Health Care Facilities and Their Utilisation: A Geographical Study of Baran District (Rajasthan)

Thesis Submitted to the
Vardhman Mahaveer Open University, Kota
for the award of the degree of
Doctor of Philosophy (Ph.D.)
In
Geography

Under the Supervision of
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Submitted by
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I, **Saniya Khan**, solemnly declare that this Ph.D. thesis entitled '**Health Care Facilities and Their Utilisation: A Geographical Study of Baran District (Rajasthan)**' is my own written work and that the work of others used in this Ph.D. thesis has been ample acknowledged and referred. This Ph.D. thesis does not consist of any material that has been submitted previously for the award of any other academic diploma, degree, or fellowship.

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Vardhman Mahaveer Open University *(Saniya Khan)*

List of Abbreviations

AIIMS-All India Institute of Medical Science
ANM- Auxiliary Nurse Midwives
ASML- Above Mean Sea Level
AYUSH-Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
CHC- Community Health Centre
CMHO- Chief Medical Health Officer
DLHS- District Level Household and Facility Survey
ECHS- Educational Commission for Health Sciences
ER- Emergency Room
GDP- Gross Domestic Product
GIS- Geographic Information System
GP- General Practitioner
HDI- Human Development Index
MCH- Maternal and Child Health
MPW- Multipurpose Health Worker
NFHS- National Family Health Survey
NHP- National Health Policy
NIHFW-National Institute of Health and Family Welfare
NMEP- National Malaria Eradication Programme
PHC- Primary Health Centre
PVTG- Particularly Vulnerable Tribal Group
RHS- Rural Health Survey
SC- Sub Centre
SDG- Sustainable Development Goals
SPSS- Statistical Package for Social Sciences
UGC- University Grand Commission
WHO- World Health Organisation

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Preface

Health is one of the priorities in every individual's life. Its importance is evident in old saying "Health is Wealth". Health is a vital aspect of human life and development of individual in particular nation as a whole. It is inevitably linked to actualization of human energy, capacity and potential for using economic and human resources in order to bring prosperity and happiness. Therefore, health is a common theme in all cultures and different communities have their own concept of health as part of their cultures. Health, today, is considered an integral part of human development. The definition of health as given by the World Health Organisation (WHO), describes health as a state of complete physical, mental, social and spiritual well-being and not merely as absence of disease or infirmity and the ability to lead a socially and economically productive life". The modern medical facilities are striving towards achieving this multi-faceted concept of health for the population.

The shortage and imbalanced distribution of health care facilities have deteriorated the national, social and economic system. Rajasthan falls among the BIMARU states of the country. The study area (Baran district) also has lag behind than other districts of the state in different aspects of development. Thus, the prevailing conditions of rural and traditional socio-cultural and economic system, coupled with poor education and utter poverty conditions among people, are responsible for ill health and malnutrition among them. Therefore, ill health of people, especially mothers and children and rapid growth of population, needs a systematic examination of impact of space, socio-cultural, rural and economic setting. In this connection, the present study has been undertaken to examine, evaluate and provide causal interpretation of the factors operating across socioeconomic, spatial and temporal dimensions which would be of immense use to solve the problems faced at the front of health care.

In pursuance of policies, over a time, a vast network of healthcare institutions has been created in the rural and urban areas of the country. Increased availability of healthcare and its utilization has contributed to the improved health status of the population as reflected in the improved life expectancy and decline in mortality and a fall in the birth rate to some extent. However, these achievements have not been uniformed across the various states and districts or between rural and urban areas in the country. It becomes inevitable to examine and evaluate status of Healthcare facility utilisation to uncover its

determinants, problems and related issues which negate the success. The present study aims to analyse the mentioned issues in reference to Baran district of Rajasthan.

The present study is arranged into six chapters. **Introduction** incorporates conceptual background, review of literature, objectives, hypotheses and data sources and methodology. **First Chapter** provides a detailed account of physico-cultural setting of the Baran district whereas **Chapter Second** is devoted to analyse spatio-temporal distribution of health care facilities in the study area. **Third Chapter** discusses utilization pattern of health care facilities according to socio- demographic characteristics of the respondents. **Chapter Four** deals with the practices and beliefs of healthcare among tribes of district Baran. **Fifth Chapter** elaborates people's perception towards available health care facilities in the district. In the **Sixth Chapter** an attempt has been made to unfold the problems coming in the way of optimum utilization of health care facilities in the same chapter planning and recommendations to overcome the problems envisaged, have been proposed. At the end, selected bibliography and appendices are given.

Abstract

The way in which health services are provided, used and have an impact on health outcomes is heavily influenced by health systems and policies. The Bhore Committee Report, also known as the Report on the Health Survey and Development Committee, was published in 1946 and is often referred to as a seminal document for India, from which the country's current health systems and policies have developed. The principles on which the current public health-care systems were based were the recommendation for a three-tiered health-care system to provide preventive and curative healthcare in rural and urban areas, placing health workers on government payrolls and reducing the need for private practitioners. Based on the demographic norms of the population, a three-tiered system of public health care infrastructure has been designed.

In terms of quality of care, the concept of accessibility encompasses factors such as geographic accessibility, the availability of the appropriate level of care for individuals who need it, financial accessibility, and acceptability of services are parameters of utilization. (Peters and Murlidharan, 2008).People from different geographic locations may use healthcare at varying rates or in different ways, even if their healthcare needs are the same. Numerous studies have revealed significant disparities in healthcare utilisation between urban and rural areas in both high-income and lower-middle-income nations. Geographic disparities in healthcare utilisation may also be caused by variations in geographically relevant characteristics, such as the quantity and type of healthcare facilities(Mulyanto, et al. 2019).A basic human need that can only be satisfied by high-quality medical care is maintaining one's health and general well-being. Informal and formal healthcare are the two main types of care. In the informal sector, healthcare is not a market-based activity. In a domestic or neighbourhood environment, families and communities give care. The vast majority of medical care is given on an informal basis. For instance, family, friends, and neighbours fill the majority of elders' requirements in their final years of life. On the other hand, formal healthcare is offered by public, private, and non-profit institutions including hospitals and medical professionals (Ye, 2016).

Keeping the above discussion at focus this study **"**Healthcare Facilities and their Utilization: A Geographical Study of Baran District (Rajasthan)" explores the linkages among socio-economic characteristics and use of healthcare facilities n Bara district. The present study is based on both the primary and secondary data gathered from

different sources. Due to a lack of resources (both in terms of time and labour) and large size of the study area (Baran district), which has a population of over a million, it is not possible to reach every single person. As a result, 400 respondents have been chosen in total using stratified random sampling techniques. The present research work is largely accomplished by computer such as Adobe Photoshop CS6, Photoscape 3.3, Microsoft Office- 2010, SPSS 27.0 and other computer based techniques. These techniques have been applied in mapping and analysis of primary and secondary data. Logistic regression programme has been also run to assess the association between various socio-economic determinants and utilization of health care facilities.

The aim of the present study is to map the location of healthcare facilities and the way they are used in the Baran District. It is still important to investigate how the socioeconomic circumstances of various social groups affect the nature and pattern of their healthcare requirements as well as how these groups interact with the institutions that can meet their needs. It shows the micro-level patterns of healthcare facility use and identifies a number of socioeconomic and administrative issues that have an impact on the use and accessibility of healthcare facilities in the study area. It also offers indirect insight into the knowledge of underlying socio-economic gaps and their effects on how equally diverse parts of society use healthcare facilities.

The study found that overall condition of health infrastructure is not satisfactory in the context of rural areas of Baran district. Study reveals that the availability and accessibility of health care is considerably improved. Beside this improvement, availability of trained manpower, number of doctors and para-medical staff in different health centres is not sufficient to serve the present population. The level of awareness among rural community is not found very well with respect to the facilities available at different health centres. People's awareness and their participation should be enhanced for healthier and cleaner environment of the society. Besides, the socio-economic conditions of rural people should be improved because it also has great bearing on the availability of health care facilities. There is urgent need to make efforts to bring behavioral changes in utilisation of available health care facilities for filling the gap between awareness and utilisation of health care facilities. A suitable mechanism should also be developed with people's participation for effective management of health care facilities. Health care programmes are to be made more effective by community participation to increase the ratio of the beneficiaries.

INTRODUCTION

Health—the term "health" has varied connotations for various people. The word health means "hale, sound, and entire." World Health Organisation developed the definition of health that is most frequently cited in 1946.

According to WHO, Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Health is described by the WHO as "a resource for daily life, not the purpose of living, and is a positive concept emphasising social and personal resources as well as physical capabilities." Health constantly evolves. Therefore, we define health as a dynamic state or condition of the human organism that is multidimensional in character (physical, emotional, social, intellectual, spiritual, and occupational). (McKenzie et.al, 2011). Health is acknowledged by the World Health Organization as a human right and as one of the key factors in promoting social well-being. (Mann, et.al, 1994). In India, the "Right to Life" is seen as vital, and the government is required to protect everyone's "Right to Health". Everyone has a right to a minimum standard of living that is sufficient for their own health and the health and well-being of their family members, including food, clothing, housing, medical care, and essential social services. They also have a right to security in the event of unemployment, illness, disability, widowhood, old age, or other loss of livelihood due to reasons beyond their control. (Declaration of human rights, WHO constitution, 1946)

As per India's federalized system of government, the union and state governments oversee different aspects of the country's health system's administration. The national rollout of such initiatives is the responsibility of the Union Ministry of Health & Family Welfare. Moreover, the Ministry provides technical assistance to governments to help them prevent and contain seasonal disease outbreaks and epidemics. (Chokshi, et al, 2016)

The existing primary healthcare system is lacking in both manpower and infrastructure. As of March 2011, India has 148,124 sub-centres, 23,887 Primary Health Centres(PHCs), and 4,809 community health centres (CHCs), according to the Rural Health Survey (RHS) 2011. The criteria for sub-centre, PHC, and CHC population coverage for plane areas are 5,000, 30,000, and 120,000, respectively. According to

RHS, the average population served by a sub-centre, PHC, and CHC in 2011 was 5,624; 34,876; and 173,235, respectively. According to the 2011 census, India has population of around 121 crore people. In India, 83.3 core people (68.84%) are rural residents. India needs more than 27,700 PHCs when taking into account the population standards for PHC of 30,000 in plain areas (here the population norms for PHC of 20,000 for tribal and hilly areas is not taken into account). India therefore needs 3,800 more PHCs when compared to RHS, 2011. Inadequate infrastructure and staffing must be urgently addressed to improve service and basic healthcare delivery. We won't even consider applying Indian Public Health Standards to any healthcare facilities until we've resolved these problems. (WHO, 1978)

The fulfillment of basic human needs and the achievement of human potential are two of development's most crucial facets. Development encompasses more than just economic progress. The pursuit of good health should be considered a positive force rather than just a development goal. (Chauhan and Kamdar, 1997).The process of steadily and gradually improving the population's health state is known as health development. Its end result is an increase in human well-being that is brought about not only by a decrease in the burden of sickness but also by achieving good physical and mental health connected to successful economic functioning and social integration. An economically viable civilization can be built on the foundation of a thriving community. The quality of people has a big impact on how society develops. (Goel, 2002)

Health Approaches- There are different viewpoint on meaning of Health: -

Psychological Approach- On one's general health and perception of oneself as healthy or unwell, psychological variables have a significant impact. Many people have symptoms of illness but are not actually ill. They have a pessimistic perspective on the world; everything seems to be wrong and in disarray. Unfortunately, there are more of these cases in India than ever before, particularly among young people and the elderly.

Sociological Approach- In general, the sociological approach views health as a human construct that exists without anyone describing or recognising it. It upholds the scientific basis of disease but interprets it in the context of social realities as expressed by factors like religion, community, and gender, the environment, etc. So, from full health to death, health can be seen as a process with several stages.

Economic Approach- A new field of study called medical economics, commonly referred to as health economics, has evolved. It views health as something that people should own because it makes them happy, allows them to function at their best, and generates products and services. Numerous issues with the economic strategy have been raised. No matter if there is demand or not, everyone's basic need for health must be satisfied. A lack of effective demand for expensive medical treatment may exist among those who live below the poverty line.

Geographic approach- From the viewpoints of space and environment, geography investigates health. Geographical aspects of health and healthcare are the main focus. The health of people, animals, and other life forms is influenced by, and in some cases even determined by, a number of geographic factors. These aspects are studied by the branches of physical, human, and biogeography.

Geography considers health "as a harmonious equilibrium between man and environment and disease as maladjustment of human organism to his total environment."

The geographic vision is fundamentally all-encompassing. The spiritual aspects of holism are also present. The environment in which man lives is complex. The other components interactions with one another will determine which effect when and in what quantity. The inner environment includes faith, which is significant. Being optimistic about your health gives you energy. There is far more scope for health geography. It also examines the preservation, generative, and preventative components of good health, which are more crucially studied than the spatial characteristics of ill health and the associated treatments and services. (Misra, 2007). Geographical location and health are inextricably related. Our experiences with health—the air we breathe, the food we eat, the viruses we are exposed to, and the health services we can access—are directly influenced by where we are born, live, learn, and work. The location of medical facilities, the focus of public health initiatives, and the tracking of disease epidemics all have a geographic context. Health disparities and polarisation, scale, globalisation, and urbanisation are only a few of the fundamental geographic study subjects that are closely connected to public health. (Dummer, 2008).The basis for analysing and planning health services is the geographic variance in population and the population's need for healthcare. Populations are not evenly distributed across the surface of the Earth, and these differences in age, gender, culture, and economic status have an impact

on people's needs for healthcare, their capacity to travel for such treatment, and the services they are willing and able to use (Mc.Lafferty, 2003). Health care facility usage rates and trends reflect a population's awareness of and attitude toward their health (Prakasam, 1995).

Health care: Meaning and Principles.

Health care, particularly public health, is unique in that it safeguards normal operation, which safeguards the variety of opportunities available to people. (Daniels, 2001). The term "health care" refers to a wide range of services provided to people, families, or communities by representatives of the health services or professions in order to promote, prevent, maintain, monitor, or restore health (Oxford dictionary).

Principles of Healthcare

Human progress in the social, educational, and economic arenas includes healthcare. It is based on the following 5 principles of healthcare:

1. Equitable Distribution: All societal segments should have access to healthcare, with special consideration given to the most vulnerable and underprivileged populations. By bringing healthcare as close as feasible to people's homes, primary health care seeks to address the imbalance between urban and rural areas. Higher level medical treatment that the poor can be referred to should support it.

2. Community Involvement- A crucial component of primary healthcare is the participation of individuals, families, and communities in the promotion of their own health and welfare, including self-care. The planning, delivery, and upkeep of health services should involve the community.

3. Multi-Sectoral Approach- The notion that the health industry cannot provide for everyone's complete health is one of the fundamental principles of primary health care. The healthcare industry and other fields relevant to health must work together to achieve this.

4. Appropriate Technology- This does not imply that the poor may use inexpensive, outdated technologies. It demands the use of ethically sound scientific tools and techniques to address pertinent health issues.

5. Prevention of Disease and Promotion of Health- This is the cornerstone of primary healthcare. This method is employed in all activities because disease prevention is more cost-effective than disease treatment. (Goel, 2002)

The Five A's of Healthcare Challenges: - Challenges in providing healthcare to "everyone," which must include the structurally disabled, the economically and socially disadvantaged. Here are some challenges in utilisation of healthcare facility:-

1. Awareness: How well-informed is India's populace on critical problems affecting their own health? Despite the numerous and varied studies on awareness, gaps in knowledge seem to exist in our nation across all age groups. Why are Indians so poorly informed about their health? Low educational attainment, poor functional literacy, a lack of emphasis on education in the healthcare system, and a general lack of emphasis on health may all be contributing factors. We need to work to increase awareness among people we interact with and inspire the next generation to believe in the efficacy of education in influencing behaviour.

2. Access: According to the Oxford Dictionary, access (to healthcare) is "the right or opportunity to use or benefit from (healthcare)." Again, the question "What is the amount of access of our population to healthcare of good quality?" is extremely pertinent when we move beyond the reasonably well-connected urban populace to the urban impoverished and to their rural equivalents. Access is a complicated notion that refers to the supply, consumption, and availability of healthcare services as influencing factors. Even in locations where services are "accessible," access restrictions in the financial, organisational, social, and cultural realms might restrict their use.

In order to improve student and peer awareness of the issue of access to high-quality healthcare, we should identify and analyse potential access barriers in the areas of money, geography, society, and healthcare systems.

3. Absence: The workforce, possibly the most important character in any debate about healthcare delivery, should be brought up. Do we have an acceptable quantity of employees who are well-trained, fairly deployed, and have a good level of morale when providing the service?

How are we preparing our trainees to provide a health service in the appropriate manner, in the location that requires it, and at the time that is crucial? As public health educators and trainers? It is time for a health human resources policy to be developed,

one that outlines steps to assure that every last Indian is cared for by a compassionate, skilled, and knowledgeable healthcare professional.

4. Affordability: Simply put, how expensive are medical services in India, and more importantly, how many people can they afford? With the exception of those who cannot afford private care, the public sector provides healthcare at a low or no cost but is viewed as unreliable, of average quality, and often not the first choice.

From the lowest to the highest levels, the healthcare industry needs to be cost-conscious. Avoiding wasteful expenditures, expensive options, and using tests and procedures that are not necessary. During the course, the ordinary medical student is not exposed to concerns about the expense of care. Exposing young people to healthcare and economics challenges will hopefully help them understand the gravity of the situation and the importance of finding creative solutions.

5. Accountability: The methods and techniques by which one party apologises for and accepts responsibility for its actions are referred to as being accountable. (Kasthuri, 2018).

Goals for health care services: The protection and improvement of populations health is the aim of health services. The goals of health care services are as follows:-

1. **Patient Safety:** Medical procedures meant to aid patients shouldn't endanger them. The issue is not a lack of commitment to providing high-quality treatment by medical personnel, but rather a lack of processes that stop errors from happening or stop medical mistakes from reaching the patient.
2. **Effectiveness:** Scientific data supporting the likelihood that a given treatment will have the intended health outcomes is the foundation of effective care. Evidence is gathered through laboratory tests, clinical research (often randomised controlled trials), epidemiological studies, and outcomes research. By disease and course of treatment, the amount and quality of evidence vary.
3. **Timeliness:** Getting an appointment and waiting in ERs (Emergency Room) and doctors' offices are common delays connected with seeking and receiving healthcare. When people are not given the care they urgently require, their health conditions may worsen and their outcomes may worsen as a result. To quickly address patients' demands, the health care system must be organised.

4. **Patient Centred:** In order to provide high-quality care, patient-centered care emphasises the importance of paying attention to the patient's requirements, values, and preferences. Each patient should receive individualised care, care should be coordinated, the patient's family and friends should be involved, and treatment should offer both physical and emotional support.
5. **Efficiency:** The objective is to consistently find and remove waste and inefficiency in the delivery of healthcare services.
6. **Equity:** Everyone should gain from the healthcare system. The system as it is now falls short of achieving this objective, and the evidence is solid and convincing. Even after taking into consideration variations in access to health services, it was discovered that racial and ethnic minorities are obtaining lower-quality care than the majority population. (Steinwachs and Hughes, 2008)

Healthcare Committee and Commissions in India

The government periodically appoints several committees of specialists to provide guidance on various health issues. The results of these committees have served as a crucial foundation for India's health planning.

1.Bhore Committee (1946)- The government has occasionally appointed several expert groups to provide guidance on a range of medical issues. In India, health planning has largely been built on the recommendations of these committees. Achieving "Health for All" by the year 2000 is the aim of India's National Health Planning. In 1943, the Health Survey and Development Committee were established, with Sir Joseph Bhore serving as its chairman. The convergence of curative and preventive medicine was emphasised at all levels. For the redesign of India's health services, it gave detailed proposals.

(i). Integration of preventative and curative services at all administrative levels was one of the key suggestions in the 1946 study.

(ii). Primary Health Centre Development in Two Stages: FIRST for the population of 40,000, a short-term solution is to open one primary health centre. In addition to the two doctors, one nurse, four public health nurses, four midwives, four trained dais, two sanitary inspectors, two health assistants, one pharmacist, and fifteen other class IV personnel that were required, each PHC was also required to have two nurses. It was

also intended for the secondary health centre to help primary care centres and to organise and manage their operations.

SECOND for the long-term scheme (also known as the "3 million plan") that calls for the construction of primary health units with 75-bed hospitals for every 10,000 to 20,000 people and secondary units with 650-bed hospitals, regionalized once more around district hospitals with 2500 beds.

(iii). Significant modifications to medical education, including a 3-month course in social and preventive medicine to train "social physicians".

2. Mudaliar Committee (1962)-The Health Survey and Planning Committee, led by Dr. A.L. Mudaliar, was established to evaluate the health sector's performance following the submission of the Bhore Committee report. This committee recommended that existing PHCs be reinforced before any new ones are opened since it deemed the circumstances at PHCs to be unacceptable. It was also suggested that district and sub divisional hospitals be strengthened. A PHC should not be designed to serve a population of more than 40,000 people, and all curative, preventative, and promotional services should be offered there. A recommendation made by the Mudaliar Committee was to replace the former Indian Medical service with an All-India Health service.

3. Chadha Committee (1963)-Dr. M.S. Chadha, the former director general of health services, served as the chairman of this group, which was established to provide advice on the preparations needed for the National Malaria Eradication Program's maintenance phase. The committee recommended that the vigilance work in the NMEP be done by basic health workers (one for every 10,000 people), who would serve as multipurpose workers and perform, in addition to malaria work, the duties of family planning and vital statistics data collection under the supervision of family planning health assistants.

4. Mukherjee Committee (1965)- When the Chadha Committee's recommendations were put into practise, it was discovered that they were impractical since the basic health workers, due to their numerous responsibilities, were unable to adequately address either the family planning or malaria work. The then-secretary of health Shri Mukherjee created the Mukherjee committee to evaluate the effectiveness of family planning policies. The committee suggested hiring specific personnel for the family planning programme. Only family planning-related tasks were to be carried out by the family planning helpers. The use of the basic health professionals was not limited to

family planning. The group also suggested separating family planning efforts from malaria-related initiatives so that staff members may devote their full focus to the latter.

5. Mukherjee Committee (1966)- Due to a lack of funding, it was challenging for the states to successfully carry out the numerous activities of the mass programmes, such as family planning, small pox, leprosy, trachoma, NMEP (National Malaria Eradication Programme), etc. The Union Health Secretary, Shri Mukherjee, convened a committee of state health secretaries to investigate this issue. The group developed the specifics of the Basic Health Service that should be offered at the Block level and some consequential strengthening required at higher levels of administration.

6. Jungawalla Committee (1967)- Under the leadership of Dr. N Jungalwalla, the National Institute of Health Administration and Education's then-Director, this committee, known as the "Committee on Integration of Health Services," was established in 1964. (Currently NIHFW). It was tasked with investigating a number of issues including the unification of healthcare services, the elimination of doctors' private practises in government services, and the working conditions of physicians.

7. Kartar Singh Committee (1973)- The "Committee on Multipurpose Workers Under Health and Family Planning," led by the Additional Secretary of Health, was established to create a framework for the fusion of health and medical services at the subordinate and managerial levels. Its primary suggestions were as follows:

(i). A single cadre of multipurpose workers should be created by combining several types of peripheral workers (Male and Female). The basic health workers, such as those who monitor for malaria, were to be changed to MPW, as were the formerly auxiliary nurse midwives (ANM). One health supervisor was supposed to oversee the work of three to four male and female MPWs (male or female respectively). The female health supervisor was to replace the existing woman health visitors.

(II). A population of 50,000 people should be served by one primary health centre. It should be divided into 16 subcenters, each with a staff of a male and female health worker and housing between 3000 and 3500 people.

8. Shrivastav Committee (1975)- The "Group on Medical Education and Support Manpower" committee was established in 1974 to decide what steps were necessary to reorient medical education in line with national needs and priorities, and develop a curriculum for health assistants who would serve as a bridge between medical officers

and MPWs. It suggested taking action right away for: Establishing connections between community-based paraprofessional and semi professional health workers, The creation of three cadres of health professionals, including community level workers, multipurpose health workers, and health assistants at PHC, Building a "Referral Services Complex" and The creation of a Medical and Health Education Commission, modelled after the University Grants Commission(UGC), to plan and carry out the necessary reforms in health and medical education

9. Bajaj Committee (1986)- 1985 saw the formation of a "Expert Committee for Health Manpower Planning, Production, and Management" under the direction of Dr. J.S. Bajaj, an All India Institute of Medical Science(AIIMS) professor at the time. The following are the main recommendations:

i. Create a National Medical and Health Education Policy.
ii. Development of the national health workforce policy.
iii. The creation of an Educational Commission for Health Sciences (ECHS), modelled after the UGC
iv. The creation of universities for health sciences in a number of states and union territories
v. Creation of health workforce cells at the federal level and in the states (Institute for National Health and Family Welfare.)

National Health Policies (NHP)

NHP (1983)- The "Alma Ata Declaration" pledged to establish "Health for all," and this strategy was in response. It underlined the commitment to bringing health services to the community and securing the community's cooperation, acknowledged the importance of health for development, and placed a priority on access to health services. In the context of the health sector's then-current conditions, the NHP of 1983 provided a general explanation of the policies that required endorsement. In addition, it was emphasised how important it is to provide primary healthcare with a focus on rehabilitation, promotion, and prevention. The following items are indicated for time-bound attention: - the preservation of pharmaceutical quality, the provision of clean water and sanitary conditions, environmental protection, the immunisation programme, the provision of maternal and child health services, and so forth.

An efficient health information system was advised by NHP 1983 for better programme planning. Smallpox and Guinea worm disease have been eradicated, and the total fertility rate and infant mortality rate have significantly decreased thanks to government actions through NHP 1983. These achievements are notable since they have occurred over time. Despite its improved outcomes, mortality from "lifestyle" diseases such as diabetes, cancer, and cardiovascular disease has increased since the introduction of NHP in 1983. Additionally, macro- and micronutrient deficiencies are more common, particularly in women and young children. (National Health Policy,1983)

NHP (2002)- This policy's primary goal is to improve the nation's overall population's health to an acceptable level. The strategy would be to create new infrastructure in underserved areas and improve the infrastructure in the already-existing institutions in order to boost access to the decentralised public health system. Access to health services across the social and geographic spectrum of the nation would be prioritised above all else. With the Central Government's contribution being significantly raised, emphasis will be placed on raising the overall public health investment. The goal of this effort is to increase the State-level public health administration's capabilities for providing efficient service. Particularly for the population group that can afford to pay for services, the private sector's commitment to delivering health services would be greatly increased. At the primary health level, a greater sectoral part of the budget will be allocated to preventative and first-line curative efforts. The allopathic system will place a focus on the prudent use of medications. There will be increased access to traditional medical practises that have been around for a while.

