerns were raised regarding the availability of specialists and the affordability of diagnostic tests. Meanwhile, in the Chhawni Area, households highlighted issues related to the availability of specialists, and concerns about the affordability of diagnostic tests, medicines, and specialist fees were also prevalent.

Fig 14 : Willingness to Travel



Household residents were questioned about their willingness to access services near their homes and their travel preferences for necessary services. In Damdama Mohalla, nearly 60% of households expressed readiness to travel up to 5 km for services, provided that all necessary facilities such as diagnostic tests and medical consultations with same-day reports were available without the need for follow-up visits.

Conversely, 25% of residents in Silani Gate indicated a willingness to travel more than 5 km for services, but only if specialist care was affordable. They generally expressed satisfaction with current local health facilities but noted a preference to travel farther for specialist services. Specifically, 19% of residents were prepared to travel over 5 km for specialist care due to the current practice of referring serious cases to Delhi or AIIMS Rohtak, leading to additional out-of-pocket expenses and delays in receiving desired treatments. Residents indicated they would be willing to pay extra for local services comparable to those offered in Rohtak and Delhi.

Similarly, residents of Chhawani shared similar sentiments regarding travel willingness, with over 30% stating they would happily travel up to 5 km for services if they were convenient and affordable.

Income Status

Households were also questioned about availability of Below Poverty Line Cards. The charts below show the availability status of the cards with the households. In Chhawani Households, 64% had BPL cards, 32% had APL cards and 4% people refused to answer. In Dumdama Mohalla, 63% had BPL cards, 30% had APL cards and 7% people refused to answer. In Silani gate Households, 57% had BPL cards, 38% had APL cards and 5% people refused to answer.

Fig 15: Population with APL/BPL Cards

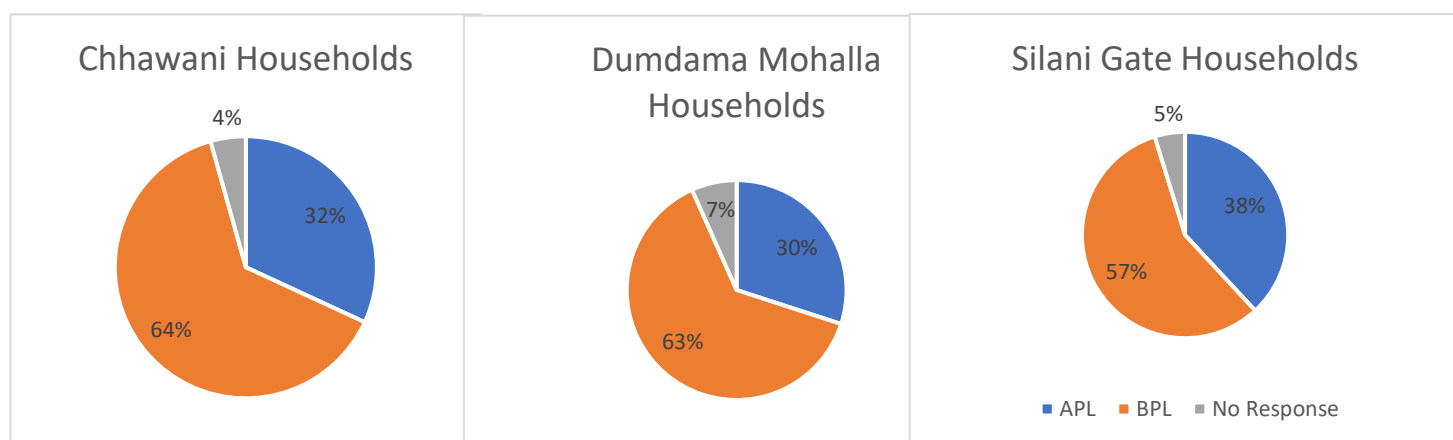
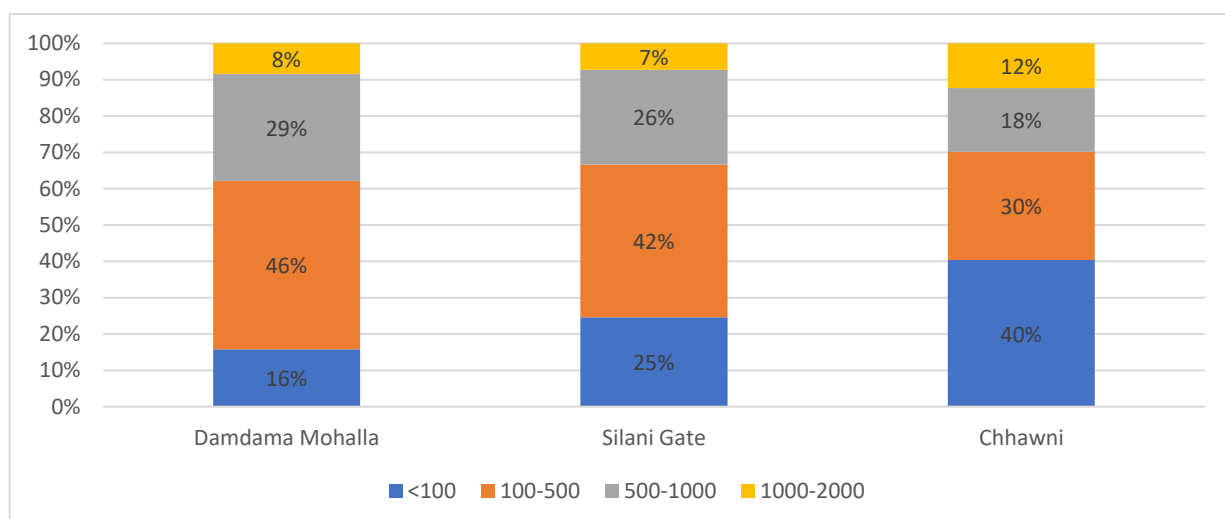