Therefore, based on practical capacity considerations, the NHP-2002 proposals will work to the greatest extent possible to make health care broadly available to the nation's citizens. In light of the socioeconomic conditions in the nation, it established a new policy framework for the quick attainment of the following public health objectives:-

- Improving the Indian population's health to a standard that is acceptable.
- Decentralizing the public health system by enhancing current institutions' infrastructure.
- Ensuring that health services are more equally accessible throughout India's diverse social and geographic regions.
- Increasing the private sector's role in delivering health services to those who can afford them.

- Giving priority to initiatives that focus on first-line treatment and prevention. • Stressing sensible drug use.
- Wider availability of Traditional Medicine's tried-and-true systems. Additionally, it advised modifying the financial resource
- An increase in health sector spending to 6 Per Cent of GDP, with investments in public health reaching 2 Per Cent by 2010.
- By 2010, the current 15 Per Cent of central government contributions will increase to 25 Per Cent.

A higher allocation of 55 Per Cent of the total public health investment has been set aside for the primary health sector, 35 Per Cent for the secondary sector, and 10 Per Cent for the tertiary sector in response to the NHP 2002's observation that health indices are not achieved equally across rural and urban areas. (National Health Policy,2002)

NHP (2017)- Both the National Health Policies from 1983 and 2002 have been helpful in directing the strategy for the health sector. The context has changed in four significant ways 14 years after the last health policy.

The **First** change is in health priorities. Despite a sharp drop in mother and infant mortality, the burden of noncommunicable diseases and some infectious diseases is expanding.

A strong health care industry that is predicted to develop at a double-digit rate is emerging, which is a **Second** significant change.

The **Third** change is the rising frequency of catastrophic medical expenses, which are currently thought to be one of the main causes of poverty.

Fourth, increased fiscal capacity is made possible by expanding economic growth. A new health policy that takes these contextual changes into account is thus necessary.
The 2017 National Health Policy's main goal is to better inform, clarify, prioritise, and strengthen the government's role in forming health systems in all of their aspects, including investments in healthcare, the organisation of healthcare services, the prevention of diseases and promotion of good health through cross-sectoral actions, access to technologies, human resource development, encouraging medical pluralism, knowledge base building, and better financial protection strategies. NHP 2017 expands

on the advancements made since NHP 2002. The Ministry of Health and Family Welfare, Government of India, paper "Backdrop to National Health Policy 2017-Situation Analyses" has been updated to reflect the latest developments. (National Health Policy,2017)

Literature Review

Optimum utilization of healthcare facilities is a global concern. Scholar from various disciplines studied the availabilities and utilization of HCF in India and in the world. The present review of research literature on utilization of health care facilities confirms to social, geographical and behavioral studies conducted by India.

Donabedian (1972) reflect the frameworks for structuring the provision of personal health care, both in their existing and developing forms.

Anderson (1973) studies on the use of healthcare services. The socio-cultural, socio-demographic, social-psychological, organisational, and social systems methods are the five he singles out. He outlines each strategy and identifies its limits**.**

Penchansky and Thomas (1981) a taxonomy meaning of "access" is suggested. Access is a broad notion that condenses a number of more detailed elements reflecting the patient-health care system fit. The precise criteria include accessibility, accommodation, acceptability, affordability, and availability. They use patient satisfaction interview answer data, and the discriminant validity of these characteristics is examined. Their findings offer compelling evidence that there is differentiation within the five domains and that the measures are related to the phenomena they are used to measure.

McGuirk and Porell (1984) empirically quantify the effects of distance and time on hospital consumption patterns, the spatial demand model of hospital choice was examined. After accounting for spatial irregularities caused by the distribution of hospitals and population in metropolitan regions, the impacts of physical access are assessed using a cross-product ratio estimation approach. The empirical findings indicate that time and distance influences hospital choice significantly, particularly in metropolitan regions where alternatives are readily available, and that these influences vary depending on the service type and hospital.

Hyma, Ramesh and Iyengar (1986) assess the situation of geography of health in India and overseas and study the latest trends in the field of health geography and the health care system**.**

Andaleeb (1998) explores a five-factor model that explains large differences in patient satisfaction with hospitals. These variables include 5. perceived costs, 6. perceived staff competence, 7. perceived staff demeanour, 8. perceived staff competence, 9. perceived staff competence, 10. perceived staff competence. When in-depth interviews were planned, exploratory research was employed. To evaluate the hypotheses, a multiple regression model was used.

Lapierre, et al. (1999) analyse the issue of creating new networks for the study area's public health care service delivery. The case study method used in the report was carried out in collaboration with the Fulton County Health Department (Atlanta, GA). The first is a planning methodology to providing health services using a combination of fixed health centres, satellite facilities, and mobile facilities. This research study also makes a second research contribution. Second, it offers tips on how to create new health care service networks using geographic information systems.

Noorali, Luby and Rahbar (1999) examine in remote locations, especially, a health facility's use may be influenced by its physical accessibility. The government's main health care facilities have an impact on how people use its services. They contend that the main variables of whether or not people in the study area use government resources for treating children are not simply geographic distance. Prior to planning the construction of additional healthcare facilities, policymakers should conduct a thorough assessment of the factors affecting the utilisation of current facilities in order to increase the use of government health services. Additional research is required to study the administration of healthcare facilities and patients' perceptions of healthcare professionals.

Duraisamy (2001) analysed the NCAER-HDI (Human Development Index) national-level survey data for 1994 to determine the factors that influence the health status and curative medical care of children, adults, and elderly people in rural India. His findings demonstrate the initial, U-shaped correlation between age and morbidity. Second, the morbidity measures utilised in this study are negatively impacted by both income and education. Third, the population of scheduled castes and scheduled tribes is observed to have higher rates of morbidity. The study clarifies how various home and community infrastructure factors affect the measurements of morbidity. According to the estimations of the multinomial discrete choice model of curative healthcare, rural India's genuine healthcare options are private care and various types of facilities. The

likelihood of selecting private healthcare over other types of facilities is observed to rise with primary education, household income, and village-level infrastructure and amenities. In order to compare estimates across time, concepts and definitions of morbidity must be standardised, and survey methodology must be improved to produce more accurate data.

Zwi, Brugha and Smith (2001) explain that in underdeveloped nations, underuse of public health services has been an almost ubiquitous occurrence.

Patil, et al. (2002) analyse the rural Indian health situation. In order to secure the health of the most vulnerable population, the current scenario, and the issue of rural health at both the macro and micro levels must be improved holistically. To satisfy the demands of the rural population, he suggests a paradigm shift from the current "biomedical model" to a "socio cultural model."

Strasser (2003) emphasised the global healthcare issue affecting rural populations. Obstacles they had to overcome. He made an effort to analyse the significant obstacles that must be overcome in order to improve the health of people living in rural and remote places of the world and he started a specific action plan. They are all faced with the problem of a lack of medical experts in rural and isolated places. Through the focused efforts of working people like doctors, nurses, and other health workers in rural communities around the world, the objective of health for all in rural areas can be attained.

Chakraborty, et al. (2003) investigate the variables influencing the usage of maternal healthcare services in the research area. The findings of the bivariate and multivariate analyses supported the significance of mother's education in describing the use of medical services. Independent of the background characteristics of other women, the socioeconomic position of the home, and access to healthcare services, female education continues to have a net impact on the utilisation of maternal health services. Utilization of health services is influenced by the service's accessibility, value, and cost as well as the user's social environment, health attitudes, and personal traits.

Ricketts (2003) GIS analysis revealed that while it falls short of providing a comprehensive answer to the question of how to comprehend the spread of disease and the issues with public health, it is a crucial tool for illuminating how people interact with their surroundings to promote or hinder health.

Banerjee, et al. (2004) investigated how health services are delivered in rural Rajasthan, particularly in the Udaipur district. They put a lot of emphasis on healthcare and how it affects the region's primarily impoverished population's health. According to their research, the quality of public services is incredibly low and the majority of health care is provided by unqualified private practitioners. The poor condition of public facilities has also had a negative impact on the health of the populace.

Deogaonkar (2004) examines how the Indian population's rising socioeconomic inequality is affecting them and how that affects the healthcare system. He looks at the causes of the challenges in providing healthcare in an unequal society and how it affects a society's overall health. He claims that barriers to access are caused by distance—geographic, socioeconomic, and gender. He came to the conclusion that there are significant effects of social and economic disparity on a society's health. The impact on the health system is multifaceted in a huge, overpopulated nation like India with its complex social architecture and economic extremes. This disparity is reflected in the unequal allocation of resources, which has a negative impact on the health of the underprivileged people. Geographical, social, economic, and gender-related barriers prevent the socially underprivileged from accessing healthcare. The wealth and poverty divide are made more pronounced by the expanding but uncontrolled private healthcare sector.

Guagliardo (2004) worked on the primary healthcare idea, process, and issues. In addition to outlining the key issues surrounding the geographic accessibility of primary care, this paper also provides some historical context, discusses recent advancements in GIS and spatial analysis, and provides examples of promising work. He came to the conclusion that almost all primary care spatial accessibility research to date, whether based on basic or complicated metrics, had been restricted to the investigation of access inequities between social groups or the effect of spatial accessibility on healthcare usage.

Tsoka and Le Sueur (2004) developed a GIS application. They describe the use of GIS applications to assess geographic accessibility to primary health care (PHC) and their potential as a tool to aid in the organisation and delivery of healthcare services. The boundaries of the PHC clinics' catchment areas and their separation from houses were used to define accessibility. They found that 96 percent of the catchment population in the research area used the closest clinic, 1/3 of persons resided within 5 km of a clinic,

and that clinic use decreased with distance. Their conclusions are in favour of putting into action the Clinic Upgrading and Building Programme, which adds more primary healthcare clinics. According to GIS data, access to primary healthcare facilities was not geographically sufficient, and clinic utilisation was influenced by the clinic's distance from PHC facilities.

Varatharajan, et al. (2004) examined Kerala's use rates and found that it was low due to a lack of amenities. Their primary goal was to present a method for evaluating PHC performance under decentralised administration. They divide the study into three sections and come to the conclusion that decentralisation had little to no impact on the health sector since panchayats in Kerala allocated less money to health than the state government had done before. Only a few locations had active panchayat support for PHCs, but in those locations where it did exist, the outcome was favourable. Before health loses its fight for resources, Kerala should come up with a different plan to direct panchayat towards health.

Oliver and Mossialos (2004) outline the research programme required to transform the access principle of equity into a relevant, practical policy objective. It also briefly describes the relevance of the principle.

Bariar, et al. (2004) emphasising the creation of a village-level spatial data infrastructure their study region was the state of Uttar Pradesh's Allahabad district. They used GIS to analyse the infrastructure facilities in the Allahabad area, which is useful for planning and developing rural infrastructure. Finally, they discovered by looking at the maps that the shankargarh block of Allahabad district urgently requires the construction of additional schools and the improvement of health facilities. In the current endeavour, a GIS-based spatial data infrastructure has been created for a portion of Allahabad District to help planners and decision-makers make more informed choices. These will be helpful in decision-making for micro level planning as well as administration and resource mobilisation.

Rosenstock (2005) in their study "Why people use health services," the authors analysed to increase professional health workers' knowledge of particular research findings and theory in order to help them understand why and under what circumstances people act to prevent, detect, and diagnose disease. They also aimed to raise awareness among trained behavioural scientists of the different types of behavioural research opportunities and needs that exist in public health. The researcher claims that the effort

to comprehend why people behave in certain ways will receive the most of this article's focus. The issue of how to get individuals to use healthcare services will then be briefly discussed.

Andersen and Newman (2005) explain the theoretical basis for looking at how people use health services. Their key areas of interest are the characteristics of the delivery system for health services, advancements in medical technology, and personal use factors. These qualities are described in light of how they affect the health care system.

Bagheri, Benwell and Holt (2005) outline the new method for figuring out where primary healthcare (PHC) services are located. Using the mean centre of the population distribution, the optimal route (shortest travel time) between residential areas and PHC facilities was calculated.

Dhas and Helen (2008) analyze Tamil Nadu's healthcare system's main problems and current state of health. They examined the situation in the study region based on a few carefully chosen health indicators and the breadth of the state's health infrastructure. The usage patterns of the research region were also discussed. They discovered that in Tamil Nadu, life expectancy at birth has increased while crucial indicators like the birth rate, death rate, and infant mortality rate have decreased. The report made the case that while Tamil Nadu's vital statistics and demographic indicators show very high performance in terms of health, there are still a number of areas where improvements might be made. They came to the conclusion that Tamil Nadu seems to have performed better than the average for All India in demographic terms. They came to the conclusion that in terms of demographic and a number of health metrics, Tamil Nadu appeared to have performed better than the All-India average. However, thanks to its knowledge foundation, institutional strength, and growth potentials, Tamil Nadu is capable of considerably higher levels of accomplishments.

Sule et al. (2008) mainly conducted study on the elderly. Facilities for providing healthcare to the elderly are lacking in underdeveloped nations. In this article, the socioeconomic and demographic factors that are related to older people's utilisation of healthcare facilities and services were analysed. In Ghana, the research area was Yamoransa. For the interview, they employed a cross-sectional survey method. And as a result, they discovered that older people prefer government-run healthcare facilities because they believe the services offered there are more efficient. They came to the

conclusion that the low usage of PHC services was caused by community perceptions of the inadequate and subpar quality of the services that were offered.

Dalal and Dawad (2009) research was done on how women felt about not using the right public health care institution. In this article, a cross-sectional survey is used. The author lists the following five factors as contributing factors: (1) "there is no local facility," (2) "facility scheduling is not appropriate," (3) "health workers are frequently missing," (4) "waiting time is too long "and(5) " poor quality of care."

Lena, et al. (2009) research has been done on the physiological, social, and mental attitudes of the elderly. The study's findings indicated the necessity for geriatric counselling facilities that can attend to their physical and psychological requirements. To include a bigger population, the strict standards for social security plan eligibility should be made more lenient.

Ghuman and Mehta (2009) examine the issues and future of healthcare, the standard of medical care in India, and the accessibility of medical care to people of all socioeconomic levels, genders, and geographic locations. According to their recommendations, the government should prioritise filling all open positions for medical workers, notably doctors and nurses, as well as enhancing the quality of the infrastructure and the accessibility of medications in order to improve the quality of health services.

Tien and Goldschmidt-Clermont (2009) a complicated service system was considered in regard to the healthcare system. According to him, the three key components of people, processes, and goods can be combined or recombined to form healthcare. The goal of the healthcare system as a whole is to increase efficiency and effectiveness. Healthcare service systems are in fact complex, in part because of the unknowns surrounding their human-centered components. The system complexity can also only be managed through techniques that improve system integration and adaptation.

Al-Taiar, et al. (2010) examine the connection between various physical accessibility metrics, such as trip times, road distances, and straight-line distances, and how these metrics affect the immunisation of children in the research area. After correcting for socioeconomic level, each physical accessibility metric indicated a significant correlation with childhood vaccination rates. They came to the conclusion that driving distances, straight-line distances, and driving time are all closely related to and related to vaccination uptake. In Yemen, the impact of physical access is evident, emphasising

the need for initiatives to focus immunisation and other preventative healthcare interventions to children who reside outside of medical facilities.

Shah and Bélanger (2011) examine the impact of maternal traits on the likelihood that women in two groups of indigenous women will use prenatal and delivery healthcare services. The findings indicate that tribal women in India's north-eastern states are more likely to use maternity healthcare services than women in the nation's central states. Working women are less likely to use medical services. The results recommend various approaches for implementing healthcare services throughout the nation's many tribal regions.

Gautham, et al. (2011) researched about first contact curative health care seeking options among rural communities in the study area, and it is investigated about the poor public supply of primary care and reports of informal providers. They discovered that the majority of rural residents look for local, first-level curative healthcare and pay for a convenient, all-in-one service that includes consultations and medication dispensing.

Koh and Tan (2011)consider applications of data mining in the medical field. It focuses in particular on data mining and how it might be used in healthcare for purposes like monitoring patient care, managing healthcare costs, managing patient relationships, and spotting fraud and abuse. Additionally, it provides a clear illustration of how to use data mining in the field of medicine to identify risk factors for the development of diabetes. The essay also offers several potential paths for future research after highlighting the drawbacks of data mining.

Sarani (2011) analyse that by population coverage, typical journey time, and distance to the closest healthcare institution, assess the geographic accessibility of healthcare facilities. Accessibility was calculated starting from each hexagon's centre after the study area was divided into equal hexagons. They discovered that in most places, dissatisfaction with the lack of health care can be reduced even with existing health facilities. The only exceptions are a few outlying districts, where it takes longer to go to the city centre and is farther to get to a hospital. They ultimately came to the conclusion that accessibility has several facets. Actual and perceived accessibility can differ, and this calls for careful observation.

Awoyemi, et al. (2011) examines influence of distance on the use of healthcare services, and the unequal access to contemporary healthcare facilities in the research area. The findings show that household size, distance, and the total cost of medical care

have an impact on the use of public and private hospitals, but traditional care is more influenced by the total cost of medical care and the quality of the access route. According to the study, in order to increase accessibility to better health services by various socioeconomic groups in the area, it is necessary to minimise travel time to upgraded health facilities and the overall cost of seeking medical attention.

Das, et al. (2012) show the standard of primary healthcare services offered by commercial and public providers in India's urban and rural areas. The study used standardised people who were chosen from the neighbourhood and given special training so they could present medical providers with consistent cases of disease. They discovered poor overall levels of medical training among healthcare professionals, as well as negligible distinctions in clinical checklist adherence between trained and unskilled clinicians. Correct diagnoses were uncommon, inappropriate treatments were frequently administered, and private clinics were more likely to adhere to clinical checklists than public clinics. They argue that there is a pressing need to rigorously assess the quality of healthcare services and to raise the bar for continuing education and medical education, among other things.

Ibrahim and Ibrahim (2012) describe how accessibility issues have an impact on the primary health care system's level of utilisation. Their findings demonstrated that the distribution of PHCs is not uniform. Road connections between health centres are weak. User fees for services, transportation costs, medicine shortages, a lack of competent physicians and nurses, and lengthy wait times for care are some of the factors contributing to the low level of use of health centres. These factors persuaded individuals to choose the traditional orthodoxy options.

Silal, et al. (2012) explores affordability, availability and acceptability barriers to obstetric care in study area from the perspectives of women who had recently used, or attempted to use, these services. For the research they use mix method study design. Quantitative and qualitative data were integrated into an analysis of access to obstetric services and related barriers. They found that Access to obstetric services was impeded by affordability, availability and acceptability barriers. These were unequally distributed, with differences between socioeconomic groups and geographic areas being most important. Rural women faced the greatest barriers, including longest travel times, highest costs associated with delivery, and lowest levels of service acceptability, relative to urban residents. Negative provider-patient interactions, such as staff

indifference, excluding women in early labour, yelling at patients, and lack of compassion for those who had had stillbirths, also restricted access and decreased the quality of care.

Bhatt and Joshi (2013) highlight how geospatial techniques can be used to evaluate the spatial distribution of basic healthcare services and to create a framework for the design of long-term healthcare facilities in tribal Talukas of the Vadodara district. PHC locations have been evaluated and modelled using Nearest Neighbourhood Analysis, Network Analysis, and Weighted Sum Analysis. With impedance calculations for the journey time and travel distance, the service area analysis yields the bands for travel time and travel distance. According to their findings, the population of the study area can be optimally accommodated with the addition of only a few new facilities. However, there must be a focus on enhancing connectivity, particularly in inaccessible areas that are classified as "dark zones" due to inadequate road connectivity. There is potential for rearranging and assigning new PHCs.

Rai and Nathawat (2013) examine how a district level healthcare planning can benefit from a geographic information system (GIS) that supports health planners. To determine the precise sector that needs to further expand healthcare facilities, an effort has been undertaken to compute the hospital necessity area. 60 percent of respondents are still only moderately pleased with the healthcare services provided by primary health centres (PHCs), while only 25.38 percent of respondents are happy. 117 respondents, or the remaining 14.62 percent, expressed dissatisfaction with PHC services. They contend that the state and federal governments must take coordinated, comprehensive action in order to achieve the goal of developing healthcare facilities.

Gupta, et al. (2014) researched on the variables influencing the rural residents of western Rajasthan's utilisation of oral health services. They collected data using a questionnaire. Their findings demonstrate that socio-demographic characteristics have an impact on the rural population's use of oral health care. A crucial and vital first step to improving oral health outcomes and eradicating inequities is improving access to dental care.

Ghosh, (2014) focuses on the north-eastern region of India and 15 main states' horizontal disparities in the use of outpatient and inpatient care in the healthcare system. All healthcare utilisation characteristics were controlled for socioeconomic factors and standardised for need variations. The interstate and intrastate income-related disparities

in healthcare utilisation were assessed using standardised concentration indices. According to the study's findings, increasing public health spending significantly and establishing effective universal healthcare coverage in India would be necessary to overcome the current healthcare imbalances.

Rosenberg (2014) in order to introduce a theory of social justice into health geography that might be useful to support what many health geographers are trying to do in their research on access to care, neighbourhoods, and health and environmental justice, he first analyses research in health geography under three themes: access to care, health and environmental justice, and health and environmental justice.

Afshari and Peng (2014) determined that a good location can reduce expenses and increase utilisation. They discovered that reducing the overall travel time between patients and the healthcare institution requires meeting two crucial criteria: cost and efficiency.

Upadhyay, Pal and Tiwari (2015) investigate the presence and functionality of physical infrastructure at the subcenters in Madhya Pradesh's Mandla district. The physical facilities were divided into three categories: basic amenities, medications and supplies, and furniture and equipment. Many locations had adequate equipment and supplies, but they were lying unused because the health professionals weren't fully taught on how to use them or were too complacent to do so. Only 10Per Cent of the sub-centres was rated as having decent physical amenities, which was woefully insufficient. The majority of sub-centres have sufficient employees.

Vandenbosch, et al. (2016) examines the relationship between health literacy and the usage of medical services as determined objectively from patient records. More general practitioner (GP) home visits, psychiatric consultations, ambulance transports, and longer stays in general hospitals are all related with low health literacy. When adjustment for multiple comparisons is used, associations with psychiatric hospitalizations and expert consultations are also discovered, although they are not statistically significant. Contrarily, there is no correlation between health literacy and the quantity of GP visits, admissions to one-day surgical clinics, or emergency consultations. The usage of medications and health literacy do not always correlate. The findings partially support the hypothesis that poor health literacy is linked to increased usage of healthcare services, particularly more specialised ones. The population's health

can be improved by increasing their health literacy, which can also encourage a more (cost) efficient use of healthcare services.

Odini (2016) look into the fact that women have information needs related to their health that are not adequately met by the current information systems and services because of factors like poverty, illiteracy, a lack of awareness of adequate health information resources, and inadequate information communication channels, among others. The respondent's level of education, income, age, occupation, and proximity to the location of information sources all had an impact on their choice of sources. Their findings demonstrated that there was a critical demand for all kinds of health information. They suggest that rural women's talents should be improved through fair training and education. They will be able to get fast and accurate health information as a result, which will enhance their health.

Taqi, et al. (2017) analyse and assess the variations in the accessibility and availability of health infrastructure in India's rural communities. Because planners, researchers, and healthcare professionals should pay close attention to the availability and accessibility of healthcare facilities as well as the provision of high-quality services in rural areas. Their key goals included assessing and comparing the overall amenities offered at each level of health centre, as well as analysing the spatial discrepancies in people's access to physical infrastructure and human resources. They came to the conclusion that despite decades of planned growth, the health care system in rural India has remained ineffective and subpar. The nation lags in terms of all areas of healthcare infrastructure accessibility and availability. They contend that India's rural healthcare system requires a thorough makeover to become appropriate and effective so that rural residents can reap its full benefits.

Kujawski, et al. (2018) examined into trends of health facility use and explanations for underuse of public facilities. Used the territory of 21 Indian states and union territories, concentrating on hypertension. They made use of the District Level Household and Facility Survey data from 2012–2013. In the end, they came to the conclusion that households with hypertension preferred private over public primary healthcare facilities. The choice of institution was significantly influenced by the quality of care in hypertension-affected homes. The availability of private institutions expanded as disease burden grew. More families with hypertension than those without reported poor

quality as a reason for not using public facilities, as did households with both hypertension and diabetes.

Sriram (2018) discovered that the study area's infrastructure and manpower are insufficient at the PHC level. His key conclusions were that there weren't enough female health professionals and AYUSH medical officers. None of the PHCs had ambulances or complaint boxes.

Armenta, et al. (2018) examined the variables influencing the structural quality of medical facilities in India. Their findings imply that it is challenging to provide all common resources at healthcare facilities in India. This study demonstrates how challenging it is to provide the poor with high-quality healthcare, especially in emerging nations. To increase population health, research on India's healthcare system's quality is required. The elements affecting the structural quality of the healthcare facilities in India have not been thoroughly studied. This study makes a significant contribution to our understanding of Indian structural healthcare facility standards and their implications.

Chatterjee, et al. (2019) with the aid of Andersen's Health Behavioral Model, the determinants of the Indian elderly's choice of inpatient healthcare services between private and public services were examined. They also look at the nature of regional disparities in the availability of medical services. According to their findings, older adults from upper castes who need surgery and have greater levels of education, money, and family size are more likely to select private health care than older adults who have chronic illnesses or longer hospital stays and are more economically dependent.

Yaddanapalli, et al. (2019) cross-sectional research is used to analyse the usage patterns in the studied area. Their main goals were to record the self-reported general health conditions that the population was experiencing at the time, to learn about the services received, the setting, the method, the people involved in providing the services, and the variables affecting the pattern of health care utilisation. They came to the conclusion that it is crucial to reduce barriers to utilising by raising people's awareness of health issues so that they adopt a favourable outlook on using healthcare services. Therefore, it is crucial for primary care physicians to have knowledge of health service consumption and related determinants when developing and implementing initiatives to increase access to health services.

Khatun and Ghosh (2019) investigate the geographical differences in the health care infrastructure in the research area. They developed a Health Infrastructure Index based on secondary data and secondary data they used. Indicators for the health infrastructure index included accessibility to health care infrastructure, the performance of public health care facilities, and the availability of healthcare services. The study found that the availability of healthcare services in terms of the number of doctors per 10,000 people and primary healthcare facilities is far from satisfactory; a high preference for home deliveries, poor connectivity, and accessibility continues to be obstacles for providing high-quality healthcare services. The region has low bed-to-doctor ratios, population per primary healthcare facility, and population density. A lot of people rely on conventional family values. This makes it difficult to have institutional facilities available in case of delivery. That indicates that home deliveries continue to be given priority. More than anything else, the region's health situation is threatened by the area's inadequate connectivity and accessibility.

Patel and Chauhan (2020) worked on India's gender disparities in the use of healthcare. According to them, a variety of variables relating to people and healthcare have an impact on how much healthcare is used. Gender disparity is one of the most important variables influencing how people use healthcare. They discovered that both men and women favour private hospitals over public ones. In comparison to women, men are happier with the level of hospital treatment they received. The study's most significant conclusion is that men travel farther to get to the hospital than women. In the end, they came to the conclusion that more women-friendly policies must be implemented in order to address gender-related discrimination in health care utilisation and achieve equity. It is essential for women to be empowered and to participate in decision-making.

Verma and Dash (2020) assessing geographic accessibility and modelling spatial coverage of the public healthcare network in India's rural, remote, and vulnerable regions. Study showed how to use GIS technology to support evidence-based planning at the local level. Inaccessibility to delivery and inpatient care is most pronounced in all scenarios, and the majority of the population is unserved, according to the data. In order to take advantage of the synergies of cross-sectoral development, it was advised that coordinated efforts be made to improve currently existing facilities and adapt systems approach.

Malakar (2020) focuses on the health of Indian indigenous peoples at the state level, including their access to health care, their disparities from others, and their sociopolitical ambivalence. Their findings demonstrate that indigenous peoples are "Niravasita Adivasis," and that they suffer from inferior health and healthcare systems. We therefore require their development! Due to the historical continuity of the tribal peoples' cultural identities in India and their democratic status as citizens of the Republic of India.

Parvin, et al. (2021) aims to combine geographical and non-spatial data using a hybrid decision-making technique with geographic information systems to produce a weighted outcome. In this study, three-tier studies were used to evaluate accessibility, choose appropriate locations for healthcare institutions, and analyse shortest-path networks. The analysis discovered some ideal locations in the district's remote areas where residents lack access to better medical facilities. This effort will be very beneficial in developing a spatial decision support system that aids health authorities in providing healthcare in remote, underserved, and inaccessible locations.

Rout, Sahu and Mahapatra (2021) analyse that in most Indian states, the private sector has been a major partner in government efforts aimed at enhancing public healthcare services. Except for Assam and Odisha, they discovered that there was relatively little use of public facilities for outpatient and inpatient services, which was attributed to the subpar care and lengthy wait times. The choice of a public or private facility and the degree of the link between socioeconomic characteristics and their use were mostly determined by caste, education, and wealth quintiles.

Cao, et al. (2021) determined that, when compared to walking, the motorised mode provided higher geographical accessibility and equality. The assessment of disparity and the high-resolution maps of geographic accessibility offer Nepali planners useful data for allocating resources to health care.

Banerjee (2021) identify that the public health care system needs to be improved in terms of quality and reach by increasing public spending on healthcare and constructing cutting-edge medical facilities in rural areas. Implementing programmes to combat poverty and protecting the social security of the elderly are also essential for achieving equity in the use of healthcare.

Yadav, et al. (2022) Examine that almost four out of five people in the survey who had health issues sought treatment from formal healthcare, with three out of five choosing private institutions over public healthcare facilities because they believed the quality of the service was higher and it was more convenient. With an emphasis on providing on-site healthcare and raising the caliber of services provided by public healthcare institutions, there is an urgent need to rebuild community confidence among those organisations.

Wulandari, et al. (2022) discovered that someone living in an urban location had 1.493 times the odds of accessing outpatient hospital services than someone living in a rural environment. In contrast, a person who lives in an urban area has 1.075 times more chances than a person who does not of needing an inpatient facility hospital. Also, the likelihood of accessing outpatient and inpatient hospital services are 1.208 times higher for urban residents than for rural residents.

Kumar and Reshmi (2022) highlighted that the use of maternal and child health care at the district level is enhanced by the proper availability of health facilities. On the other hand, the shortage of doctors and paramedical workers inhibits the utilisation of MCH services. There is an urgent need to increase healthcare facilities in underserved areas of the nation and address the shortage of human resources in healthcare facilities. For states like Nagaland, Assam, Arunachal Pradesh, Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand, Chhattisgarh, and Rajasthan to meet SDG targets and lessen disparities in the accessibility and use of MCH services from public health facilities, more focused plans for maternal and child health are required.

Das, et al. (2023) discovered a significant increase in public health demand in emerging nations, particularly in slums and rural areas, because of poverty and sustainable development. In order to increase geographic accessibility and healthcare utilisation, this article advises stakeholders including researchers, urban planners, planning commissions, and municipal planning authorities to adopt workable policies. When the framework for measuring accessibility includes factors like poverty, population/HCF ratio, population structure, and healthcare capacity, the results will be more accurate. Researchers have the option to do additional research on the geographic accessibility of healthcare facilities and their availability to communities in every time-space framework.

Nallala, et al. (2023) emphasises the importance of valuing and appreciating other worldviews, beliefs, and practises, as well as their understanding of and participation with the multicultural health care system that surrounds them. In addition to attempting to "mainstream" a uniform health system model in remote locations, solutions must be flexible to account for regional variables. To address this, it is necessary to revise current policies with an emphasis on the provision of culturally appropriate and contextual care.

Kumar and Kumar (2023) analyse that after 75 years of independence, India is still struggling to close the gap in health care between tribal and non-tribal populations. Naturally, there are still unresolved health challenges in tribal areas. If these problems are not given top priority, the socioeconomically disadvantaged population will continue to lag behind, which will ultimately prevent an improvement in a nation's health indicators. Both the beneficiaries' poor health-seeking behaviour and the provider's failure to provide dependable, high-quality services have an impact on how frequently services are used. But the public health system cannot just get better on its own. So, the primary goal should be to enhance people's health seeking behaviour and mobilise them towards using the services provided by the health system.

Rai, et al. (2023) demonstrates that the distribution of hospitals, doctors, and bed capacity is not uniform across all of the district's blocks. The analysis also shows a significant disparity in the population distribution of healthcare facilities at the block level.

Research Questions -The study begins with following research questions:

1. What are the physical, socio-economic and demographic determinants of healthcare facilities?
2. How has the availability and accessibility of healthcare facilities varied over the space, time and among individuals of different socio-economic strata?
3. What causes and correlates explain the variance in healthcare utilization among different sections of the society in Baran district?
4. What has been the perception of users from different sections of the society about healthcare facilities?

Objectives

With the aim to analyse the distribution and utilization of healthcare facility, following objectives have been outlined

1. To explore the level of health care infrastructural development in the district.
2. To assess the spatio-temporal pattern of utilization of healthcare facilities.
3. To identify the factors affecting utilization of healthcare facilities.
4. To find out the opinion of people about the available healthcare facilities at Sub-centre, PHCs/CHCs.
5. To suggest measures for better utilization of healthcare facilities.

Hypotheses- Flowing from the above-mentioned objectives the following hypotheses have been posed in the study:

1. Utilization of healthcare facilities is directly proportional to the status of education and economic condition of individual.
2. Level of Utilization of healthcare facilities is related with accessibility and affordability.

Data Base and Methodology

The present study is based on both the primary and secondary data gathered from different sources. Secondary data have been collected from the district census handbook of the Baran districts, different census series of Rajasthan and a lot of information from district headquarters. Data regarding the availability of different types of health care services at District hospital, CHCs, PHCs and Sub-centres were obtained by district statistical outline of Baran district-2021 and from office of the chief medical and health officer, Baran district during 2021-22. Intensive field work from September to October, 2012 has been conducted to collect the primary data.

Sampling

Due to a lack of resources (both in terms of time and labour) and large size of the study area (Baran district), which has a population of over a million, it is not possible to reach every single person. As a result, 400 respondents have been chosen in total using stratified random sampling techniques. Due care has been made when choosing samples to represent various demographic groups in the town and surrounding area. The following formula is used to determine the sample size for homes.(Yamane, 1970):

Sample Size= $n /1+n(e)^2$

Where, n = Total population, e = Confidence level

Sample size= $\frac{1222755}{1+1222755(0.05)^2}$ =399.87 or 400 respondents

The primary data have been collected through sample survey of 400 respondents selected from sixteen villages (Two villages from each tehsil) and two urban centres of Baran district. The villages under study (possessing at least 20 households) have been selected according to their distance from Primary Health Centres (PHCs). First of all two PHCs have been selected from each tahsil. After selecting PHCs, villages in the vicinity of both PHCs have been categorised according to their distance from concerned PHC. Out of these distance categories, two villages from each tahsil have been selected in such a way that one village must lie (within a radius of 1km) to the first PHC while the second village must lie farther (7-8km) from the second PHC. This technique has been applied in every tahsil on the rotation basis, so as to make the sum of distances of both villages from their respective PHCs remains equal. It has been tried that selected villages should not lie in the vicinity of any other PHC/CHC/district hospital except the selected PHC.

While selecting villages, it has been cared that the entire sample must represent the physical, social, economic, cultural and religious characteristics of the study area. Accordingly, at least one village has been selected in such a way that which comprise more than 80 per cent Muslims, scheduled castes, scheduled tribes and other backward castes households respectively. From each selected village, on the basis of age, caste, religion, education, occupation, and income; 18 respondents have been chosen for an in-depth interview through a structured questionnaire. In this way, (16 Villages X 18 Respondents) 288 respondents have been selected from rural areas of all the eight tehsils of the study area. In addition to this a few (6) respondents were also selected from isolated Saharia tribe dwellings which are located beyond the revenue boundary of any village (forest area). Total respondents from rural area were 288+6= 294.

106 respondents have been selected from two urban centres according to their socio-economic status. As the urban centres in the district have small spatial extension, so the distance categories have not been considered.

Further, 53 respondents have been selected from different socio-economic class in both the urban centres. In this way, 53 respondents have been selected from urban areas. Altogether a total of (294 Rural + 106 Urban) 400 respondents have been selected from various parts of the study area.

Techniques and tools are the logical approach for obtaining and presentation of information about a specific problem to be studied. In the present study, both techniques of research, i.e., scientific and social have been applied to achieve the desired objectives of the study. Under scientific technique, after having formulation of research problem, objectives, hypotheses, and conceptual and operational definitions, pertinent secondary and primary data have been collected and analysed. Under social technique, primary data have been collected through intensive field work with the help of structured questionnaire/schedule (Appendix-I). The questionnaire has been articulately designed to achieve the objectives of the present study. The questionnaire recorded information regarding socio-economic and demographic characteristics which include religion, caste, income, house type, family size, family structure, land holding and availability of health and educational facilities, availability and use of health care facilities, perception and satisfaction with health care facilities etc.

The present research work is largely accomplished by computer such as Adobe Photoshop CS6, Photoscape 3.3, Microsoft Office- 2010, SPSS 27.0 and other computer based techniques. These techniques have been applied in mapping and analysis of primary and secondary data. Logistic regression programme has been also run to assess the association between various socio-economic determinants and utilization of health care facilities.

Organisation of Chapters

The subject matter of the present study has been organized into six chapters with an Introduction at the beginning and Summary and Conclusion at the end. The introduction brings forth the conceptual background, literature review, social relevance of the present study, research questions, objectives, hypotheses, research methodology etc.

Chapter I provides a detailed account of Physico-cultural settings of the study area. **Chapter II** deals with spatio-temporal analysis of health care facilities. **Chapter III** analyses utilization pattern of health care facilities. **Chapter IV** examines the health care beliefs and practices among tribes. **Chapter V** seeks to analyse the attitude and

perception of people about the health care facilities. Lastly, in **chapter VI,** an attempt has been made to unfold the problems coming in the way of optimum utilisation of health care facilities in the same chapter planning and recommendations to overcome the problems envisaged have been proposed.

Relevance of the Study

The aim of the present study is to explore the location of healthcare facilities and the way they are used in the Baran District. It is still important to investigate how the socioeconomic circumstances of various social groups affect the nature and pattern of their healthcare requirements as well as how these groups interact with the institutions that can meet their needs. It shows the micro-level patterns of healthcare facility use and identifies a number of socioeconomic and administrative issues that have an impact on the use and accessibility of healthcare facilities in the study area. It also offers indirect insight into the knowledge of underlying socio-economic gaps and their effects on how equally diverse parts of society use healthcare facilities.

Limitation of the Research Study

Every study has its limitations, and the current study is not an exception. The study's primary weakness is the absence of secondary data on the use of healthcare facilities. This limits the analysis of the pattern of analysis since the analysis is based on a small sample size, and sample studies have limitations, all of which apply to the current study due to sample-to-sample bias. Authentic secondary data would have been helpful. Regarding the nature of disease and treatment, there is yet another constraint. The study does not use documented data on disease and treatment; rather, it is based on reported treatment and disease data. The study is nevertheless constrained by the individual's limited knowledge and the choice of recollections. These limitations do, however, show that India's data base on disease patterns and healthcare service consumption patterns has to be enhanced. The survey also reveals how the user group perceives the government healthcare institutions as well as the bottlenecks that contribute to this impression.

Organisation of Chapters

The present study is arranged into six chapters. **Introduction** incorporates conceptual background, review of literature, objectives, hypotheses and data sources and methodology. **First Chapter** provides a detailed account of physico-cultural setting of

the Baran district whereas **Chapter Second** is devoted to analyse spatio-temporal distribution of health care facilities in the study area. **Third Chapter** discusses utilization pattern of health care facilities according to socio- demographic characteristics of the respondents. **Chapter Four** deals with the practices and beliefs of healthcare among tribes of district Baran. **Fifth Chapter** elaborates people's perception towards available health care facilities in the district. In the **Sixth Chapter** an attempt has been made to unfold the problems coming in the way of optimum utilization of health care facilities in the same chapter planning and recommendations to overcome the problems envisaged have been proposed. At the end, selected bibliography and appendices are given.

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CHAPTER -1

Physico-Cultural Setting of Study Area

On April 10, 1991, the Mangrol, Antah, Baran, Kishanganj, Shahabad, Chhabra, Atru and Chhipabarod tehsils that had previously been a part of Kota district were separated to form the new Baran district. The town of Baran, which served as the district capital of the former Kota state, is thought to have been founded in the 14th or 15th century by Solanki Rajputs. It is thought to have acquired its current name because it was home to people from twelve (Barah) nearby villages at the time it was founded. Additionally, some claim that the name "Baran" comes from the region's predominant "Barani" soil. Baran was one of the districts included in the Joint Rajasthan when it was established in 1948. When Rajasthan was formed on March 30, 1949, the Baran district headquarters were changed to the Kota district's Sub Division headquarters. Baran means rain in Urdu, therefore it stands to reason that this region experiences some of the state's highest rainfall totals. Baran district ranks 27th in terms of population, 26th in terms of population density and 19th in terms of area.

There are 1221 villages in the Baran district; 1114 of them are inhabited, while 107 are uninhibited. As compared to the 2001 Census, 28 new villages and 2 new census towns have been developed in the Baran district. While the state's percentages for rural and urban residents are 75.1 and 24.9, respectively, the Baran district has 79.2 percent of its inhabitants living in rural areas and 20.8 percent in urban areas. The district has a higher sex ratio 929 Females/1000Males than the State as a whole (928 Females/1000Males). The Baran district has a literacy rate of 66.7 percent, which is higher than the state average (66.1%) and places it 13th out of all the districts in the state. The district has a 28.4 percent gender gap in literacy rate. The percentages of Scheduled Caste and Scheduled Tribes in the Baran district are 18.1 and 22.6, respectively, whereas the corresponding percentages for the State are 17.8 and 13.5. As 72.7 percent of the district's workforce is either a farmer or an agricultural laborer, agriculture is the main driver of the Baran district's economy. The district's percentage of these workers, however, is higher than the state's average 62.1 percent.

Location and Extent

The Baran district is located between 24˚24' to 25˚26’ N latitude and 76˚12' to 77˚26’ E longitude (Fig 1.1). It is located in Rajasthan's south-eastern region and is bordered by the states of Madhya Pradesh on its east, south, and south-east, Kota and Jhalawar district of Rajasthan on its north and west, and the state of Rajasthan's Madhya Pradesh on its south and west. Approximately 110 km and 120 km, respectively, from north to south and west to east, represent the district's spatial extent.

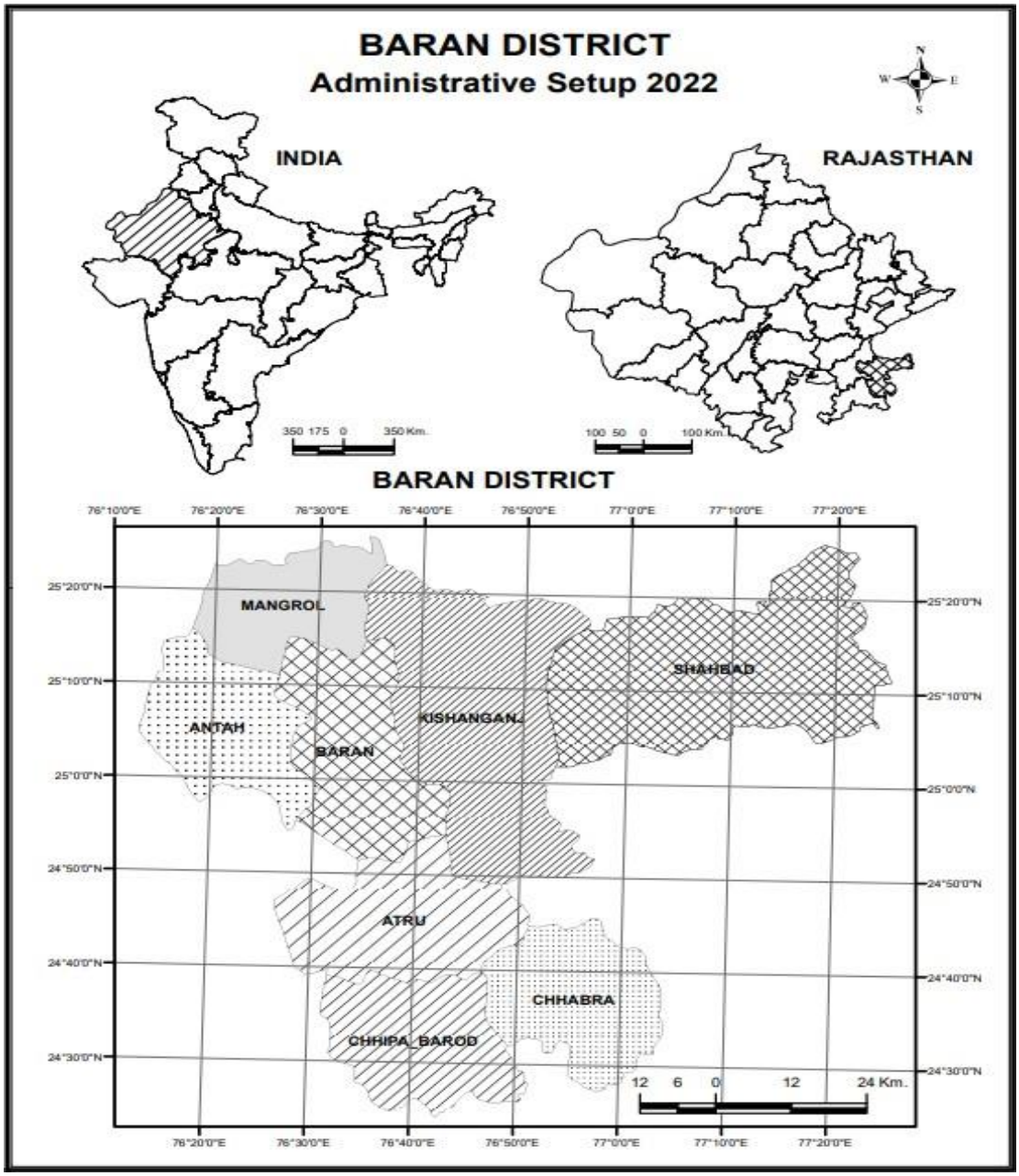

Fig. 1.1

Physiographic

The region is an outgrowth of Madhya Pradesh's uplands, which are a portion of the Malwa plateau; it consists primarily of low hills and undulating plains. According to the movement of the rivers, the ground slopes generally north. Rivers that exclusively receive rain are Kali Sindh, Parvati, Parwan, and Kuno. The Shale, Sand, and Lime Stone Sequence of the Vindhyan Super Group occupy a large portion of the Baran district. With a total area of 6992 square kilometres, the district is the 19th largest in the state. With an average elevation of 250 m Above Mean Sea Level (AMSL), the district's slat plains make up a significant portion of the landscape. A notable geomorphologic feature is the Mukandara hill ranges, which are flat-topped, trend north-west to south-east, and rise to 492 metres AMSL in the southern and eastern parts of the district.

The Parvati River and its various tributaries, which flow towards north, drain the western and central portions of the region. Parwan, Kui, and Kali Sindh rivers flow in the northern region. Ramgarh in Kishangarh and Mamaoni in the Shahbad tehsil have the highest elevations, respectively, at 463 m and 546 m. In Vindhyan range hills or hillocks often found in southernmost area of the district in the shape of a semi-circle. A line of hills rising from Madhya Pradesh passes through the southernmost of Chhipabarod Tehsil, turns north-west, connects with the hill ranges of the surrounding Jhalawar District area, and then ascends to Dara before descending to Chambal.

Drainage

The Chambal River's subbasins provide service to the district. Kalisindh, Parvati, Parwan, and Kuno are some of these subbasins. A tributary of Chambal named Kali Sindh flows northward, defining the western border of the Mangrol Tehsil, for about 40 kilometres from Rajgarh to Deepari until joining Chambal 16 at Pipalda in the Kota district. Vindhyan ranges are the source of the Chambal’s tributarie, Parvati. It enters the district in the southern region close to Karaihat settlement. It originally forms the district's border with Madhya Pradesh before cutting into the district's heart.

The Parvan river, which rises in the Vindhyan hills, flows through the centre of the Atru tehsil before joining Kalisindh close to Rajgarh. It enters the district near Harnawada Shahji. From Madhya Pradesh, Kuno flows into Shahbad Tehsil in the south and then exits the area and returns to Madhya Pradesh by flowing north and passing about nine

kilometres to the east of Shahbad. Madhya Pradesh's Andheri River flows into the Chhipabarod Tehsil and merges with Parvati around six kilometres to the east of Atru.

Climate

The district has a sub-humid climate, moderately dry and receives fairly good rainfall in monsoon seasons. The winter season extends from November to February and summer season from March to mid of June. The period from mid of June to September is the monsoon season. The average annual rainfall in the district is 838.7mm.

Table 1.1: Monthly Climate Characteristics, 2022.

Month	Temperature(c)			Average Relative Humidity (%)	Average Rainfall (mm)
	Highest	Lowest	Average		
January	24.67	12.68	18.67	43.28	8.44
February	28.84	16.19	22.51	33.21	13.1
March	34.54	21.62	28.08	21.3	6.17
April	39.99	27.9	33.94	15.4	11.7
May	43.07	32.22	37.64	15.86	5.91
June	41.03	32.24	36.63	34.0	153.08
July	35.06	28.48	31.77	61.8	436.58
August	32.15	25.99	29.07	75.95	504.37
September	33.28	25.07	29.17	65.43	183.96
October	34.3	23.54	28.92	39.29	23.7
November	30.46	19.49	24.97	35.07	7.9
December	26.1	14.27	20.18	37.42	1.22

Source- Krishi Vigyan Kendra,Anta, 2022.

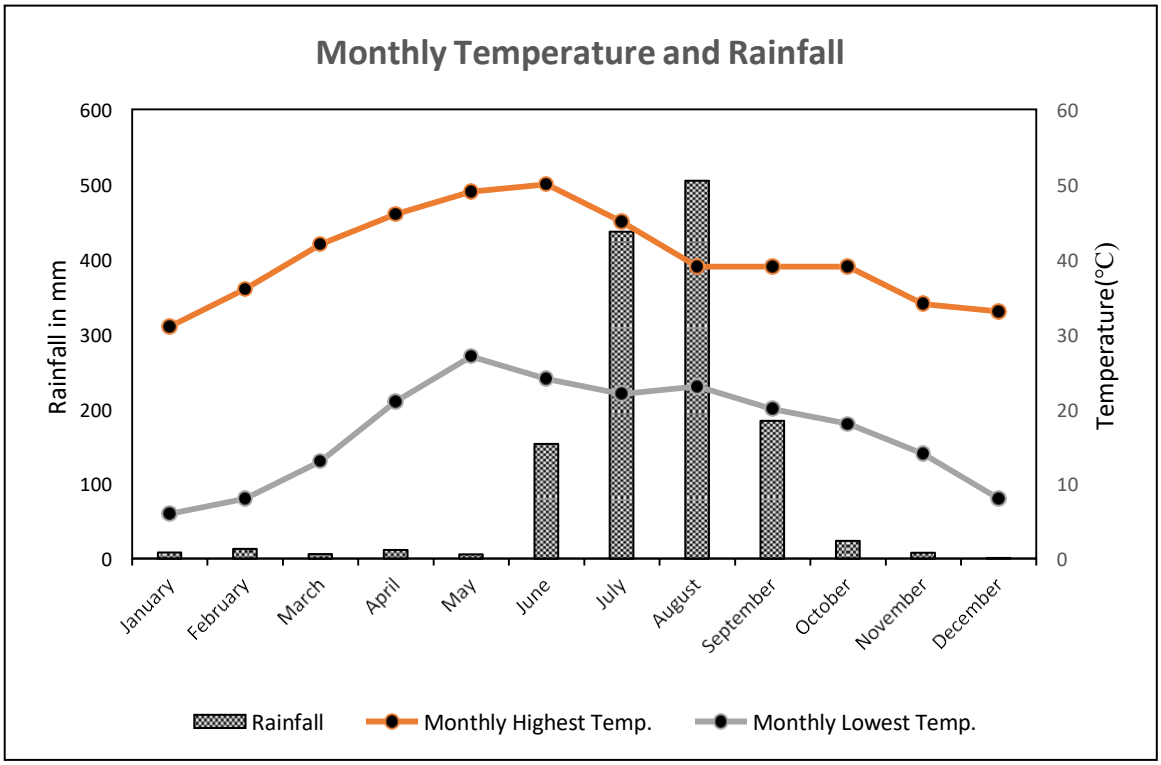

Fig. 1.2

The highest monthly temperature in Baran district is usually recorded in May, with an average high of around 43-44°C (Table-1.1). The lowest monthly temperature in Baran district is usually recorded in January, with an average low of around 12-13°C.

The monsoon season in Baran district typically begins in mid June and ends in September, with August being the wettest month. Outside of the monsoon season, Baran district receives very little rainfall. The driest months are usually May, with an average monthly rainfall of less than 6mm. The humidity in Baran district varies throughout the year, with the highest levels usually recorded during the monsoon season.