Fig 16: *Willingness to Pay*



Residents from all three areas were surveyed regarding their willingness to pay for consultation services. In Damdama Mohalla, 46% of residents expressed readiness to pay between Rs. 100-500, while 29% were willing to pay between Rs. 500-1000, and 8% were prepared to pay between Rs. 1000-2000 for these services. Conversely, in Silani Gate and Chhawani, 42% and 30% of residents, respectively, were willing to pay between Rs. 100-500. For payments between Rs. 500-1000, the figures were 26% for Silani Gate and 18% for Chhawani, which was lower compared to Damdama Mohalla. Yet, a greater proportion of people in Chhawani were willing to spend up to Rs. 100, while on the other hand, a higher percentage were also willing to pay between Rs. 1000 and Rs. 2000, indicating the area's mixed socioeconomic demographic.

The services that residents thought were important and that they would be prepared to pay for were also examined in the study. This included access to modern diagnostics at reasonable costs, availability of medications, and consultations with tertiary care specialists. Residents' demand for local tertiary care services was discovered through in-depth talks; at the moment, they are referred to AIIMS Rohtak for problems that may be addressed at the city level. The price of prescription drugs and diagnostic testing was a one of the key determinant of willingness to pay. In order to avoid the high costs of lodging, meals, and transportation when seeking services in Delhi or Rohtak, residents indicated a readiness to spend more locally. This attitude is motivated by the goal of cutting costs overall while yet having access to local services that are equivalent.

CHAPTER 5

Recommendations

The community's needs, expectations, and willingness to pay are all carefully considered, and it is determined that Damdama Mohalla is the best place to open Jubicare Health Centers. This center can ably serve both people living in Damdama Mohalla and the neighboring societies. In line with their willingness to pay for these necessary services, the community has shown a strong desire for such services as cheap drugs, modern diagnostics, tertiary/specialist care.

Clearly, Chhawni is second in priority after Damdama Mohalla. Locals are aware of the clinics that exist and they prefer them since they are cheaper than both government and private hospitals and have shorter waiting times too. This need is driven by the convenience of quick access to treatment without long waits.

In short, if Jubicare Health Centres are set up in Damdama Mohalla and Chhawni as planned, it could address healthcare needs of these localities. These centers may enhance community health outcomes while at the same time making sure that they remain sustainable as well as affordable to all people from their places by prioritizing provision of essential services that are of value to the local population who are ready to pay for them.

Reference:

1. Müller KI, Alstadhaug KB, Bekkelund SI. Acceptability, Feasibility, and Cost of Telemedicine for Nonacute Headaches: A Randomized Study Comparing Video and Traditional Consultations. *J Med Internet Res*. 2016 May 30;18(5):e5221.
2. Ciccone MM, Aquilino A, Cortese F, Scicchitano P, Sassara M, Mola E, Rollo R, Caldarola P, Giorgino F, Pomo V, Bux F. Feasibility and effectiveness of a disease

- and care management model in the primary health care system for patients with heart failure and diabetes (Project Leonardo). *Vascular health and risk management*. 2010 May 6:297-305.
3. Aghaji A, Burchett HED, Hameed S, Gilbert C. Assessing the capacity of primary health care facilities in Nigeria to deliver eye health promotion: Results of a mixed-methods feasibility study. *PLOS Glob Public Health*. 2022 Nov 11;2(11):e0000645.
 4. Rao GN, Khanna RC, Athota SM, Rajshekar V, Rani PK. Integrated model of primary and secondary eye care for underserved rural areas: the LV Prasad Eye Institute experience. *Indian journal of ophthalmology*. 2012 Sep 1;60(5):396-400.
 5. Abhishek S, Garg S, Keshri VR. How useful do communities find the health and wellness centres? A qualitative assessment of India's new policy for primary health care. *BMC Primary Care*. 2024 Mar 19;25(1):91.
 6. Dimopoulos S, Leggett NE, Deane AM, Haines KJ, Abdelhamid YA. Models of intensive care unit follow-up care and feasibility of intervention delivery: a systematic review. *Australian Critical Care*. 2024 May 1;37(3):508-16.
 7. Goudge J, Gilson L, Russell S, Gumede T, Mills A. Affordability, availability and acceptability barriers to health care for the chronically ill: longitudinal case studies from South Africa. *BMC health services research*. 2009 Dec;9:1-8.
 8. Bhandari L, Dutta S. Health infrastructure in rural India. *India infrastructure report*. 2007;2007:265-85.
 9. Moore A. Feasability study for the provision of cross border out of hours GP services.
 10. Geoffroy E, Harries AD, Bissell K, Schell E, Bvumbwe A, Tayler-Smith K, Kizito W. Bringing care to the community: expanding access to health care in rural Malawi through mobile health clinics. *Public health action*. 2014 Dec 21;4(4):252-8.