Soil

The soils in the district are fine textured black, medium black, hilly and black dumat (Table- 1.2). The fertility states and nutrient index of the soil differ panchayat samiti to panchayat samiti. The alluvial and clay of this district are also being used for manufacturing of bricks, tiles, pots, toys etc. The major soils found in the Baran district and their percentage is shown in the following table:

Table 1.2: Major Soils

Major Soils (%)	Area ('000 ha)	Percent
Deep Black Clay	466.19	65.65
Deep Brown Loamy	100.23	14.33
Gravelly Loam Hilly	200.25	28.63

Source- District Statistical Handbook, 2011.

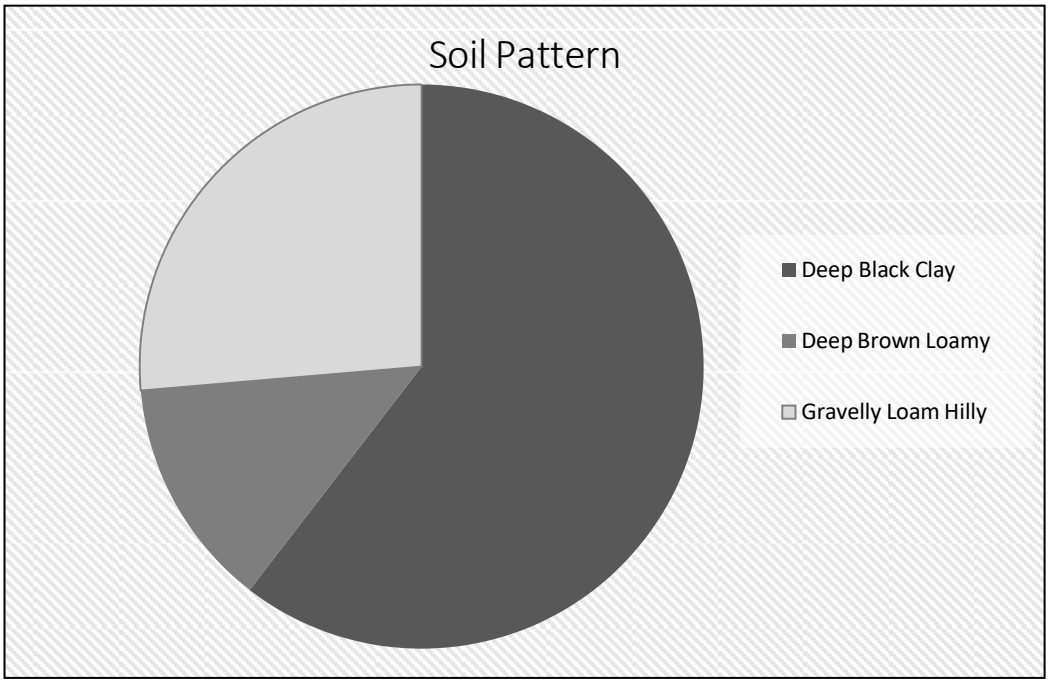

Fig. 1.3

Forest, Flora and Fauna

The Central India Floristic Province includes the district of Baran. However, there has been significant biotie pressure on the good teak woods that are supported by this region or division in botanical terms. The forest covers 2239.69 sq. km, or 32.03 percent, of the entire district's land area. The two primary types of forests are Tectona grandis and Anogeissus pendula forests, respectively, in Kaldhi. The dhonkara is frequently found in the gregarious Kaldhi forests together with khair, bor, gurjan, jhinjha, tendu, kakon (Flacourtia indica), chhola, and khirani, among other species. Dhav (Anogeissus latifolia), salar, gurjan, and kadaya take its place in the higher elevations and plateaus.

Typically, kaldhi trees only reach a height of 5 m. The primary locations for these forests are Chhabra, Chhipabarod, Shahbad, and Shergarh. Only the Chhabra, Kishanganj, and Nahargarh mountains contain Sagwan woods. In the Soondas (cut up fields) of the river Parvati, it grows more effectively. The teak is of lower quality and is located on the northernmost edge of India's indigenous teak forest range. Chhola, khair, kaldhi, safed dhav, gurjan, salar, tendu, kalam, and sadadia are some of its common allies. Sagwan is between 3 and 7 metres tall. It does offer the valuable small-sized timber needed for furnishings. Heavy biotic forces have led to an expansion of the grasslands. Aristida, Ergrostis, Chloris, Heteropogon, Thomaeum, and other grasses are the predominant species.

When evaluating the value of forest products, tendu patta is the most significant item, followed by fireweed, honey, wax grass, etc. Fine-textured, medium-textured, hilly, and black dumat soils are found in the area. Striped hyaenas, Jackals, Bagheras, Monkeys, Prevalent Mongooses, Indian Foxes, Blue Bulls, Spotted Deer, Indian Wild Boars, Indian Hare, etc. are the most common birds in the area. The district's noteworthy bird species include weaver birds, bulbuls, common myna, and sand grouse, among others. The two most prevalent venomous snakes are cobras and Russell's vipers. In the tanks, water snakes can also be observed.

Population Distribution

Geographical, socioe-conomic, and technological characteristics, as well as the difference between them and other factors like population growth, distribution, and density, all have an impact on population. Population is a dynamic factor that varies with time rather than being a static one. In brief, population fluctuates, sometimes rising and sometimes falling.

Population geography is by its very nature interdisciplinary. Economic development is influenced by demographic processes and forces. Human resources are the key to the economic development of every place. Comprehensive research of the demographic variables is conducted in a specific area. Amounts of population include things like population growth rate, population distribution, and other resources with quantities and quality types. Depending on knowledge, talent, age group, etc., the population's characteristics can vary(Eknath).

Table 1.3: Tehsil wise Population Distribution 2011 and 2021

S. No.	Tehsil Name	Population	
		2011	2021
1	Mangrol	106963	122313
2	Anta	120038	138761
3	Baran	213555	251032
4	Atru	149959	169125
5	Kishanganj	166864	205812
6	Shahbad	142061	186516
7	Chhabra	152429	189857
8	Chhipabarod	170886	202860
	Total	**12,22,755**	**14,66,276**

Source- 2011- District Census Handbook, 2021- Projected by the Researcher.

The district had a total population of 12,22,755 (2011). The largest portion of the population is in the tehsil of Baran, and the smallest portion is in Mangrol. The number of residents in the district increase to 14,66,276 (2021)(Table 1.3). Again, tehsil Baran has the highest proportion of the population overall, while tehsil Mangrol has the lowest proportion.

Tehsil Baran has consistently recorded the highest proportion of the population. For socioeconomic reasons, primarily the concentration of different educational centres, economic activities like manufacturing, wholesale and retail commerce, finance and business, government and medical services, etc. are the reason for the dense population distribution of Baran Tehsil.

Population Distribution of Scheduled Caste (SC) and Scheduled Tribe (ST)

The proportion of scheduled caste and scheduled tribe is 18.09 percent and 22.64 percent, respectively in the district's total population (Table-1.4). Scheduled castes and scheduled tribes comprise 17.26 percent and 27.29 percent of the population in rural and

urban area, respectively. Likewise, the scheduled castes and scheduled tribes populations in the district's urban areas are determined to represent 21.24 and 4.93 percent of the district's total population, respectively.

The share of SC varies to 12.10 percent in Kishanganj tehsil to 23.79 percent in Baran tehsil, the percentage of scheduled castes to the overall population varies at the tehsil level. While consider to scheduled tribes, this percentage ranges from 38.58 percent in Shahbad tehsil to 9.12 percent in Antah tehsil (Fig1.5, 1.6).

Table 1.4: Tehsil wise Distribution of Scheduled Caste (SC) and Scheduled Tribe (ST) Population in Baran District (2021)

S. No.	Tehsil	Total Population	Population in Percent	
			Scheduled Caste (SC)	Scheduled Tribe (ST)
1	Mangrol	122313	18.85	22.14
2	Anta	138761	21.23	9.12
3	Baran	251032	23.79	12.28
4	Atru	169125	20.09	18.56
5	Kishanganj	205812	12.10	36.15
6	Shahbad	186516	15.48	38.58
7	Chhabra	189857	16.75	19.66
8	Chhipabarod	202860	13.99	25.21
Total		**1466276**	**18.09**	**22.64**

Source- Projected by Researcher.

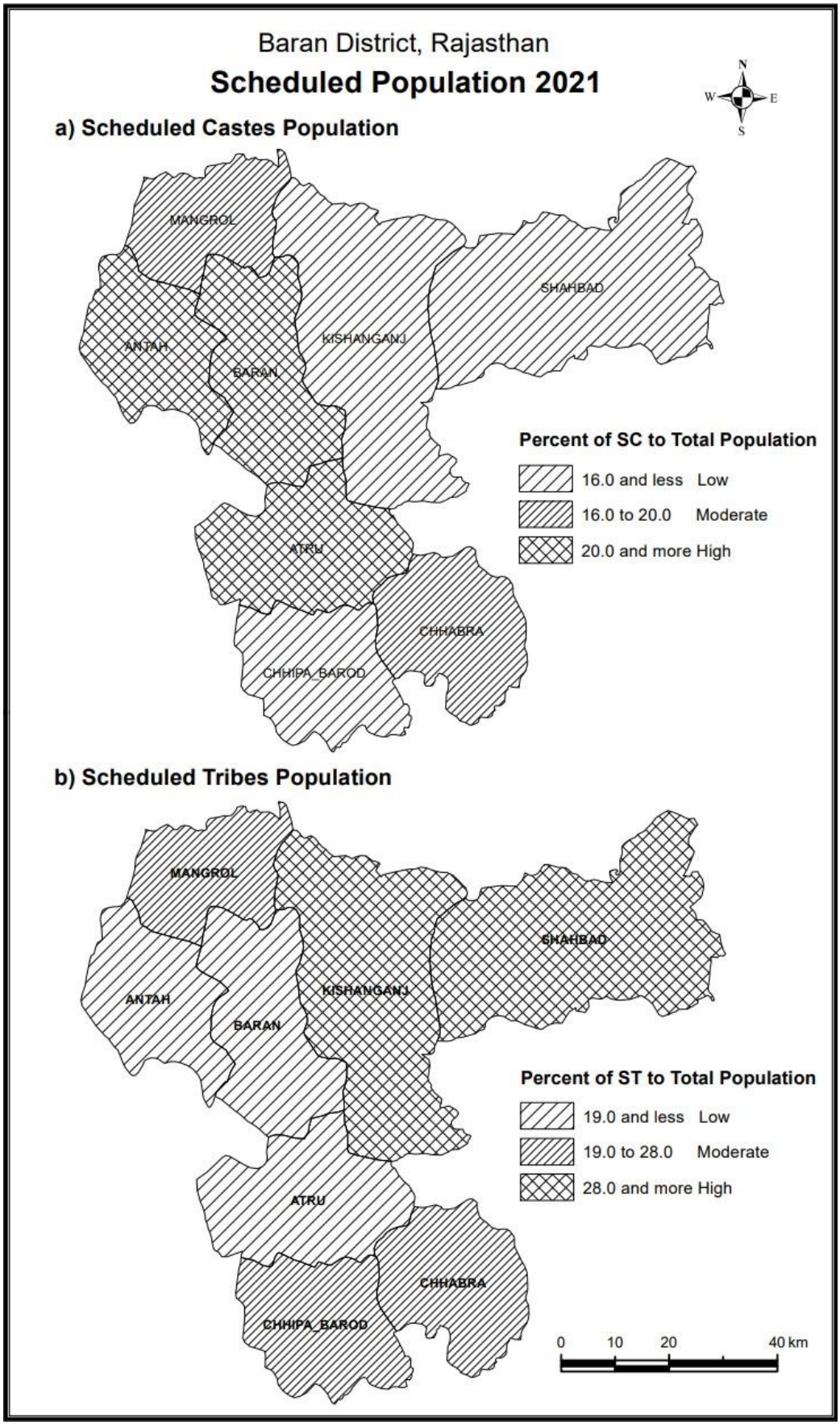
Baran District, Rajasthan
Scheduled Population 2021
N
W
E
S
a) Scheduled Castes Population
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Percent of SC to Total Population
16.0 and less Low
16.0 to 20.0 Moderate
20.0 and more High
b) Scheduled Tribes Population
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Percent of ST to Total Population
19.0 and less Low
19.0 to 28.0 Moderate
28.0 and more High
0 10 20 40 km

Fig. 1.4

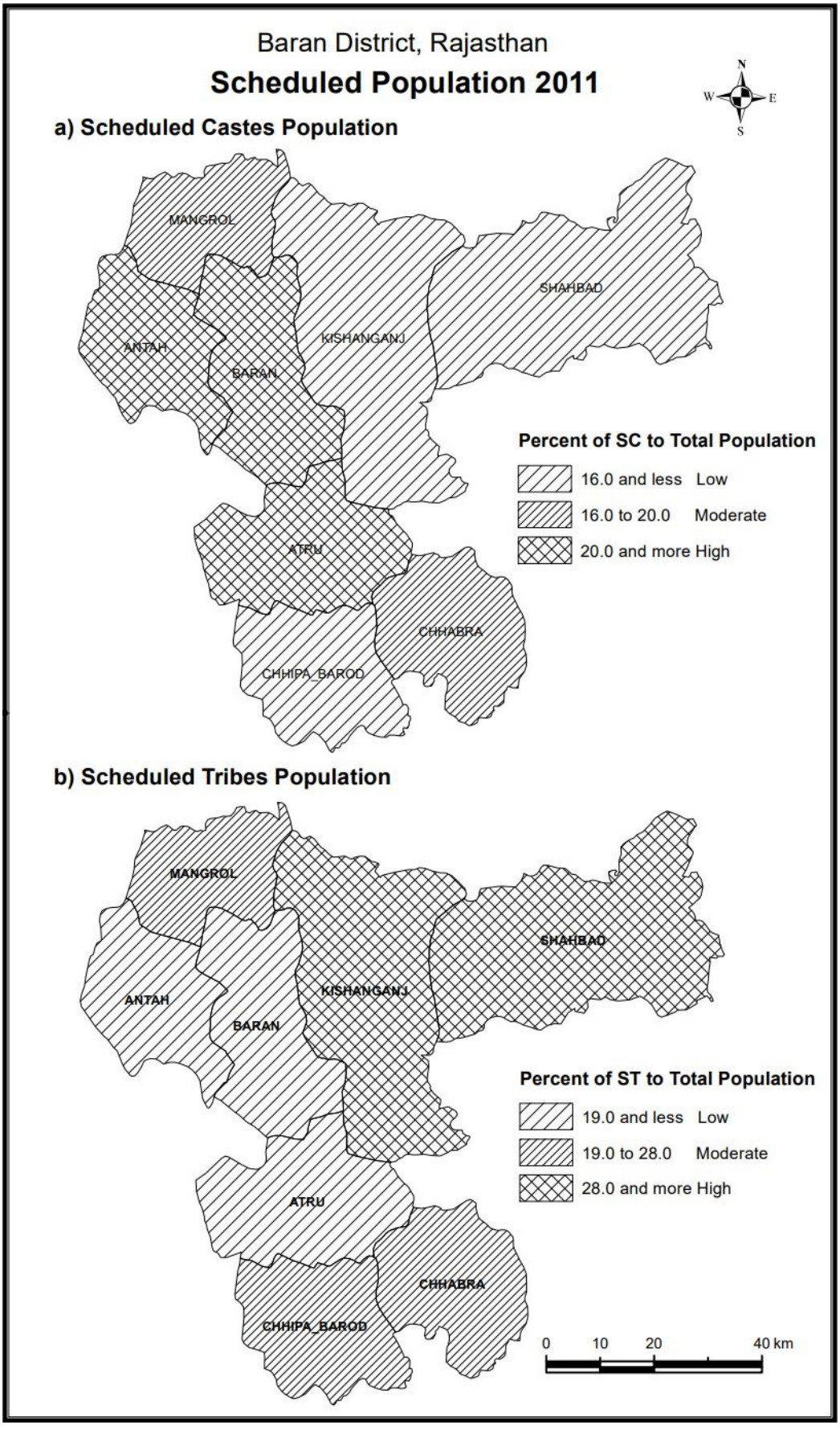
Baran District, Rajasthan
Scheduled Population 2011
N
W
E
S
a) Scheduled Castes Population
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Percent of SC to Total Population
16.0 and less Low
16.0 to 20.0 Moderate
20.0 and more High
b) Scheduled Tribes Population
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Percent of ST to Total Population
19.0 and less Low
19.0 to 28.0 Moderate
28.0 and more High
0 10 20 40 km

Fig. 1.5

Tribes of Baran District

Meena and Sahariya are the largest tribal community in Rajasthan's Baran district. The population of the Sahariya tribe in Baran district was 20,153. However, it is important to note that the actual population of the Sahariya tribe may be higher as many people may have been classified under other categories due to the lack of awareness about their tribal identity (Census of India, 2011).

The Sahariya tribe is mainly concentrated in the southeastern parts of Baran district, particularly in the Shahabad and Kishanganj tehsils. However, they can also be found in other parts of the district (Rajasthan State Commission for Scheduled Tribes).

The Sahariya are Rajasthan's fourth most numerous tribe. Outside the main villages, or Saharana, are where the Sahariya people live. It is composed of a few stone boulders, and the roofing is made of stone slabs, which are known as Patore locally. Mud structures are also built in some villages. They typically reside in joint families.

The majority of Sahariyas are farmers who also serve as bonded labourers in farm houses and businesses run by money lenders. Sahariya is the only Particularly Vulnerable Tribal Groups (PVTG) who lives in Rajasthan's Baran district. The largest and most primitive tribe living in this region's forest is this one.

They live in the rural communities beyond the Parbati River's eastern bank, in the mountainous and steep regions covered in dense forest. There are 449 settlements in this area, 312 of which are populated, and 137 of which are deserted. 97 percent of this PVTG resides in the Baran District's Kishanganj and Shahbad.

The population of the Meena tribe in Baran district was 156,716 (Census of India, 2011). However, it is important to note that the actual population of the Meena tribe may be higher as many people may have been classified under other categories due to the lack of awareness about their tribal identity.

In terms of socio-economic conditions, the Meena tribe in Baran district faces several challenges such as poverty, illiteracy, and lack of access to basic amenities. Many

members of the tribe are involved in traditional occupations such as agriculture, cattle rearing, and forestry, which often provide low wages and little job security. In terms of distribution, the Meena tribe is mainly concentrated in the southern and southeastern parts of Baran district, particularly in the areas around the Chambal river and its tributaries. However, they can also be found in other parts of the district. (National Commission for Scheduled Tribes, Government of India).

Population Growth

Any change in population is referred to as population growth, and it is increase and decrease in the number of people in a certain area during a given time. Population growth rate specifically refers to the change in population over a unit of time, which is frequently stated as a percentage of the population's size at the start of the period (World Population Prospects 2019).

Population increase is a subject that is getting more and more crucial to examine. This is mostly due to how much it has taxed administrators, planners, economists, and other professionals to investigate the global population boom. Many geographers, demographers, sociologists, anthropologists, and legislators, as well as social, educational, economic, and political institutions, have expressed worry over it.(Hans Raj,1978)

Table 1.5 Decadal Population Growths in Baran District 1991 to 2011.

	Baran (2001)		**Baran (2011)**	
	Population	**Percentage**	**Population**	**Percentage**
Total	211,327	26.1	2,01,282	19.71
Male	107,825	25.2	98,902	18.48
Female	103,502	27.0	1,02,380	21.05

Source- DCHB-2001,2011.

Table 1.6 Tehsil wise Decadal Population Growth Change 2001 and 2011

Tehsil	2001	2011
Mangrol	22.1	14.34
Anta	26.2	15.60
Baran	31.2	17.58
Atru	23.7	12.80
Kishanganj	24.8	23.40
Shahbad	30.3	31.36
Chhabra	24.8	24.67
Chhipabarod	24.0	18.77
Total	**26.1**	**19.71**

Source- DCHB- 2001 and 2011.

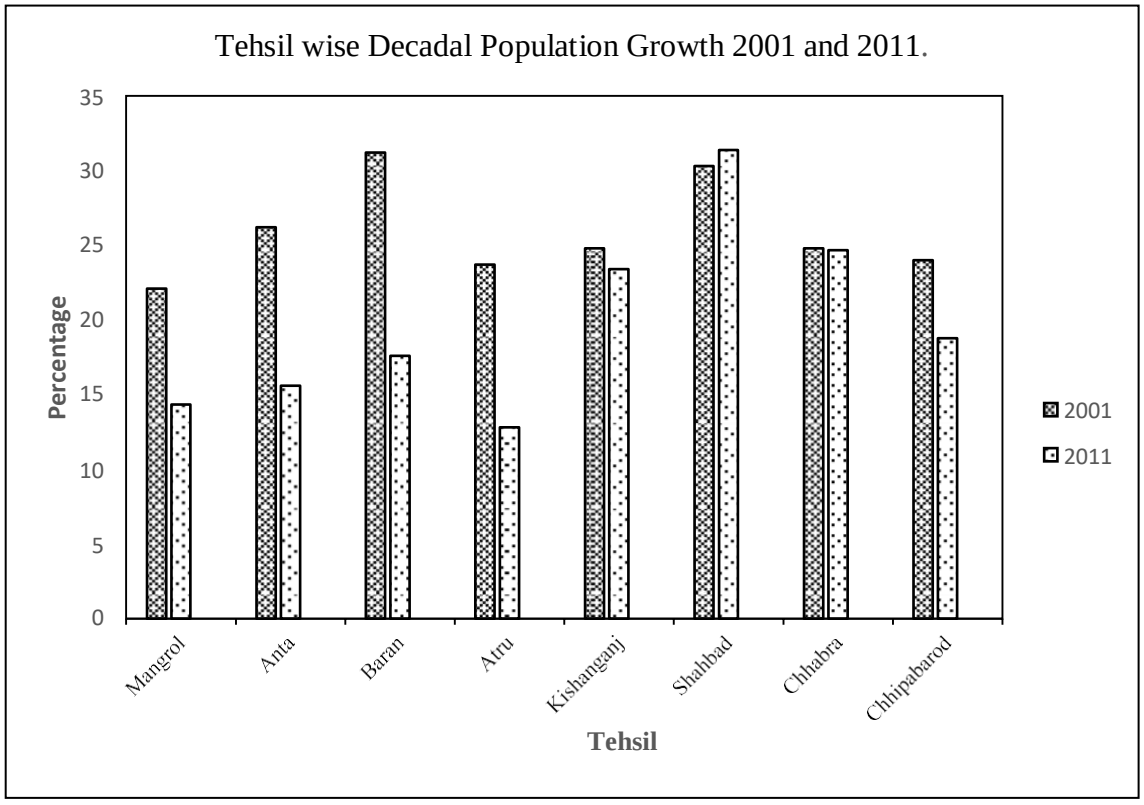

Fig. 1.6

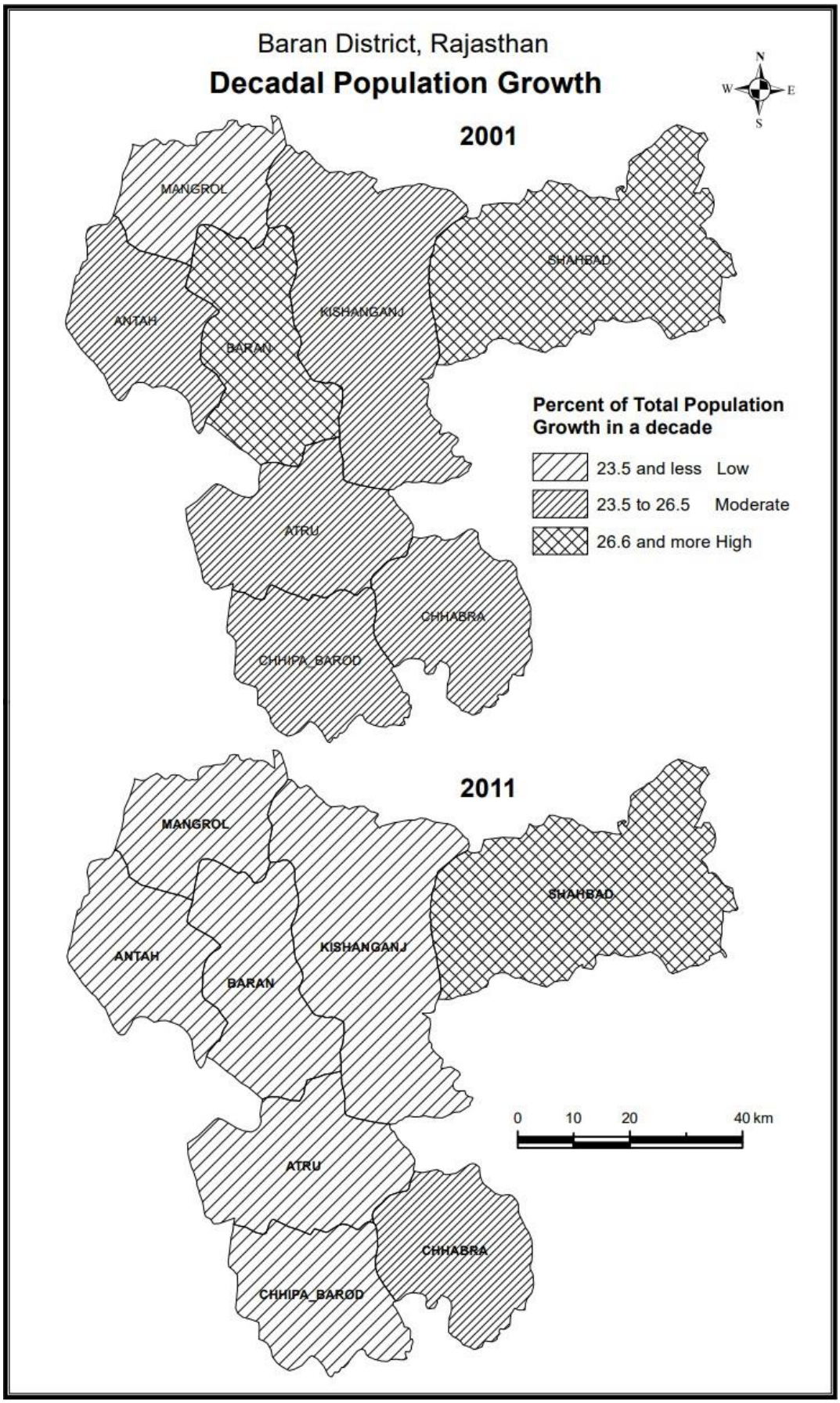
Baran District, Rajasthan
Decadal Population Growth
N
W
E
S
2001
MANGROL
SHAHBAD
ANTAH
KISHANGANJ
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Percent of Total Population Growth in a decade
23.5 and less Low
23.5 to 26.5 Moderate
26.6 and more High
2011
MANGROL
SHAHBAD
ANTAH
KISHANGANJ
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
0 10 20 40 km

Fig. 1.7

Between 2001 and 2011, there was a -6.93 percent decrease in population. Except for Shahbad, all the tehsils have negative growth. The district recorded a 26.1 percentage point decadal variation between 1991 and 2001, according to decadal growth in 2001.

In terms of total areas, it ranges from the lowest of 22.1 percent in Mangrol tehsil to the highest of 31.2 percent in Baran tehsil. The district recorded a percentage decadal variation of 19.71 between 2001 and 2011 in terms of decadal growth. At the tehsil level, it ranges from a minimum of 12.80 percent in Atru tehsil to a maximum of 31.36 percent in Shahbad tehsil in total areas (Fig. 1.7).

Population density

The phrase "arithmetic" or "general density" refers to the straight forward relationship between the total population and the total land area, represented in terms of people per unit of area(Trewartha ,1969) .The level of population concentration can be determined by density. A population's "density" is defined as the population to land area ratio. The idea of population density is now used more frequently by geographers. In order to roughly gauge the strain of the population on the local resources, it is a straightforward notion to relate population size to land area.This means that it is a measurement of the incidence of population concentration and that it is typically stated in terms of people per square kilometre or square mile of land area rather than in terms of gross area. Population serves as the calculation's numerator, while area serves as the denominator (Chandna,2003).

Density in 2011-It is clearly indicated that average density of Baran district was 175 persons per square kilometer in 2011 and increased by 210 persons per square kilometer in 2021 (Table- 1.7).

High Density Area: Accordingto 2011 censes, high density of population found only in one tehsil name Baran. As per projected population of 2021, high density of population again found in only Baran tehsil. High density is found due to the better infrastructural facilities like healthcare, education, job opportunities, industries etc (Table-1.8).

Moderate Density: The moderate density in 2011 and 2021 found in 4 tehsil name Anta, Mangrol, Chhabra, and Chhipabarod. Decade 2021 does not show any change in the density (Table- 1.8).

Low Density Area(less than 144)

The Low Density of population observed in 3 tahsils in both the decades 2011 and 2021. For 2011 census low density observed in Shahbad,Kishanganj and Atru. For decade 2021 low density observed in Shahbad, Kishanganj and Atru. The reason behind the low density in these three tahsils are economic backwardness, minimum development in agricultural region and tribal population (Fig 1.9).

Table 1.7: Density of Population in Baran District 2011 and 2021

Tehsil	Person/100km^2	
	2011	2021
Anta	229	264
Atru	177	200
Baran	339	398
Chhabra	190	237
Chhipabarod	205	244
Kishanganj	117	144
Mangrol	233	267
Shahbad	97	127
Total	**175**	**210**

Source-DCHB-2001,2011

Table 1.8: Spatial Pattern of Population Density (2011 and 2021)

Range	2011	Range	2021
<177	Kishanganj, Shahbad, Atru	<217	Kishanganj, Shahbad, Atru
177.0-258.0	Mangrol, Anta, Chhipabarod, Chhabra	217.1-307.0	Mangrol, Anta, Chhabra, Chhipabarod
>258.1-339	Baran	>307.0	Baran

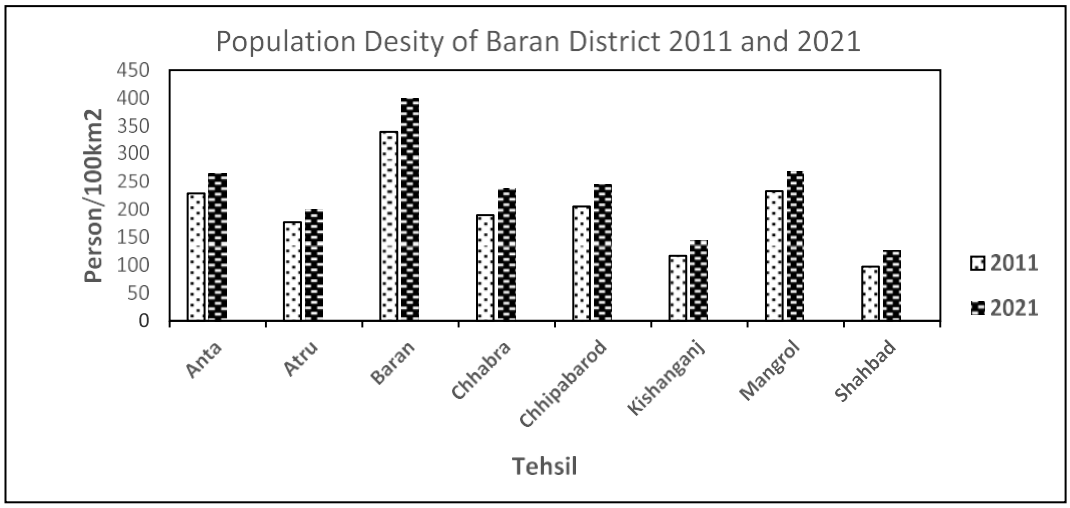

Fig. 1.8

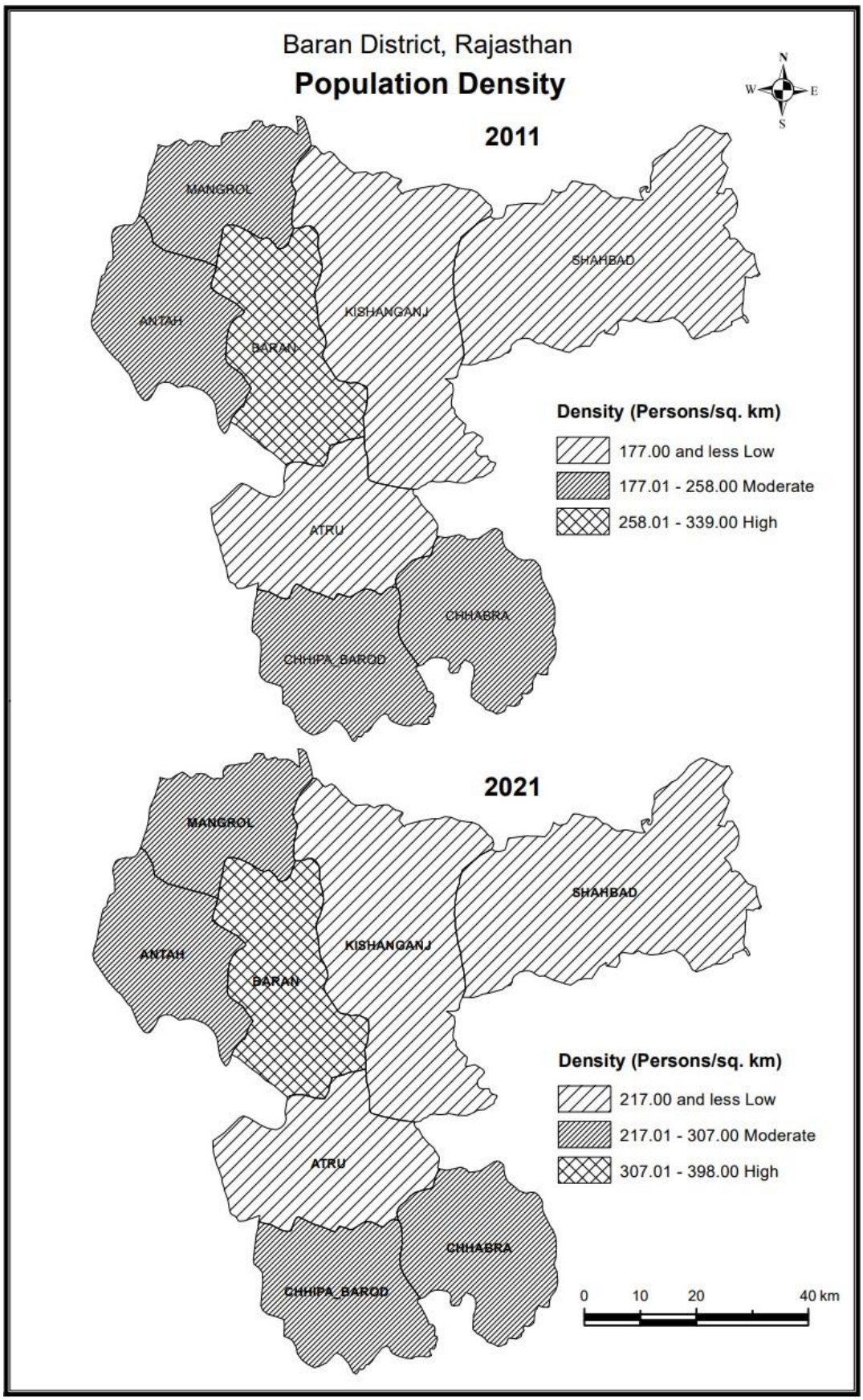
Baran District, Rajasthan
Population Density
N
W
E
S
2011
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Density (Persons/sq. km)
177.00 and less Low
177.01 - 258.00 Moderate
258.01 - 339.00 High
2021
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Density (Persons/sq. km)
217.00 and less Low
217.01 - 307.00 Moderate
307.01 - 398.00 High
0
10
20
40 km

Fig. 1.9

Literacy

A person aged 7 years and above who can both read and write with understanding in any language is taken as literate. A person who can only read but cannot write is not literate. It is not necessary that to be considered as literate, a person should have received any formal education or passed any minimum educational standard. Literacy could have been achieved through adult literacy classes or through any non-formal educational system. People who are blind and can read in Braille are treated as literates (census, 2011).

The amount of literate population is measured to be one of the important defensive indicators for measuring the level of society living or social well-being. It is believed that literacy in general take about much preferred public awareness particularly by way of their efficient participation in the development activities.

However, the percentage of literacy only as an indicator of social growth and well being need not always show a cheering pattern of well-being. The other factors such as level of education, diversification and specializations of education significantly add to the wellbeing of society.

On account of educational facilities, communication, media network, multinational social structure are choosy but effective interactions in urban areas, the proportion of the literates and the educated may be more in urban areas(Kulkarni,1990).

Decadal literacy of Baran district 2001 and 2011 is sown in table no. 1.9 and representing in figure no. 1.10

Table 1.9: Decadal Literacy of Baran District 2001 and 2011.

Tehsil	2001			2011		
	Male	Female	Person	Male	Female	Person
Mangrol	79.1	44.9	62.6	84.13	55.26	70.18
Anta	82.0	48.8	66.2	84.70	56.66	71.17
Baran	83.9	54	69.7	86.75	62.92	75.27
Atru	80.0	43.6	62.8	83.75	54.74	69.79
Kishanganj	67.3	35.1	52.0	72.55	45.48	59.42
Shabad	68.3	33.2	51.7	77.32	47.16	62.79
Chhabra	73.3	37.5	56.5	77.41	47.35	63.05
Chhipabarod	70.0	31.4	51.5	76.14	44.27	60.67
Total	75.8	41.6	59.5	80.35	51.96	66.66

Source- DCHB- 2001, 2011.

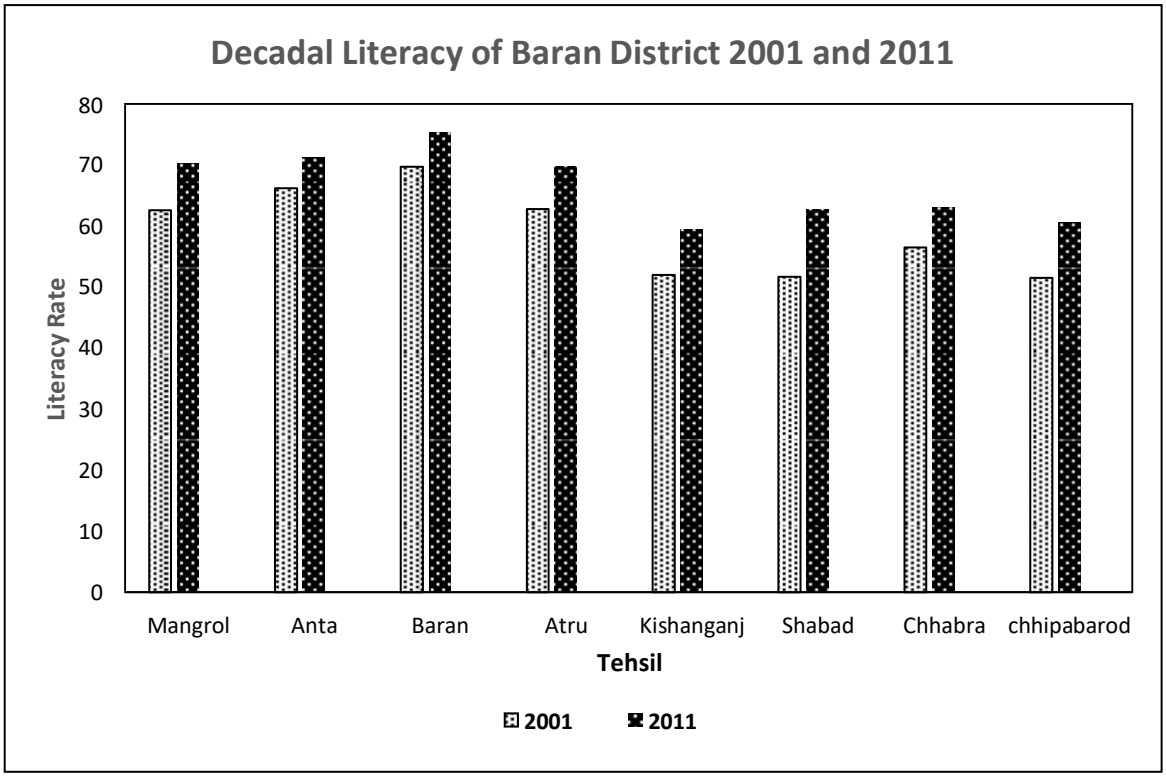

Fig. 1.10

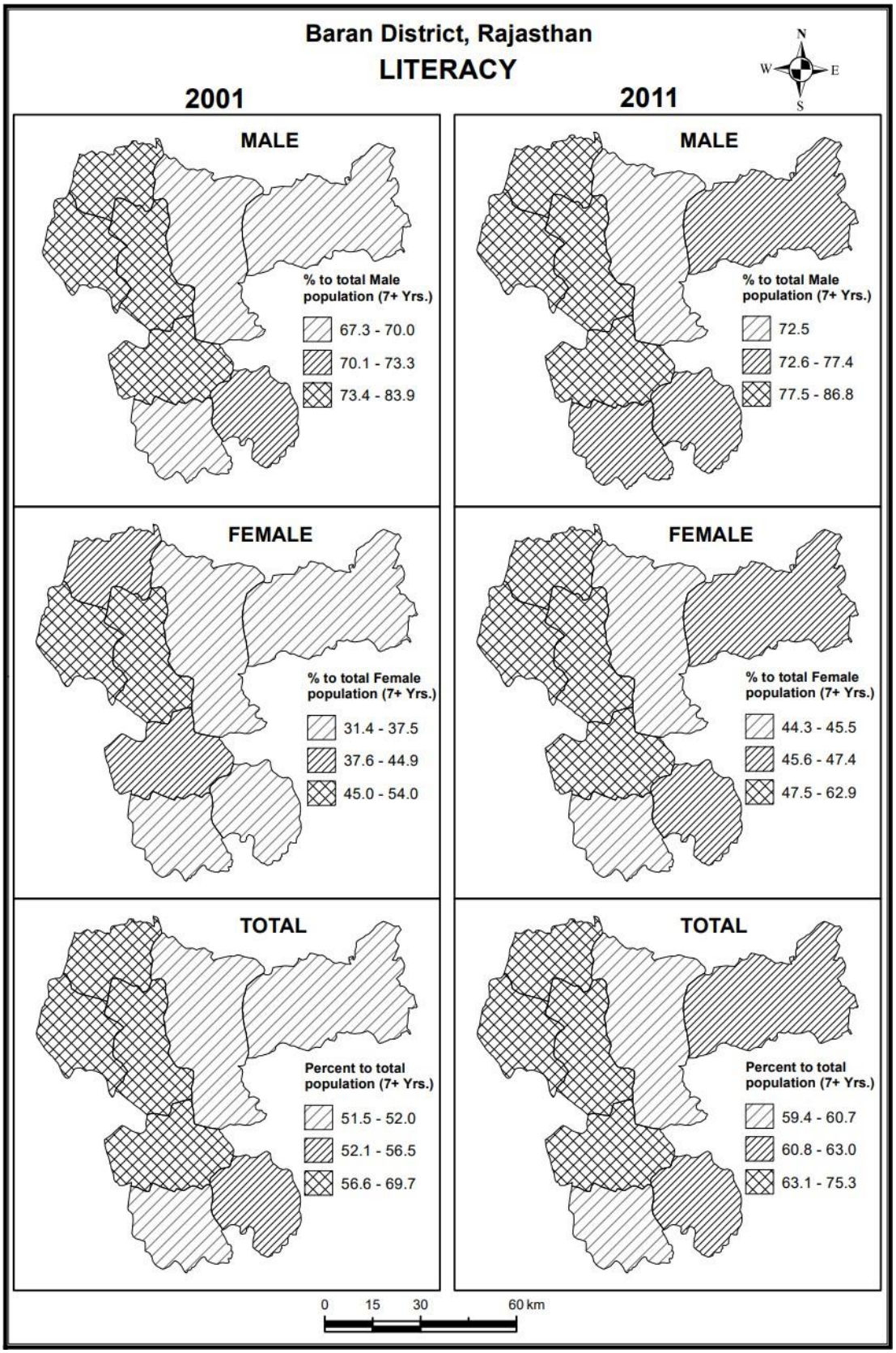
Baran District, Rajasthan
LITERACY
2001
2011
N
W
E
S
MALE
% to total Male population (7+ Yrs.)
67.3 - 70.0
70.1 - 73.3
73.4 - 83.9
MALE
% to total Male population (7+ Yrs.)
72.5
72.6 - 77.4
77.5 - 86.8
FEMALE
% to total Female population (7+ Yrs.)
31.4 - 37.5
37.6 - 44.9
45.0 - 54.0
FEMALE
% to total Female population (7+ Yrs.)
44.3 - 45.5
45.6 - 47.4
47.5 - 62.9
TOTAL
Percent to total population (7+ Yrs.)
51.5 - 52.0
52.1 - 56.5
56.6 - 69.7
TOTAL
Percent to total population (7+ Yrs.)
59.4 - 60.7
60.8 - 63.0
63.1 - 75.3
0
15
30
60 km

Fig. 1.11

According to census 2001, the district has registered a literacy rate of 59.5 per cent. The highest literacy found in Baran (69.7) tehsil and the lowest literacy observed in Chhipabarod (51.5). The main reasons for this low literacy was lack of awareness, economic problems, rural proportion was more than urban area and lack of educational institutions. both male and female maximum literacy was observed in baran tehsil with 83.9 percent and 54 percent respectively (Table- 1.9).

In 2011 total literacy was higher than 2001 with 66.66percent male and female literacy was 80.35percent and 51.96percent respectively. The highest literacy again observed in Baran tehsil with 75.27percent and lowest literacy observed in Kishanganj tehsil. The increase in percentage is due to improvement in educational facilities in private and public schools, in the rural areas (Fig. 1.11).

All the tahsils are shown in positive change in literacy. female literacy was very low in both the decades because of distance of schools from home, lack of awareness, low age marriage etc.

Sex Composition

Sex ratio refers simply to the number of females per thousand male populations. Sex composition constitutes one of the most readily observable 148 elements of population. It is an important aspect of population composition that sets the future rates of fertility, mortality and migration. The sex ratio is a function of three basic factors, i.e. sex ratio at birth, differentials in mortality between sexes at different stages of life and sex selective migration (Clarke, J. I. (1960).

Sex ratio is one of the important socio-demographic indicators, which has significant impact on population growth and gender issues. The sex composition of a population is the most basic of all demographic characteristics and plays a vital role in population analysis, since it affects directly the incidence of births, deaths and marriages. Migration rate, occupational structure and virtually all other population characteristics may be influenced by the ratio between the two genders. (United Nations. 1953.)

Table 1.10: Sex Ratio of State and District, 1901 to 2011.

Year	State	District
1901	905	940
1911	908	937
1921	896	926
1931	907	931
1941	906	919
1951	921	934
1961	908	913
1971	911	898
1981	919	903
1991	910	896
2001	921	909
2011	928	929

Source- DCHB 2011

The district has witnessed a fluctuating trend in sex ratio since 1901. From 940 in 1901 it declined to 937 in 1911 and was 926 in 1921. The sex-ratio again increased to 931 in 1931 and declined to 919 in 1941.

During the last decade the sex-ratio was 909 in 2001 to 929 in 2011. Sex ratio of district remains higher than state sex ratio from 1901 to 1961. In sharp contrast to it, sex ratio of district decline in comparison to state from 1971 to 2001 but again sex ratio of district becomes higher than state sex ratio in 2011.

Table 1.11: Tehsil Wise Sex Ratio of the District 2001 and 2011.

Tehsil	2001	2011
Mangrol	925	929
Anta	911	928
Baran	907	928
Atru	905	925
Kishanganj	919	941
Shahbad	896	927
Chhabra	892	913
Chhipabarod	919	937
Total	909	929

Source- DCHB-2001, 2011.

The sex ratio changed from 909 to 929 females per thousand males in 2001 and 2011. The district has registered a sex ratio of 909 in 2001(Table- 1.11). At the tehsil level, the highest sex ratio of 925 has been registered by Mangrol tehsil and the lowest of 892 by Chhabra tehsil.

The district has registered a sex ratio of 929 in 2011. At the tehsil level, the highest sex ratio of 941 has been registered by Kishanganj tehsil and the lowest of 913 by Chhabra tehsil for total areas. There is only positive change from 2001 to 2011. Main reason behind this is high change of growth in literacy rate and out migration of male workers.

To study the spatial pattern of sex ratio, the area has been divided in to three categories. (i) Low (ii) Medium and (iii) High (Fig.1.13 and 1.14).

Table 1.12: Baran District Sex Ratio 2001 and 2011.

Category	Range	Tehsil (2001)	Range	Tehsil (2011)
Low	<904	Shahbad, chhabra	<926	Atru,Chhabra
Medium	904-914	Anta, baran, atru	926-930	Atru (925)
High	>914	Mangrol, Kishanganj, chhipabarod	>930	Kishanganj

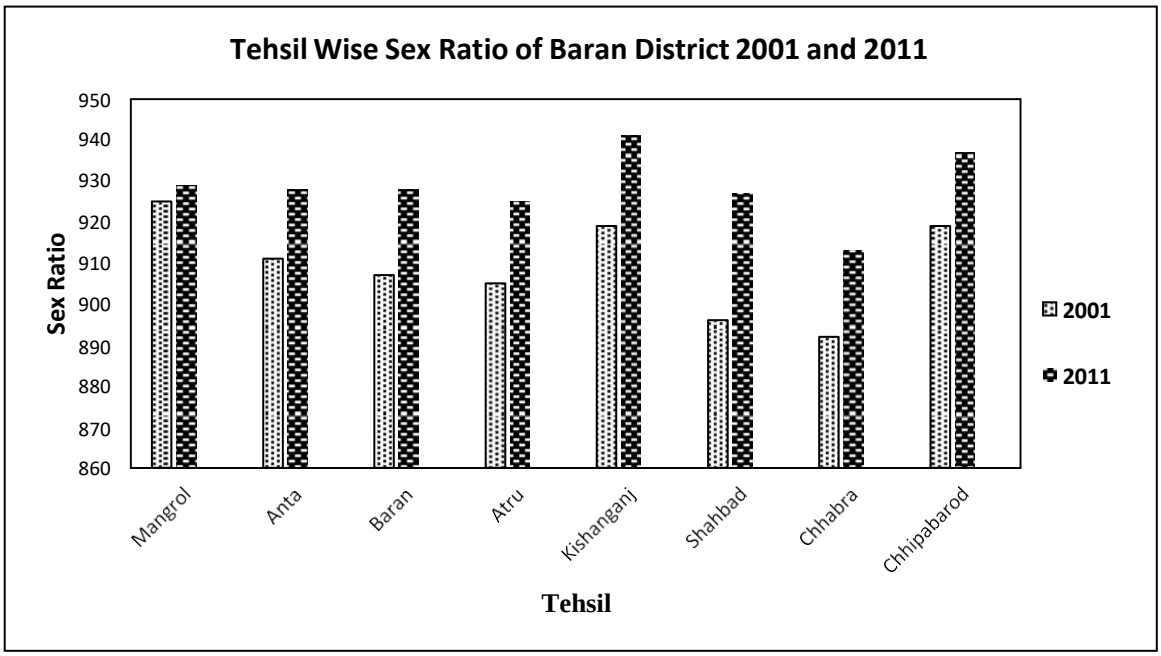

Fig. 1.12

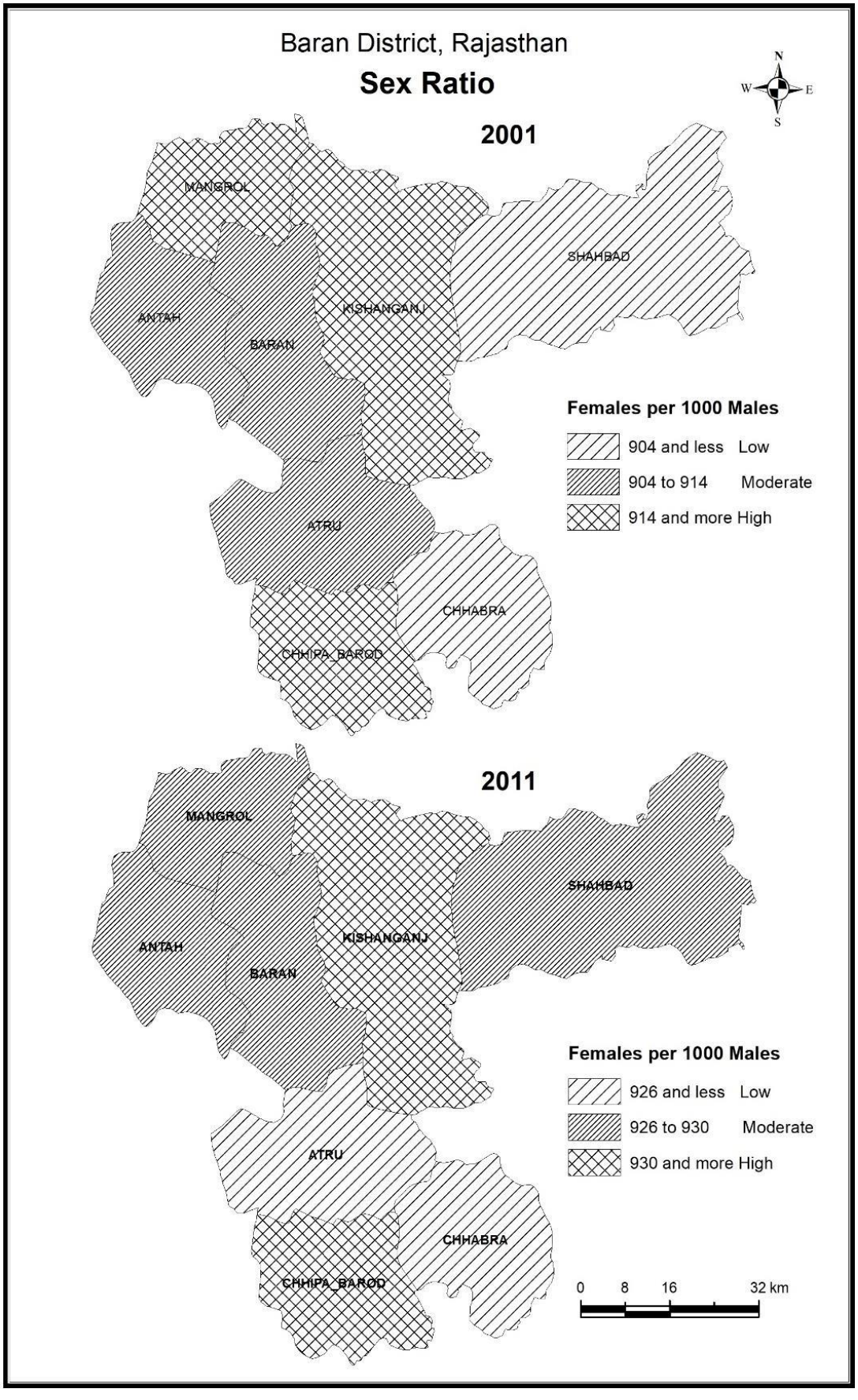
Baran District, Rajasthan
Sex Ratio
N
W
E
S
2001
MANGROL
SHAHBAD
ANTAH
KISHANGANJ
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Females per 1000 Males
904 and less Low
904 to 914 Moderate
914 and more High
2011
MANGROL
SHAHBAD
ANTAH
KISHANGANJ
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Females per 1000 Males
926 and less Low
926 to 930 Moderate
930 and more High
0 8 16 32 km

Fig. 1.13

Occupational structure

Working force is the economically active part of the population engaged in the production of goods and services. The other part is of economically non-active category called non-workers. The size and spatial pattern of the working force provides the basis for discussing occupational structure. The term worker included all the full-time workers, seasonal workers and part-time workers. The workers are further classified into main workers and marginal workers.

Main workers are those who worked for the major part of the year i.e. six months (183 days) or more and marginal workers are those who worked for less than six months. Persons who did not participated in any economically productive students, dependents, retired persons, beggars, inmates of institutions and other workers.

Among all the social attributes of a population, occupation is of paramount importance since it exerts vital influence on several personal, social and demographic characteristics (Singh Pratap Ram, 2015). The occupation of an individual refers to his trade or profession or type of work. The occupational structure of a community is the product of various socio-spatial and economic factors(Ramotra,2008)

Non-Workers -A person who has not worked at all in any economically productive activity during the reference period (i.e. last one year preceding the date of enumeration) is termed as 'Non worker'. (Census of India, 2011)

Marginal Workers -A person who worked for 3 months or less but less than six months of the reference period (i.e. in the last one year preceding the date of enumeration) in any economic activity is termed as 'Marginal worker'. (Census of India, 2011)

Main worker: A person who has worked for major part of the reference period (i.e. six months or more during the last one year preceding the date of enumeration) in any economically productive activity is termed as 'Main worker'.(Census of India 2011)

Table 1.13: Percentage of Main, Marginal and Non-workers in District, 2001

Tehsil	Main Worker	Marginal Worker	Total Worker	Non Worker
Mangrol	26.4	14.3	40.7	59.3
Anta	26.0	14.3	40.3	59.7
Baran	25.2	11.0	36.2	63.8
Atru	28.5	13.3	41.8	58.2
Kishanganj	28.5	15.6	44.1	55.9
Shahbad	27.9	18.1	46.0	54.0
Chhabra	33.5	12.7	46.3	53.7
Chhipabarod	38.6	9.5	48.1	51.9
Total	**29.4**	**13.3**	**42.7**	**57.3**

Source- DCHB-2001.

In the district, 42.7 per cent of the total population comprises of total workers (main + marginal) and the rest 57.3 per cent as non-workers(Table-1.13). Of the total workers (42.7 percent), 29.4 per cent are as main workers and the rest 13.3 per cent as marginal workers. At the tehsil level, Chhipabarod tehsil(48.1) has recorded the highest percentage of total workers. On the other hand, Baran tehsil(36.2) has recorded the lowest percentage of total workers.

Table 1.14: Percentage of Main, Marginal and Non workers in District, 2011

Tehsil	Main Worker	Marginal Worker	Total Worker	Non Worker
Mangrol	28.67	16.81	45.48	54.52
Anta	25.94	16.47	42.41	57.59
Baran	28.24	10.12	38.36	61.64
Atru	28.36	18.37	46.73	53.27
Kishanganj	26.36	20.06	46.41	53.59
Shahbad	29.82	16.87	46.70	53.30
Chhabra	33.68	14.22	46.91	52.09
Chhipabarod	33.62	15.67	49.29	50.71
Total	**29.42**	**15.77**	**45.19**	**54.81**

Source- DCHB, 2011.

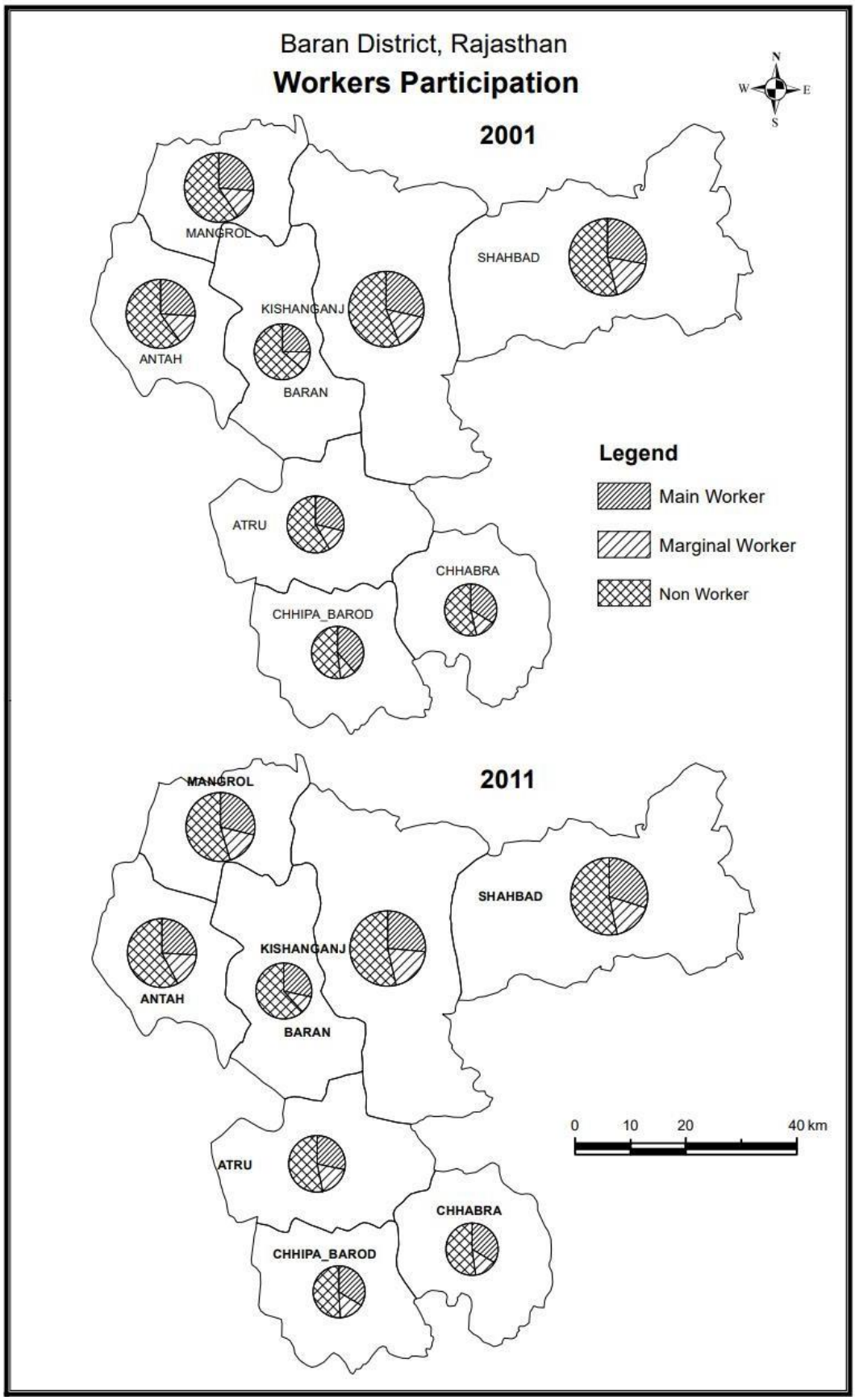
Baran District, Rajasthan
Workers Participation
N
W
E
S
2001
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Legend
Main Worker
Marginal Worker
Non Worker
2011
MANGROL
SHAHBAD
KISHANGANJ
ANTAH
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
0
10
20
40 km

Fig. 1.14

In the district, 45.19 percent of the total population comprises of total workers (main + marginal) and the rest 54.81 percent as non-workers (Table- 1.14). Of the total workers (45.19 percent), 29.42 percent are as main workers and the rest 15.77 percent as marginal workers. At the tehsil level, Chhipabarod (49.29) tehsil has recorded the highest percentage of total workers. On the other hand, Baran tehsil (38.36) has recorded the lowest percentage of total workers (Fig. 1.15).

It is noticed that main workers remain same in 2001 and 2011. There is no change in the percentage. Marginal workers increased to 15.77 from 13.3. it is clearly observed that percentage of non-workers is decreased in 2011.

Land Use Pattern

The agricultural land use refers to primary use of geographical area for different purposes and activities. Land use is the surface utilization of all developed and vacant land on a specific point at given time and space. It is a very important indicator of agricultural development. The land use analysis is an important aspect of geographical studies which provides proper guidelines for regional planning and development and also for future orientation. Land use pattern includes types of land and how much land is being utilized under different uses.

Land is basic resource of human society and land use is the surface utilization of all developed and vacant land on specific point at a given time and space. It is a systematic arrangement of various classes of land on the basis of certain similar characteristics mainly to identify and understand their fundamental utility, intelligently and effectively satisfying the needs of human society(Kumar and Tiwari, 2017).

The utilization of land depends upon physical factors like topography. Soil and Climate as well as upon human factors such as the density of population duration of occupation of the Area land tenure and technological advancement of the population. These spatial and temporal differences in land utilization due to the continued interplay of physical and human factors.

Table 1.15: Land Use Pattern of Baran District

S. No.	Category	Area (hectares)	Percent
1	Net Sown Area	349143	49.92
2	Land put to Non-agricultural use	32881	4.70
3	Present Fallow Land	7986	1.14
4	Other Fallow Land	13586	1.94
5	Forest	217928	31.15
6	Barren and Uncultivable Land	31939	4.57
7	Barren and Cultivable Land	12048	1.72
8	Area under Bushes and Gardens	183	0.03
9	Pastures/grazing land	33767	4.83

Source- Statistical Handbook of Baran District, 2011.

The total reported area of the Baran district during 2015-16 was 699461 hectares(Table-1.15). In general, the largest part of the land is devoted to agriculture but a considerable land is also used for non agricultural purposes. The net sown area (NSA)of the district was 349143 hectares during 2015-16. It accounted for 49.92 percent of total reported area of the district. Table shows that after net sown area the next major category of landuse are an area put to forests uses which cover about 217928 hectares (31.15%) of land followed by pastures land(33767) hectares and land put on non- agricultural use (32881 hectares).

Table 1.16: Tehsil Wise Land Use Pattern.

S. no.	**Tehsil**	**Total Reported Area**	**Net sown area**	**Forest**	**Barren and cultivable waste land**	**Barren and uncultivable waste land**	**Present fallow land**	**Other fallow land**	**Land put to non-agricultural use**	**Pasture land**	**Area under bushes and garden**
1	Mangrol	45868	34183	847	1794	3497	480	632	2929	1491	15
2	Anta	52493	37126	2258	2216	3810	256	653	4434	1674	66
3	Baran	63015	49127	474	1078	2854	500	1778	3421	3747	36
4	Atru	84699	51931	14957	1519	3452	707	2901	3938	5238	26
5	Kishanganj	143054	48459	75173	992	5628	1531	2069	4122	5057	23
6	Chhabra	80205	43857	20051	2	4383	1156	1365	5239	4147	5
7	Chhipabarod	83260	38338	32010	137	2346	440	926	3592	5470	1
8	Shahbad	146897	46122	72158	4310	5969	2916	3262	5206	6943	11
9	Total	**699491**	**349143**	**217928**	**12048**	**31939**	**7986**	**13586**	**32881**	**33767**	**183**

Source-Statistical Handbook of Baran District, 2011.

There is found variation in different categories of land use, at the block level. Table 1.16 shows the tehsil wise distribution of land use of Baran district. The total reported area among the 8 tehsil of Baran district varied from 45868 hectares in Mangrol to 146897 hectares in Shahbad. Similarly variation in the area under forest is also observed. Among the 8 tehsils of Baran district forest area varied from 474 hectare in Baran to 75173 hectares in Kishanganj. The area under barren and cultivable wasteland is found to be lowest in Chhabra tehsil, 2 hectares only and The largest area under barren and cultivable wasteland is found in Shahbad followed by Anta tehsil. Similarly variation in area under present fallow land is also found. It varies from 256 hectares in Anta to 2916 hectares in Shahbad tehsil. The area under other fallow land varies from 632 hectares in Mangrol to 3262 hectares in Shahbad tehsil. The area under barren and uncultivable waste varies from 2346 hectares in Chhipabarod to 5969 hectares in Shahbad tehsil. The area covered by land under non-agricultural uses is found lowest in Mangrol(2929 hectares) and higher in Chhabra (5239 hectares) followed by Shahbad and Anta tehsil. Area under pasture/grazing land is found minimum in Mangrol (1491hectare) and maximum (6943 hectares) in Shahbad followed by Chhipabarod and Atru. The area under bushes and gardens is very small in all 8 tehsils of Baran district. The least area under this category is found in Chhipabarod (1 hectare). The largest area under the bushes and gardens is reported in Anta (66 hectare) followed by Baran and Atru tehsils.

Agricultural Characteristics

The Baran district is one of the major agricultural districts of Rajasthan. The area under net shown area is 349143 hectares. Thus 49.92 per cent of the total reported area is under cultivation. The district is endowed with good soil, adequate ground water and have three growing seasons i.e., Rabi and Kharif both are the main crops in the district. The alluvial clay loom and black dumat soils found in the district are fertile. The district is the highest producer of the wheat in the state. The area of Kali Sindh, Chambal, and Parwan Rivers flows northward forming western boundary of Mangrol tehsil. Anta, Mangrol, Atru is much fertile in the district and Baran tehsil where north-west corner ruing with the hill ranges of adjoining is of Jhalawar district and goes up to Dara right down to Chambal. Major crops of the zone are sorghum, maize, cotton, mustard, gram linseed and coriander during Rabi season. About 26 percent of cropped area in the zone is irrigated. Recently Soya bean has emerged as an important crop in the district.

District tops in the production of wheat and coriander rabi crops. The Kharif crops main Rice, Maize, Urad, Jowar etc. Baran sesamum and soya bean production in the district is becoming famous in the state. Major crops of the zone are sorghum, maize, cotton, mustard, gram, linseed and coriander during rabi season. Potatoes, Tomato, onion, cucumber, chilly, ladyfinger, tinda, reddish are among main vegetables.

Table 1.17: Tehsil Wise Agricultural Characteristics.

S. No	Tehsil	Total Reported Area (Hectares)	Net Sown Area	
			Hectares	Percent
1	Mangrol	45868	34183	74.52
2	Anta	52493	37126	70.72
3	Baran	63015	49127	78
4	Atru	84699	51931	61.31
5	Kishanganj	143054	48459	33.87
6	Chhabra	80205	43857	54.68
7	Chhipabarod	83260	38338	46.04
8	Shahbad	146897	46122	31.39

Source-Statistical Handbook of Baran 2011.

Net sown area

Table 1.17 reveals that the net shown area among various tehsils varies from 31.39 per cent in Shahbad to 78 per cent in Baran. The area under cultivation is sown more than once to get the maximum benefit from the agricultural operations. Thus, the farmers generally get two harvests during a single cropping year. The area sown more than once during 2021-22 in Baran district is reported as 313518 hectares. The variation in climate, soil, cropping pattern, agricultural marketing and demand leads to variation in the agricultural operations. Thus, tehsil wise variation is seen not only in net sown area but also in the area sown more than once. Thus, the total area under cultivation during an agricultural year, termed as gross cropped area is calculated with the following formula:

GCA =NSA+ ASM

Where: GCA = Gross cropped area, NSA= Net sown area, and ASM = Area sown more than once

Thus, the gross cropped area (GCA) varies according to the share of NSA and area sown more than once (ASM). The level of agricultural operation can be roughly measured with the help of the cropping intensity (CI).

The cropping Intensity is calculated with the following formula:

CI = {(GCA/NSA)}*100

Where: CI = Cropping intensity, GCA = Gross cropped area, and NSA= Net sown area.

Table 1.18: Tehsil Wise Gross Cropped Area and Cropping Intensity in Baran District (2021-22)

S. No	Tehsil	TRA	NSA	ASM	CGA	CI
1	Mangrol	45868	34183	30189	64372	188.3
2	Anta	52493	37126	35027	72153	194.3
3	Baran	63015	49127	45320	94447	192.3
4	Atru	84699	51931	49800	101058	194.6
5	Kishanganj	143054	48459	41400	89859	185.4
6	Chhabra	80205	43857	41892	85749	195.5
7	Chhipabarod	83260	38338	36533	74871	195.2
8	Shahbad	146897	46122	33357	79479	172.3
Total		699491	349143	313518	662661	1518.0

Source- Statistical Handbook 2011.

TRA - Total Reported Area, NSA - Net Sown Area, GCA - Gross Cropped Area ASM - Area Sown More than once

Thus the cropping intensity of Baran district is calculated as 189.8 per cent. The Table 1.18 depicts the tehsil wise variation in gross cropped area (GCA) and Cropping Intensity (CI) in Baran district. Higher cropping intensity means area is cropped more than once. Higher cropping intensity is calculated for Chhabra (195.5%) followed by Chhipabarod(195.2%), Atru (194.6%) and Anta (194.3%) tehsil, whereas, lower cropping intensity is calculated for Shahbad (172.3%) followed by Kishanganj (185.4%) tehsil. Southern part (Chhabra, Chhipabarod, Atru and Anta) of the district record higher cropping intensity (>194%) while, eastern part of the district record low cropping intensity (<186%).

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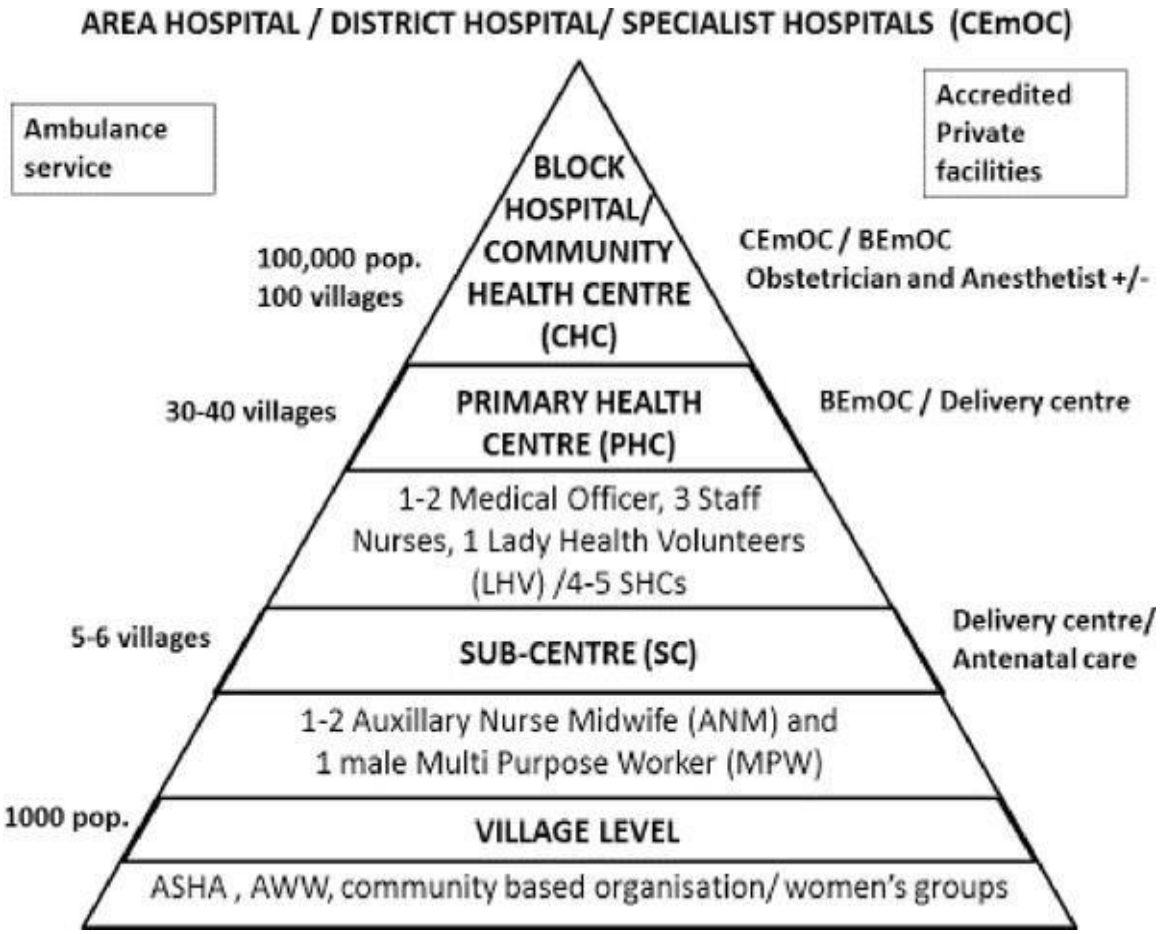
CHAPTER 2

Spatio-Temporal Analysis of Healthcare Facilities

Public Healthcare Structure of India.

The way in which health services are provided, used, and have an impact on health outcomes is heavily influenced by health systems and policies. The Bhore Committee Report, also known as the Report on the Health Survey and Development Committee, was published in 1946 and is often referred to as a seminal document for India, from which the country's current health systems and policies have developed. The principles on which the current public health-care systems were based were the recommendation for a three-tiered health-care system to provide preventive and curative healthcare in rural and urban areas, placing health workers on government payrolls and reducing the need for private practitioners. Based on the demographic norms of the population, a three-tiered system of public health care infrastructure has been designed.



Sub Centres (SCs)

The most remote and first point of contact between the primary healthcare system and the community, a sub-centre (SC) is constructed in plain areas with a population of 5000 and in hilly/difficult to reach/tribal areas with a population of 3000. A minimum of one auxiliary nurse midwife (ANM)/female health worker and one male health worker must be present in each SC (for further information, see the recommended staffing structure under the Indian Public Health Standards (IPHS)). Six sub-centres are overseen by a Lady Health Worker (LHV), who is also expected to provide services in the areas of maternal and child health, family welfare, nutrition, immunization, diarrhea control, and communicable disease control. Each sub-center is given access to basic medications for minor ailments. A contract-based position for one additional ANM is allowed under the National Rural Health Mission (NRHM).

SCs are given responsibilities including interpersonal contact in order to modify behaviour and offer services in relation to maternity and child health, family welfare, nutrition, immunization, diarrhoea control, and control of communicable illnesses programmes. Since April 2002, the Ministry of Health & Family Welfare has been supplying all of the SCs in the nation with total central aid in the form of wages, rent, and contingency funds, in addition to medicines and equipment.

Primary Health Centres (PHCs)

A primary health centre (PHC), which serves as the first point of contact between the village community and the medical officer, is constructed in plain regions with a population of 30000 and in hilly/difficult-to-reach/tribal areas with a population of 20000. With a focus on the preventive and promotive components of healthcare, PHCs were designed to offer comprehensive curative and preventive healthcare to the rural population. Under the Minimum Needs Program (MNP)/Basic Minimum Services (BMS) Program, the State Governments develop and operate PHCs. A PHC must have a medical officer on staff as a minimum, as well as 14 paramedical and other professionals. Six sub-centers use it as a referral unit. For inpatients, it has four to six beds. PHC offers therapeutic, preventative, and family welfare services.

Community Health Centres (CHCs)

Under the MNP/BMS initiative, community health centres (CHCs) are constructed and maintained by the State Government in areas with a population of 1,20,000 and in mountainous, difficult-to-reach, and tribal areas with a population of 80,000. A CHC must have four medical specialists on duty, including a surgeon, physician, gynecologist/obstetrician, and paediatrician, along with 21 paramedical and support workers, in order to meet basic standards. With a surgical theatre, X-ray room, labour room, and laboratory equipment, it offers 30 beds. Additionally to offering facilities for obstetric care and expert consultations, it serves as a referral hub for PHCs in the neighbourhood (Chokshi, et.al., 2016).

Table 2.1: Population Norms for Health Infrastructure in Rural India

Centre	Plain Area	Hilly/ Tribal Areas
Sub- Centres	5000	3000
Primary Health Centres	30,000	20,000
Community Health Centres	1,20,000	80,000

Source:- Health and Family Welfare Statistics in India, 2013.

Health Care Infrastructure in India

There are 156101 and 1718 Sub Centres (SC), 25140 and 5439 Primary Health Centres (PHCs), and 5481 and 470 Community Health Centres (CHCs) operating in rural and urban parts of the nation, respectively, as of March 31, 2021(Table 2.2). SCs (Sub Centres),At the national level, there are now 10075 more SCs than there were in 2005. The States Rajasthan (3019), Gujarat (1888), Madhya Pradesh (1315), and Chhattisgarh have seen a considerable growth in SCs (1297). As of the end of March 2021, there were 1718 Sub Centres in metropolitan areas. As of March 31, 2021, there were 26351 Sub Centres throughout the tribal territories. PHCs (Primary Health Centres), In comparison to the year 2005, there is 1904 more PHCs nationwide in 2021. The state Jammu and Kashmir (557), Karnataka (460), Rajasthan (417), Gujarat (407) and Assam (338) have seen an increase in PHCs since 2005(Table 2.2). As of March 31, 2021, there is 5439 PHCs in urban areas and 3966 PHCs in the tribal areas.

CHCs (Community Health Centres), At the national level, there are now 2135 more CHCs than there were in 2005. The States Uttar Pradesh (367), Tamil Nadu (350), Rajasthan (263), West Bengal (253) and Bihar(205) have seen an increase in CHCs

since 2005. As of the end of March 2021, there were 470 CHCs in urban areas and 975 CHCs in the tribal areas.

Table 2.2: **Healthcare Infrastructure of India 2015 and 2021**

S. No	State/UT	2015			2021		
		Sub centre	PHC	CHC	SUB centre	PHC	CHC
1	Andhra Pradesh	12522	1570	164	7437	1142	141
2	Arunachal Pradesh	379	85	31	337	122	57
3	Assam	5109	610	100	4663	948	197
4	Bihar	10337	1648	101	10258	1932	306
5	Chhattisgarh	3818	517	116	5115	769	166
6	Goa	172	19	5	219	23	6
7	Gujarat	7274	1070	272	9162	1477	333
8	Haryana	2433	408	72	2626	384	124
9	Himachal Pradesh	2068	439	66	2114	553	98
10	Jharkhand	4462	561	47	3848	291	171
11	Karnataka	8143	1681	254	8891	2141	182
12	Kerela	5094	911	106	5234	782	213
13	Madhya Pradesh	8874	1192	229	10189	1234	295
14	Maharashtra	10453	1780	382	10673	1839	270
15	Manipur	420	72	16	416	86	17
16	Meghalaya	401	101	24	448	121	28
17	Mizoram	366	57	9	340	62	9
18	Nagaland	394	87	21	427	131	21
19	Orissa	5927	1282	231	6688	1288	377
20	Punjab	2858	484	116	2951	422	150
21	**Rajasthan**	**10512**	**1713**	**326**	**13531**	**2130**	**589**
22	Sikkim	147	24	4	147	24	2
23	Tamil Nadu	8682	1380	35	8713	1422	385
24	Telangana	-	-	-	4744	636	85
25	Tripura	539	73	10	967	108	22
26	Uttarakhand	1576	225	44	1823	245	53
27	Uttar Pradesh	20521	3660	386	20778	2923	753
28	West Bangal	10356	1173	95	10357	915	348
29	A and N island	107	20	4	124	22	4
30	Chandigarh	13	0	1	0	0	0
31	Dadar and Nagar haveli	38	6	1	94	12	3
32	Daman and Diu	21	3	1			
33	Delhi	41	8	0	12	5	0
34	J&K	1879	334	70	2426	891	63
35	Ladakh	-	-	-	289	32	7
36	Lakshadweep	14	4	3	7	4	3
37	Puducherry	76	39	4	53	24	3
38	**India**	**146026**	**23236**	**3346**	**156101**	**25140**	**5481**

Source-Ministry of Health and Family Welfare (MoHFW), Rural Health Statistics, 2020-21.

Healthcare Infrastructure of Rajasthan

As of 2021, Rajasthan has made significant progress in improving its healthcare infrastructure, particularly in rural areas. According to a report by the Ministry of Health and Family Welfare (MoHFW), the state government manages a vast network of medical facilities, including 13,581 sub centers, 2394 primary health centers(PHCs) , 657 community health centers(CHCs), and 28 district hospitals(Table 2.3), to provide a range of preventive and curative health services to the public. According to the Rajasthan Health Department, the state has achieved significant progress in meeting the IPHS standards, with 98 percent of PHCs and 100 percent of CHCs meeting the criteria as of March, 2021. These facilities have been strategically established based on the population census and are being upgraded to comply with the Indian Public Health Standards, with particular emphasis on maintaining cleanliness, providing safe water supply, clean toilets, and 24-hour electric supply. Additional measures, such as accommodating attendants in hospitals and ensuring prompt delivery of services, are also being put in place. Despite this vast network, however, access to the targets remains a significant challenge in enhancing health services.

Table-2.3: Healthcare Infrastructure of Rajasthan (2020-21)

S. No	District	Sub centre	PHCs	CHCs	District hospital
1	Ajmer	370	84	25	2
2	Alwar	699	130	40	1
3	Banswara	455	58	22	1
4	**Baran**	**263**	**52**	**14**	**1**
5	Barmer	729	105	26	1
6	Bharatpur	396	73	22	1
7	Bhilwara	524	82	27	0
8	Bikaner	421	70	18	0
9	Bundi	206	32	14	1
10	Chittorgarh	383	52	24	1
11	Churu	436	99	16	1
12	Dausa	313	48	17	1
13	Dholpur	233	34	7	1
14	Dungarpur	347	60	16	1
15	Ganganagar	419	64	18	1
16	Hanumangarh	360	60	16	1
17	Jaipur	621	181	37	1
18	Jaisalmer	156	25	10	1

19	Jalore	409	69	12	1
20	Jhalawar	323	44	14	0
21	Jhunjhunu	598	115	27	1
22	Jodhpur	651	105	27	0
23	Karauli	281	39	14	1
24	Kota	188	62	13	0
25	Nagaur	803	132	35	1
26	Pai	475	87	25	1
27	Pratapgarh	204	32	8	1
28	Rajsamand	262	86	14	1
29	Sawai madhopur	269	42	14	1
30	Sikar	647	113	32	1
31	Sirohi	223	30	10	1
32	Tonk	294	61	12	1
33	Udaipur	623	108	31	0
34	**Total**	**13581**	**2394**	**657**	**28**

Source-Ministry of Health and Family Welfare (MoHFW), Rural Health Statistic,2020-21.

Healthcare Infrastructure of Baran District

The healthcare infrastructure of Baran district may vary depending on several factors such as population, economic development, and government funding.

Table 2.4: Distribution of Health Care Facilities in Baran District, 2021

Tehsil	Distrct Hospital	CHCs/ Sub-DH	PHCs	Sub Centre	Ayurvedic	Homeopathic	Unani
Mangrol	-	1	5	19	3	0	0
Anta	-	3	7	31	9	0	0
Baran	1	-	8	27	8	1	1
Atru	-	2	9	49	11	1	0
Kishanganj	-	2	8	42	8	2	0
Chhabra	-	1	8	31	6	1	2
Chhipabarod	-	2	2	32	10	0	0
Shahbad	-	3	3	41	6	1	0
Total	**1**	**14**	**50**	**272**	**61**	**6**	**3**

Source- CMHO office Baran, 2022.

A total of 75 Primary Health Centers (PHC), 272 Sub-Centers (SC), one district hospital, 14 Community Health Centers (CHC), and one T.B. clinic make up the public health institutions of the Baran district. In addition, there are 61 Ayurvedic hospitals/dispensaries, six Homeopathic hospitals/dispensaries and three Unani hospitals/dispensaries for the public's medical needs. Health care facilities are not

distributed evenly across district (Table 2.4). Even at a tehsil level, the unequal distribution of health facilities can be seen, both between and within tehsils, depending on the need for medical facilities and patient access.

Among all the eight tehsils of the district Anta and Shahbad tehsils have highest number of CHCs. While considering PHCs it was observed that Atru tehsils (9) has the highest number of PHCs, followed by Baran (8), Kishanganj (8), Chhabra (8), Anta (7), and Mangrol (5). Low numbers of PHCs are located in Chhipabarod (2) and Shahbad (3) Tehsils. The figures make it evident that the central west portion of the district has the highest concentration of health centres, while the northern and nort-eastern tehsils of the district have the lower concentration (Fig.2.1).

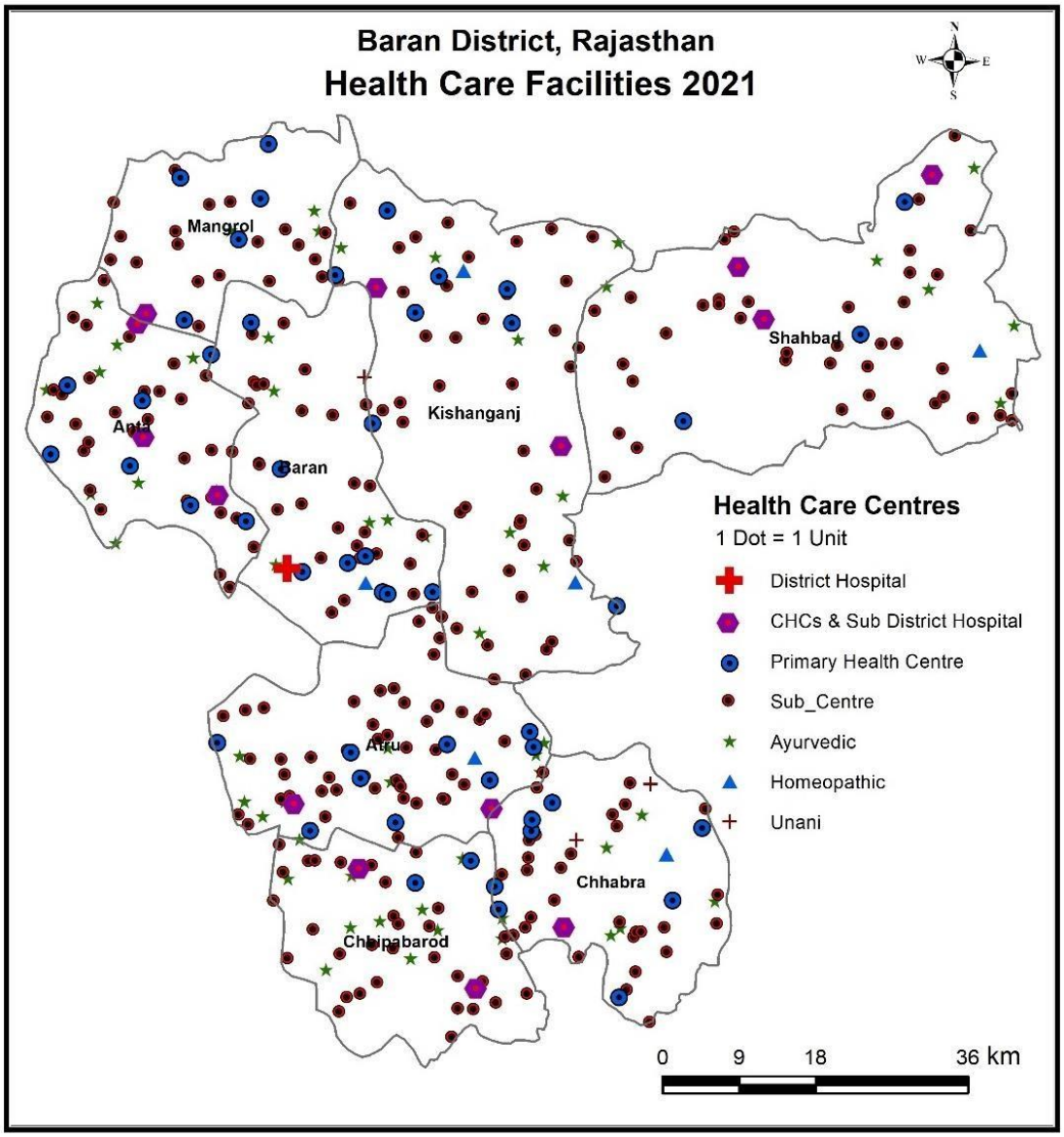


Fig. 2.1

The number of SCs is highest in Atru (49) tehsil followed by Kishanganj (42) and Shahbad (41) while Mangrol (19) tehsil has the lowest number of Sub-Centres. The distribution of homeopathic hospitals/ dispensaries is mainly concentrated in Kishanganj (2), Baran (1), Atru (1), Chhabra (1) and Shahbad (1) tehsils. Anta and Chhipabarod tehsils do not have any homeopathic health care centre.

Maximum number of Ayurvedic health centre found in Atru (11) followed by Chhipabarod (10) tehsils. Out of the total three Unani hospitals two are located in Chhabra and one in Baran tehsil.

Distribution of villages

India's rural and urban populations have vastly at different levels of access to healthcare. Rural population has significantly fewer options than urban population, who can choose from public or private providers. With sub-centers operating at the local level, India has a very extensive public health network.

The primary health centres and community health centres are connected by the health sub-centers, which are primarily staffed by health workers.(Barik and Thorat, 2015)

One of the most crucial factors in determining the effectiveness of healthcare service delivery and the accessibility of the public to a particular health centre is the average population served by the facility. Population norms are the foundation for all criteria used to establish a health centre.

Additionally, it can be claimed that there is a negative correlation between a health centres population coverage and its accessibility to the general public; the greater the population coverage, the lower the accessibility (Taqi et al. 2017).

Here accessibility to healthcare centres has been analysed with the distance (up to 10 km) at the tehsil levels.

Table 2.5: Distribution of CHCs, PHCs, SCs and DH, and their relative distance from villages across Tehsils.

Tehsil	CHC			PHC			SC			DH		
	<5 km.	5-10 km.	>10 km.	<5 km.	5-10 km.	>10 km.	<5 km.	5-10 km.	>10 km.	<5 km.	5-10 km.	>10 km.
Mangrol	12.82	48.72	38.46	25.64	48.72	25.64	53.84	37.18	8.97	3.85	33.33	62.82
Anta	15.85	48.78	35.37	29.27	57.00	14.63	58.54	34.15	7.32	7.00	39.02	54.88
Baran	6.66	37.78	55.55	21.11	55.55	23.33	45.55	32.22	22.22	53.33	46.67	-
Atru	5.7	20	74.28	12.85	32.86	53.57	49.99	20	22.14	-	-	100
Shahbad	10.74	14.12	75.14	26.37	25.79	47.8	47.12	23	29.84	-	8.12	91.88
Kishanganj	5.25	23.15	71.58	17.36	37.90	44.73	53.72	35.10	11.17	-	-	100
Chhabra	4.84	26.88	68.28	13.08	44	42.86	60.93	29.69	9.9	4.8	23.65	71.50
Chhipabarod	8.04	35.63	56.32	17.82	36.78	45.40	21.96	25.43	10.98	-	10.86	89.14
Total	**8.73**	**31.88**	**56.79**	**20.44**	**42.32**	**37.24**	**48.95**	**29.60**	**15.32**	**8.62**	**20.20**	**71.28**

Source-DCHB, 2011.

CHCs and their Relative Distance from Villages- In the Baran district, 8.73 percent of the villages have a community health centre (CHC) within a distance of less than 5 km, while 31.88 percent of the villages have a CHC within a distance of 5–10 km. However, 56.79 percent of the total villages have poor accessibility, with a CHC more than 10 km distance. Anta tehsil tops the number of villages with relatively high accessibility, with 15.85 percent of its villages having a CHC within 5 km, followed by Mangrol with 12.82 percent of its villages. With only 4.84 percent of communities within a 5 km radius, Chhabra Tehsil is the most inaccessible (Table 2.5).

Anta tehsil has good accessibility in CHC lies between 5 to 10 kilometer radiuses with 48.78 percent of its villages. Even among villages in this category, Shahbad (14.12) tehsil has the lowest proportion. Between these two polar opposites is the other tehsil.

Surprisingly, Anta has only 35.37 percent of the total villages in the third category of inaccessibility, which includes communities with the closest CHCs more than 10 kilometres away. Shahbad tehsil has 75.14 percent of all villages having a CHC at a distance of more than 10 kilometres; Shahbad has the highest rate of accessibility followed by Atru with 74.28 percent of villages.

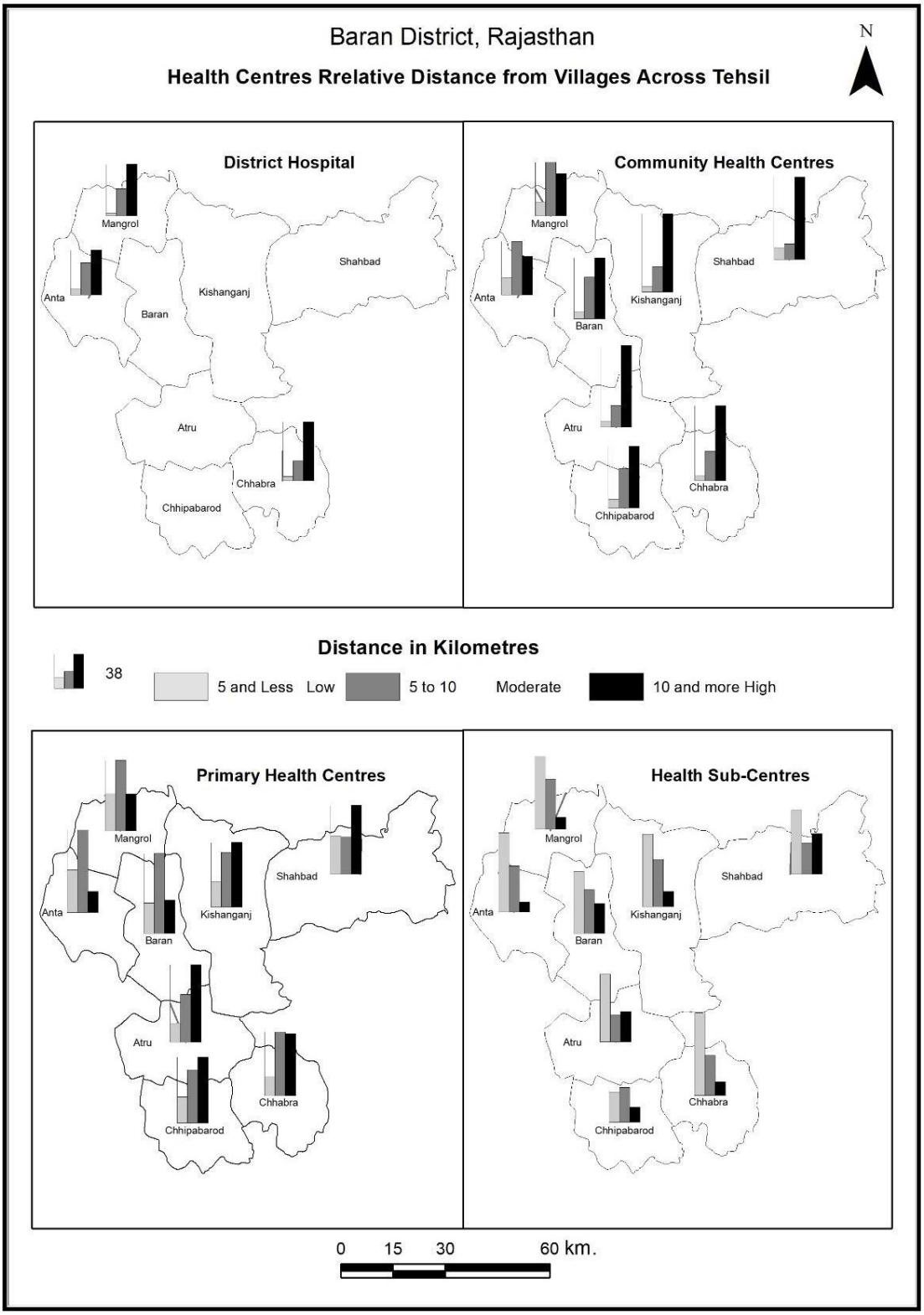


Fig. 2.2

PHCs and their Relative Distance from Villages- PHCs are located within 5 km of 20.44 percent of the villages, and within 5 to10 km of radius 42.32 percent of the villages. However, 37.24 percent of the total villages have inadequate accessibility their PHC is more than 10 km distance (Table 2.5). Anta tehsil tops the list of villages with

relatively high accessibility, with 29.27 percent of its villages having a PHC within 5 kilometres, followed by Shahbad with 26.37 percent of its villages. Atru tehsil is most inaccessible with only 12.85 percent of the villages within 5 km radius. Again, Anta falls into the second category, with 57 percent of its villages having access to the closest PHC within a 5 to 10 kilometer radius. Even in this category, Shahbad (25.79) tehsil has the lowest percentage of villages.

Communities in the third category of inaccessibility have PHCs that are more than 10 kilometres away, Anta tehsil has only 14.63 percent of villages and with and Atru tehsil has the most remote villages with 53.57 percent of all villages having a PHC at a distance of more than 10 kilometres, followed by Shahbad with 47.8 percent of all villages (Fig. 2.2).

SCs and their Relative Distance from Villages- Chhabra tehsil has 60.93 percent of the villages within 5 km radius in sub centre category (Table 2.5), while Mangrol tehsil has 37.18 percent of villages in 5 to 10 km and Shahbad tehsil 29.84 percent of villages in more than 10 km radius.

Accessibility options at the district hospital are the widest possible. Atru and Kishanganj have 100 percent villages having district hospital at a distance of more than 10 km. Baran tehsil has the highest accessibility either 53.33 percent of villages.

Decadal Growth of Healthcare Facility

The construction of infrastructure is crucial to the operation of the healthcare system. Infrastructure for the health system includes everything from physical buildings to information systems to medical equipment, as well as new infrastructure building as a plan (Dalinjong et.al.2018).

Health facilities should be designed to satisfy the needs of health care and furnished with utilities in order to deliver the high-quality healthcare services necessary for universal health coverage (Okech and Lelegwe, 2016)

Here, district- and development-block-level analyses of healthcare facility decadal expansion have been conducted. The district's healthcare facility expansion between 2011 and 2021 is studied and described. The expansion of various healthcare systems and service divisions has evolved.

Table 2.6: Decadal Growth of HCF 2001 to 2021

Temporal Change in Health Care Facilities					
	Facilities	Existing Facilities		Temporal Change (%)	
		2011	2021	2011	2021
Allopathic	Hospitals/ Dispensaries	1	1	0	0
	CHCs	9	14	5	55.55
	PHCs	35	50	15	42.85
	Sub Centres	208	271	63	30.29
	Beds	566	960	394	69.61
	Doctors	77	135	58	75.32
	Nursing Staff	110	252	142	129
	Paramedical Staff	304	411	107	35.20
	Other	132	103	-29	-22
Ayurvedic	Hospital/dispensaries	62	61	-1	-1.61
	Beds	10	10	0	0
	Doctors	66	68	2	3.03
Homeopathic	Hospital/dispensaries	4	6	2	50
	Doctors	1	2	1	100
Unani	Hospital/dispensaries	3	3	0	0
	Doctors	2	1	-1	-50

Interesting results can be seen in the temporal increase of the health-related metrics stated earlier. All indicators suggest a predictable development between 2011 and 2021. The above reveals that during the period of 2011–2021, Allopathic facilities increase in relation to the number of CHCs from 9 to 14 (55.55 %), Sub-centres increase from 208 to 271 (30.29 %), Para-medical staffs increase by 35.20 percent, and the number of doctors increase by 75.32 percent(Table 2.6). PHCs increase from 35(2011) to 50(2021). The other workforce, however, has decrease from 132 to 103. (-22 %). Additionally, number of beds increased to 566 to 960. Although allopathic institutions have had considerable increase in terms of their physical infrastructure and human resources, this increase has not been sufficient to appropriately serve the entire population of the study area. In addition, the number of hospitals and clinics that practice Ayurveda has decrease by 1.61 percent over the past ten years, while those that practise Homeopathy and Unani have experienced relatively increase in number. Only 2

doctors have increased in Ayurvedic hospitals/dispensaries over the past ten years, with a 3.03 percent growth, and there have been no more beds added. In a similar manner, the number of doctors practising homoeopathy increase from one to two, while that of unani decrease from two to one.

Rural Health Infrastructure and Shortfall (2011 and 2021)

Over the past ten years, India's population has experienced considerable improvements in health, narrowing the gap between rural and urban areas as well as between the wealthy and the poor. However, there are still significant gaps, and it is still quite difficult for people in rural areas to receive healthcare. There is a growing understanding that India has to have a strong, comprehensive primary healthcare system in order to improve the population's health status and lessen these inequities (Mohan and Kumar, 2019).

Table 2.7: Rural Health Infrastructure and Shortfall in 2011 and 2021

Availability of PHCs and Sub Centres According to Population Norms of IPHS Guidelines (2011 and 2021)														
Tehsil	2021							2011						
	Population Estimated	PHCs/ 30000 pop.			Sub-Centres/ 5000 pop.			Population	PHCs/ 30000 pop.			Sub-Centres/ 5000 pop.		
		E	R	G	E	R	G		E	R	G	E	R	G
Baran	88692	4	8	-4	24	26	-2	95563	3	5	-2	19	31	-12
Mangrol	93518	3	6	-3	20	22	-2	81890	2	3	-1	12	10	-2
Anta	99732	4	7	-3	22	30	-8	87661	4	5	-1	22	12	12
Atru	117747	6	9	-3	37	49	-12	122309	5	6	-1	30	31	-1
Chhabra	145110	5	8	-3	30	31	-1	120144	4	4	0	24	24	0
Chhipabarod	180817	7	2	5	42	39	3	152049	6	3	3	34	32	2
Kishanganj	205910	7	8	-1	41	39	2	166864	6	6	0	33	37	-4
Shahabad	186611	6	3	3	35	35	0	142061	5	3	2	28	31	-3
Total	**1118137**	**42**	**51**	**-9**	**251**	**271**	**-20**	**968541**	**35**	**35**	**0**	**202**	**208**	**-8**

The number of PHCs in 2011 is more than necessary in Chhipabarod and Shahbad tehsil only. Additionally, only Chhipabarod and Anta tehsil had more SCs than required. Baran, Mangrol, Anta and Atru tehsil had less PHCs than required (Table 2.7). Chhabra, Chhipabarod, Kishanganj, and Shahbad showed less or no gap than the other tehsils in the case of Sub-centres (SCs). The pattern of the difference between the necessary and existent SC numbers is similar. Anta and Atru tehsil had large number of gaps in terms of SCs.

In 2021, the number of PHCs in Chhipabarod and Shahbad is more than required. All other tehsils show shortage of PHCs in terms of population. Largest gap in SCs found in Atru(12) followed by Anta(8). Only Chhipabarod, Kishanganj and Shahbad has no or less gap in terms of SC.

Gap between Required and Existing Healthcare Facilities

With a focus on equitable services, standards seek to maintain a level of care that is fair and responsive to client requirements as well as to increase population health and wellbeing. By ensuring equitable and accessible health care delivery to rural areas, healthcare facilities serve as the system's skeleton and make "health for all" a realistic aim.

By ensuring equitable and accessible health care delivery to rural areas, healthcare facilities serve as the system's skeleton and make "health for all" a realistic aim. In order to provide basic healthcare services to every person in the most remote places, competent staff, especially primary care physicians, and well-built infrastructure are essential to CHC's standard healthcare delivery. The degree of community access to government health services will increase as a result of a focus on a needs assessment strategy and improved care(Patil, et al.2020).

Table- 2.8 Gap between Required and Existing HCF, 2021

Tehsil	CHCs	PHCs	Tehsil wise Health Caree Facilities Required against Health Care Centres																	
			Doctors					Beds				Para Medical Staff					Other Staff				
			S.	E	R	G	%G	E	R	G	%G	S.	E	R	G	%G	S.	E	R	G	%G
Baran	0	8	10	10	8	+2	+25	48	48	0	0	79	51	56	5	8.92	53	17	48	31	64.5
Anta	3	7	30	22	40	18	45	148	120	+28	+23.33	118	85	120	35	29.2	52	35	70	35	50.0
Mangrol	1	5	23	17	34	17	50	134	112	+22	+19.64	103	70	102	32	31.37	41	31	52	21	40.38
Atru	2	9	25	19	40	21	52.5	134	134	0	0	112	65	132	67	50.7	41	25	79	54	68.3
Chhabra	1	8	31	21	32	11	34.38	148	148	0	0	125	70	132	62	46.9	54	35	62	27	43.5
Chhipabarod	2	2	16	12	20	8	40	72	72	0	0	61	40	54	14	25.9	30	21	34	13	38.2
Kishanganj	2	8	29	24	41	17	41.46	153	128	+25	+19.53	100	60	151	91	60.2	43	29	73	44	60.2
Shahabad	3	3	32	26	56	30	53.57	148	148	0	0	115	70	140	70	50	46	30	57	27	47.4
Total	**14**	**50**	**196**	**151**	**271**	**122**	**45.01**	**985**	**910**	**+75**	**+8.24**	**813**	**511**	**887**	**367**	**41.37**	**360**	**223**	**475**	**252**	**53.0**

Source- Calculated by Author.

According to current national requirements for HCF parameters, the table compares the tehsilwise healthcare facilities. The main goal of increasing accessibility to medical facilities in rural areas of the district was not fully achieved because the necessary number of infrastructure was not fulfilled in accordance with population norms. Since doctors are the core of the healthcare system, their availability is crucial for providing high-quality care. Only Baran has more Doctor Staff than required, while the majority of CHCs and PHCs are experience the shortage of doctor staff. 151 doctors are currently working in the district, compared to the 271 needed to fulfil the staff of health centres that are already open.

The number of doctors needed varies depending on tehsil. Shahbad (56) tehsil has the highest requirement (Table 2.8), followed by Kishanganj (41), Anta (40) and Atru (40). It is as a result of increased population pressure on health care. Baran (8) and Chhipabarod (20) tehsil have lower doctor requirements, respectively.

In hospitals, the availability of beds is a crucial consideration when making decisions. The number of beds available has an impact on the number of staff members needed, the scheduling of surgeries, the acceptance of patients in the OPD, and emergency services. There are 985 beds available in various healthcare facilities in the Baran district. The table demonstrates that no additional beds are required. It demonstrates that there are sufficient beds in all eight tehsils of district. Chhabra(148) and Shahbad(148) has the highest number of beds needed, and there are more than required beds available in these two tehsils, followed by Atru(134) and Kishanganj (128). While Baran (48) and Chhipabarod (72) tehsil have the lowest number of necessary beds.

The primary human resources who spend a large amount of time at hospitals are the paramedical staff. They are required to conduct routine work during the night, in emergency situations, with a heavy workload and stress, which may impair their performance and quality of work. Despite government initiatives to close the skill gap that affects the standard of services offered by healthcare facilities, there is still a severe shortage of paramedical workers in the Baran district. According to the recommendation, the hospitals, community health centres, primary health centres, and sub-centers in the baran district need 887 paramedical workers. There is a 367 paramedical staff shortage. Kishanganj (151) and Shahbad (140) tehsil have maximum number of paramedical workers(Table 2.8). Chhipabarod (54) has the minimum required paramedical staff followed by Baran (56). The public health centres personnel planning is based on the current state of health and recommendations of several committees. Better health outcomes are produced in health centres with the right amount of employees. The government should make considerable efforts to close the huge human resource gap that exists at public health centres notwithstanding the significant progress that has been made in this area over the years. In the research area, hospitals, community health centres, and primary care centres need 475 additional staff members, but there are now only 223 of them available. The distribution of other-staff varies from one tehsil to another. Other health centres who are struggling with shortage of staff urgently need to handle more workers. The tehsil with the highest calculated number of paramedical staff required is Atru (79), followed by kishanganj (73) and Anta (70).

Availability of Healthcare Facilities

In many nations, observers are beginning to wonder whether the public's requirements and expectations can be met by the health systems there. To address these issues, two major strategies have been put forth. The first involves giving health systems more resources on the grounds that the issues are brought on by a lack of resources to deal with an ageing population, rising public expectations, and technological advancements. The second strategy focuses on improvements to the way health systems are set up and how services are delivered, and it advises making better use of the resources that are already available (Lamarche, et al.2011)

Therefore, it is necessary to analyse the availability of healthcare facilities. The availability of healthcare facilities, such as the number of medical institutions, health sub-centres, beds, doctors, paramedical staff, and other staff per 100,000 population, have been taken into consideration because population distribution and density in the district's tehsil are not consistent.

Table 2.9-Available HCF Per Lakh Population in 2011 and 2021

Healthcare Facility Per Lakh Population 2021							Healthcare Facility Per Lakh Population 2011					
Tehsil	CHC/PHC	SCs	Beds	Doctor	Paramedical Staff	Other Staff	CHC/PHC	SCs	Beds	Doctor	Paramedical Staff	Other Staff
Anta	7.1	21.04	131.05	14.30	70.10	29.33	4.15	17.13	58.50	6.22	63.65	28.07
Mangrol	6.9	19.07	127.50	12.88	68.90	27.60	3.86	15.50	55.64	6.40	60.75	26.74
Baran	6.7	21.94	40.50	8.43	43.03	14.34	2.34	12.17	14.04	2.34	23.88	7.96
Atru	5.9	26.35	72.06	10.22	34.96	13.44	4.66	20.67	54.68	6.00	43.34	16.67
Kishanganj	4.8	16.91	73.94	11.60	29	14.01	4.19	22.17	67.12	6.59	35.95	17.37
Shahbad	3.4	23.27	84.01	14.76	39.74	17.03	3.15	28.86	78.83	10.55	49.27	21.11
Chhabra	6.04	20.80	99.34	14.09	46.99	23.5	3.28	20.33	48.54	9.18	45.92	22.96
Chhipabarod	1.88	18.40	33.97	5.66	18.88	9.91	2.34	22.82	28.08	4.09	23.40	12.28
Total	**4.91**	**20.97**	**82.79**	**11.50**	**43.95**	**18.65**	**3.49**	**19.95**	**50.67**	**6.42**	**43.27**	**19.15**

Source- Calculated by Author

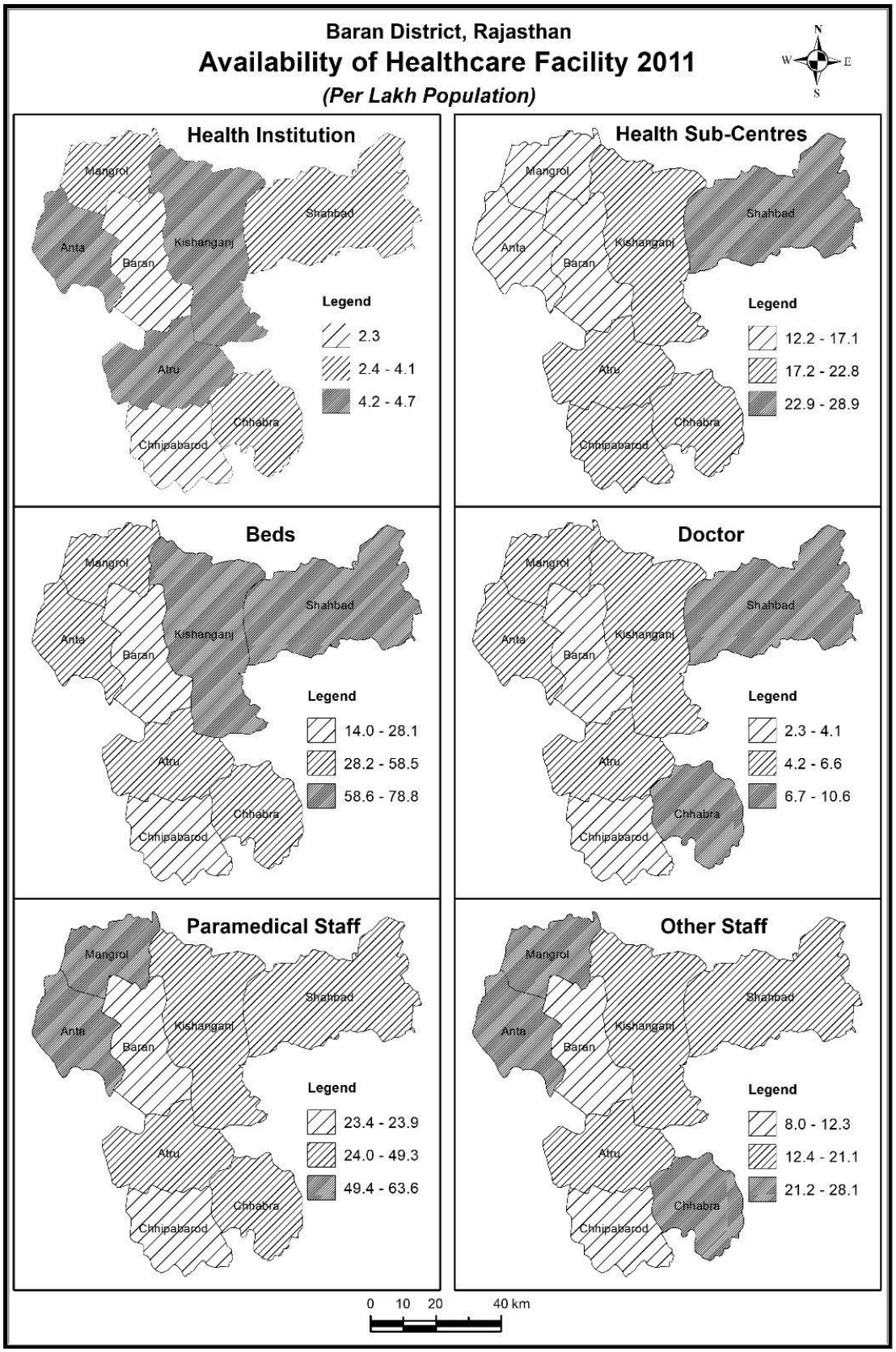

Baran District, Rajasthan
Availability of Healthcare Facility 2011
(Per Lakh Population)
N
W
E
S
Health Institution
Legend
2.3
2.4 - 4.1
4.2 - 4.7
Health Sub-Centres
Legend
12.2 - 17.1
17.2 - 22.8
22.9 - 28.9
Beds
Legend
14.0 - 28.1
28.2 - 58.5
58.6 - 78.8
Doctor
Legend
2.3 - 4.1
4.2 - 6.6
6.7 - 10.6
Paramedical Staff
Legend
23.4 - 23.9
24.0 - 49.3
49.4 - 63.6
Other Staff
Legend
8.0 - 12.3
12.4 - 21.1
21.2 - 28.1
Mangrol
Shahbad
Anta
Kishanganj
Baran
Atru
Chhabra
Chhipabarod
0 10 20 40 km

Fig. 2.3

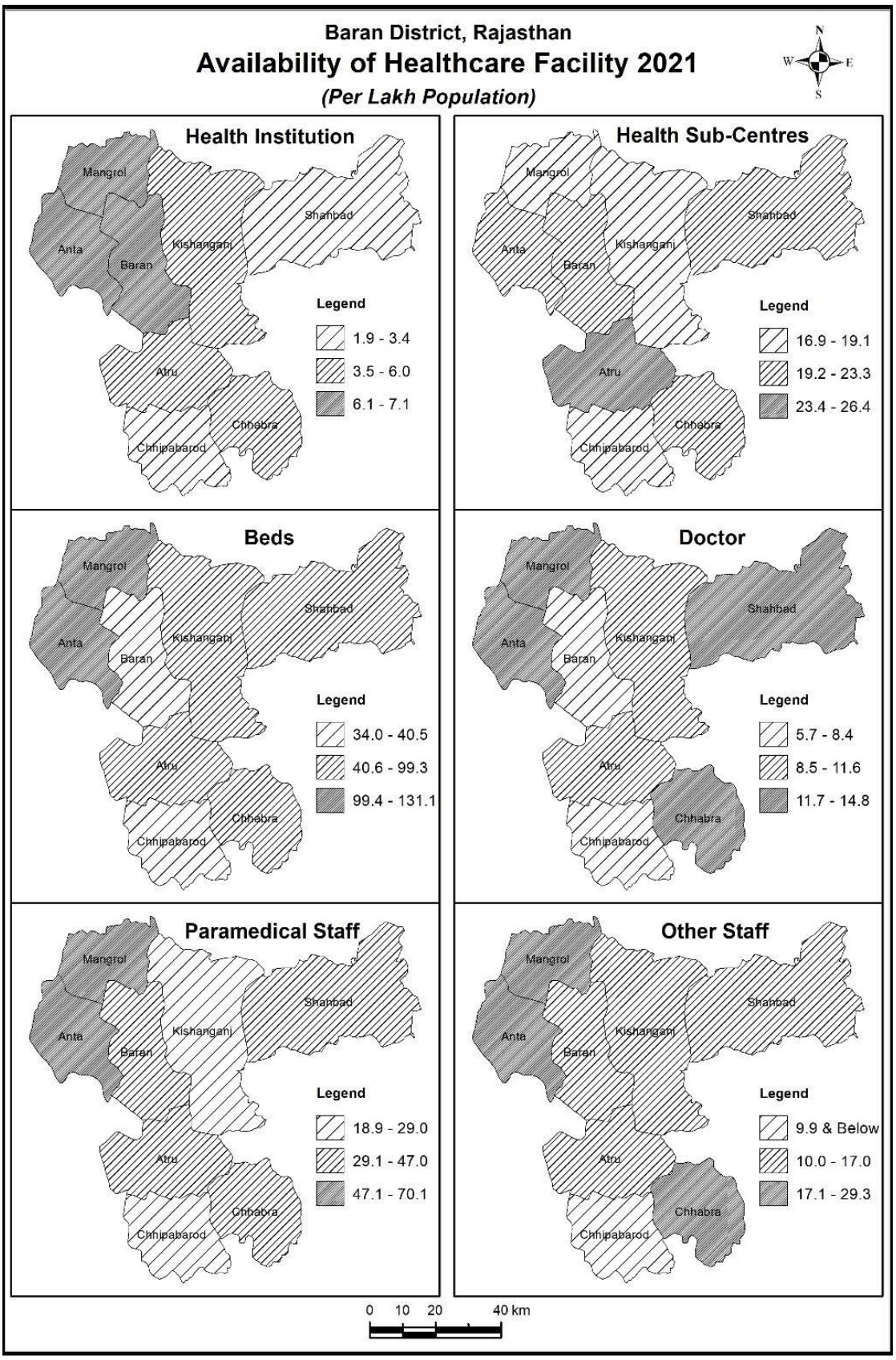

Baran District, Rajasthan
Availability of Healthcare Facility 2021
(Per Lakh Population)
N
W
E
S
Health Institution
Legend
1.9 - 3.4
3.5 - 6.0
6.1 - 7.1
Health Sub-Centres
Legend
16.9 - 19.1
19.2 - 23.3
23.4 - 26.4
Beds
Legend
34.0 - 40.5
40.6 - 99.3
99.4 - 131.1
Doctor
Legend
5.7 - 8.4
8.5 - 11.6
11.7 - 14.8
Paramedical Staff
Legend
18.9 - 29.0
29.1 - 47.0
47.1 - 70.1
Other Staff
Legend
9.9 & Below
10.0 - 17.0
17.1 - 29.3
Mangrol
Shahbad
Anta
Kishangani
Baran
Atru
Chhabra
Chhipabarod
0 10 20 40 km

Fig. 2.4

Institution per lakh population- Average number of medical institution (CHC/PHC) available per lakh population in 2011 was 3.49 which have gradually increased to 4.91 institutions(CHC/PHC) in 2021 in the district for every lakh people. Increasing number of health centres always increases the probability of fast remedy from health related problems. Tehsil wise disparities exist in terms of health institution-population ratio.It is clear from the Table 2.9 that in 2011 Atru has highest number of institutions and in 2021, Anta has highest number of institutions per lakh population. In 2011, Baran, Shahbad, Chhabra and Chhipabarod had the lower number of instituition than the district average. In 2021, The number of institutions per lakh of the population in Kishanganj, Shahbad, and Chhipabarod is lower than the district average. Tehsil wise it can be seen that Chhipabarod has high number of institutions per lakh population in 2011 but it has decrease in 2021 (Fig. 2.3 and 2.4).

Sub-centre per Lakh Population- average number of medical institutions (CHC/PHC) available per lakh population in 2011 was 19.95 and increased to 20.97 in 2021. Shahbad, Kishanganj and Chhipabarod tehsil shows the decrease in facility from 2011 to 2021. Shahbad has the highest number of SCs in 2011(Table 2.9) and Atru has the highest number of SCs in 2021.Overall there is increase in facility in decade.

Beds per Lakh Population- The ratio of hospital beds to people in each tehsil is shown in table 2.9. It is also a crucial health indicator that guarantees the availability of indoor clinical space in the event of a serious illness or emergency. There are large variances in the number of beds that are available per lakh of the population in tehsils, with some being extremely high and others being somewhat low. Highest number of beds in 2011 was in Shahbad and in 2021, Anta has highest 131.05 beds per lakh population. All tehsil shows increase in beds number as compare to 2011.

Doctors per Lakh Population- Doctors are the cornerstone of any region's healthcare system since without an adequate number of doctors, any sort of medical infrastructure is completely useless. A better standard of medical care is more likely to be obtained when the doctors are adequate. When considering the number of doctors per lakh of the population, the district average is 11.50 in 2021 and 6.42 in 2011(Table 2.9). Shahbad and Chhabra has the highest number of doctors per lakh population in 2011 and 2021, respectively. Overall there is increase in doctors from 2011 to 2021.

Paramedical Staff per Lakh population- The availability of paramedical Staff in Anta is recognised to be highest per lakh population in both decades 2011 and 2021. The district's paramedical staff average in 2011 was 43.27 and in 2021, it is 43.95. So there is small increase in paramedical staff as compare to 2011. There is decrease in number of paramedical staff in Kishanganj, Shahbad and Chhipabarod tehsil.

Otherstaff per Lakh Population - The other employees at the healthcare facilities include the sweeper, attendant, clerk, gatekeeper, etc., who are typically involved in non-medical tasks. In 2011 the district average was 19.15 and in 2021,the district has 18.65 other staff members per lakh population. There is decrease in other staff. Anta has the highest number of other staff per lakh population in both the years 2011 and 2021.

Density of Healthcare Facilities across Tehsils (2011 and 2021)

Access to healthcare has been shown to be significantly influenced by geographic considerations. Although they have a significant impact on how each person uses healthcare, supply-side factors cannot account for geographic disparities.

Table 2.10: Density of HCF (2011 and 2021)

	Density per 100sq.km 2021						Density per 100sq. km 2011					
Tehsil	CHC/ PHC	SCs	Beds	Doctor	Paramedical Staff	Other Staff	CHC/ PHC	SCs	Beds	Doctor	Paramedical Staff	Other Staff
Anta	1.51	5.01	22.19	2.26	10.94	4.87	0.98	4.11	10.30	1.41	10.37	5.36
Mangrol	1.30	4.49	20.74	2.17	9.60	3.96	0.89	3.87	9.95	1.34	9.55	4.87
Baran	1.27	4.12	7.61	1.58	8.09	2.69	0.79	4.12	4.76	0.79	8.09	2.69
Atru	1.29	5.78	15.82	2.24	7.67	2.95	0.82	3.66	9.68	1.06	7.67	2.95
Kishanganj	0.69	2.44	10.69	1.67	4.19	2.02	0.48	2.58	7.82	0.76	4.19	2.02
Shahbad	0.40	2.79	10.07	1.77	4.76	2.04	0.34	2.79	7.62	1.02	4.76	2.04
Chhabra	1.12	3.86	18.45	2.61	8.72	4.36	0.62	3.86	9.22	1.74	8.72	4.36
Chhipabarod	0.48	4.68	8.64	1.44	4.80	2.52	0.48	4.68	5.76	0.84	4.80	2.52
Total	1.01	4.15	14.28	1.97	7.34	3.18	0.67	3.70	8.13	1.12	7.27	3.35

Source- Calculated by Author.

The inequalities may also be influenced by variations in other parameters, such as the cost and responsiveness of services (Mulyanto et.al.2020).

The availability of healthcare facilities per 100 sq. km in 2011 and 2021, including institutions (CHCs and PHCs), sub-centres, physicians, beds, paramedical staffs, and other staff, has been considered. Healthcare facilities are dispersed unevenly throughout the study area.

Institution per 100sq.km- Average density of institution (CHC/PHC) in the district in 2011 was 0.67 Institutions per 100 sq km. in 2011, Low institution density was found in Kishanganj, Shahbad and Chhipabarod (Table 2.10), while only Anta tehsil has the high institution density, Antru, Baran and Chhabra tehsil recorded moderate institution density.

In 2021, Average institution density of the district increased to 1.01 institutions per 100 sq km. Low institution density is again found in Kishanganj, Shahbad and Chhipabarod tehsil, while high institution density is observed only in Anta tehsil only. The rest of tehsil have moderate institution density (Fig.2.5).

Sub-centre per 100sq.km- Health sub-centre is the first contact point for rural peoples in term of public healthcare in case of illness, immunisation and family welfare programme which is provided by the government. In 2011, Average SCs density was 3.70 per 100 sq km. Low density of health sub-centre was observed in Kishanganj and Shahbad, while Chhipabarod, Baran and Anta tehsil recorded high health sub-centre density. In 2021, average SCs density increased to 4.15 health sub-centres per 100 square kilometer.

The low density of health sub-centre is observed in Kishanganj and Shahbad tehsil, while Anta and Atru recorded high density of health sub-centre. Overall density is increased from 2011 to 2021.

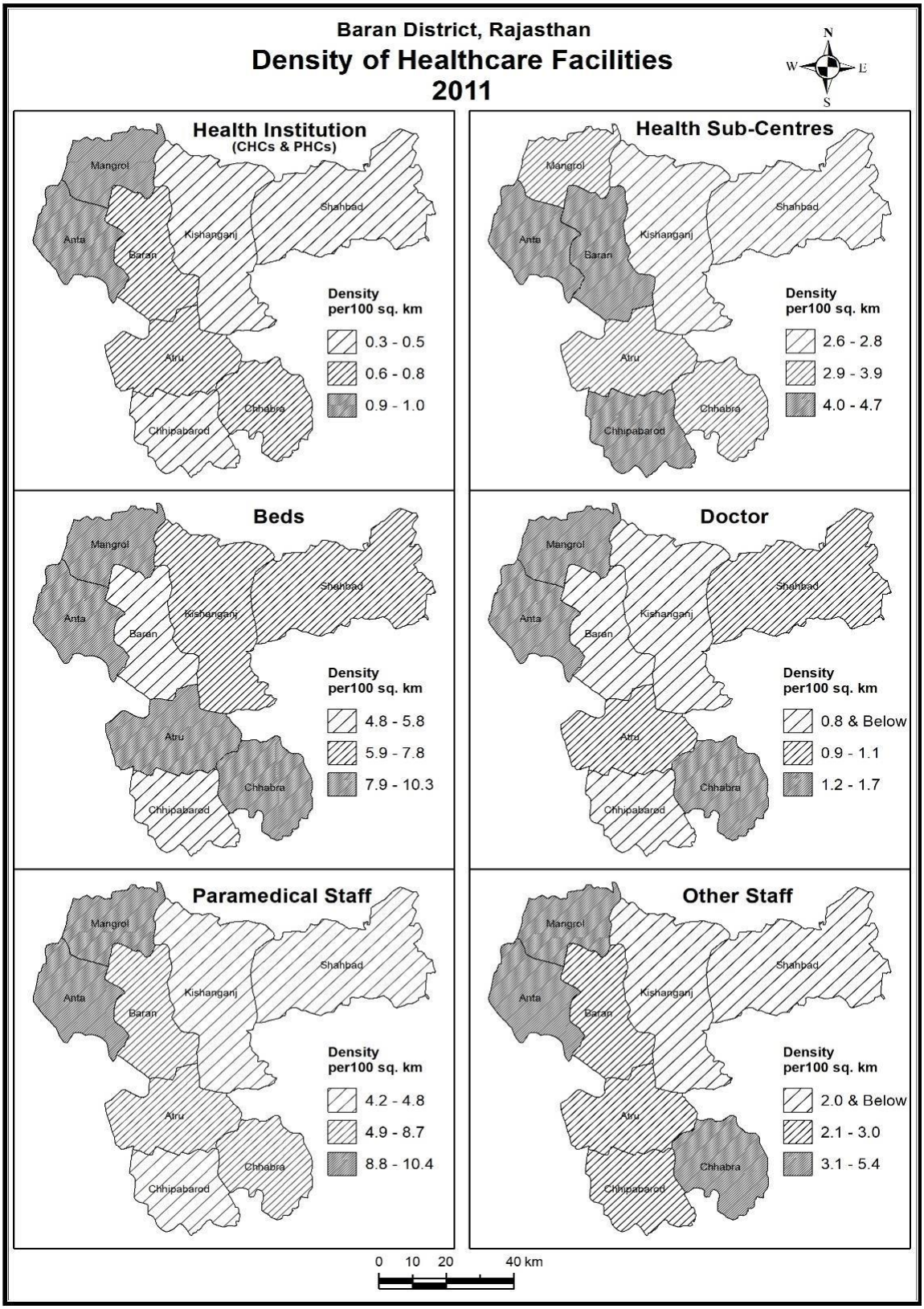

Baran District, Rajasthan
Density of Healthcare Facilities
2011
N
W
E
S
Health Institution
(CHCs & PHCs)
Mangrol
Shahbad
Anta
Kishanganj
Baran
Atru
Chhabra
Chhipabarod
Density
per100 sq. km
0.3 - 0.5
0.6 - 0.8
0.9 - 1.0
Health Sub-Centres
Density
per100 sq. km
2.6 - 2.8
2.9 - 3.9
4.0 - 4.7
Beds
Density
per100 sq. km
4.8 - 5.8
5.9 - 7.8
7.9 - 10.3
Doctor
Density
per100 sq. km
0.8 & Below
0.9 - 1.1
1.2 - 1.7
Paramedical Staff
Density
per100 sq. km
4.2 - 4.8
4.9 - 8.7
8.8 - 10.4
Other Staff
Density
per100 sq. km
2.0 & Below
2.1 - 3.0
3.1 - 5.4
0 10 20 40 km

Fig. 2.5

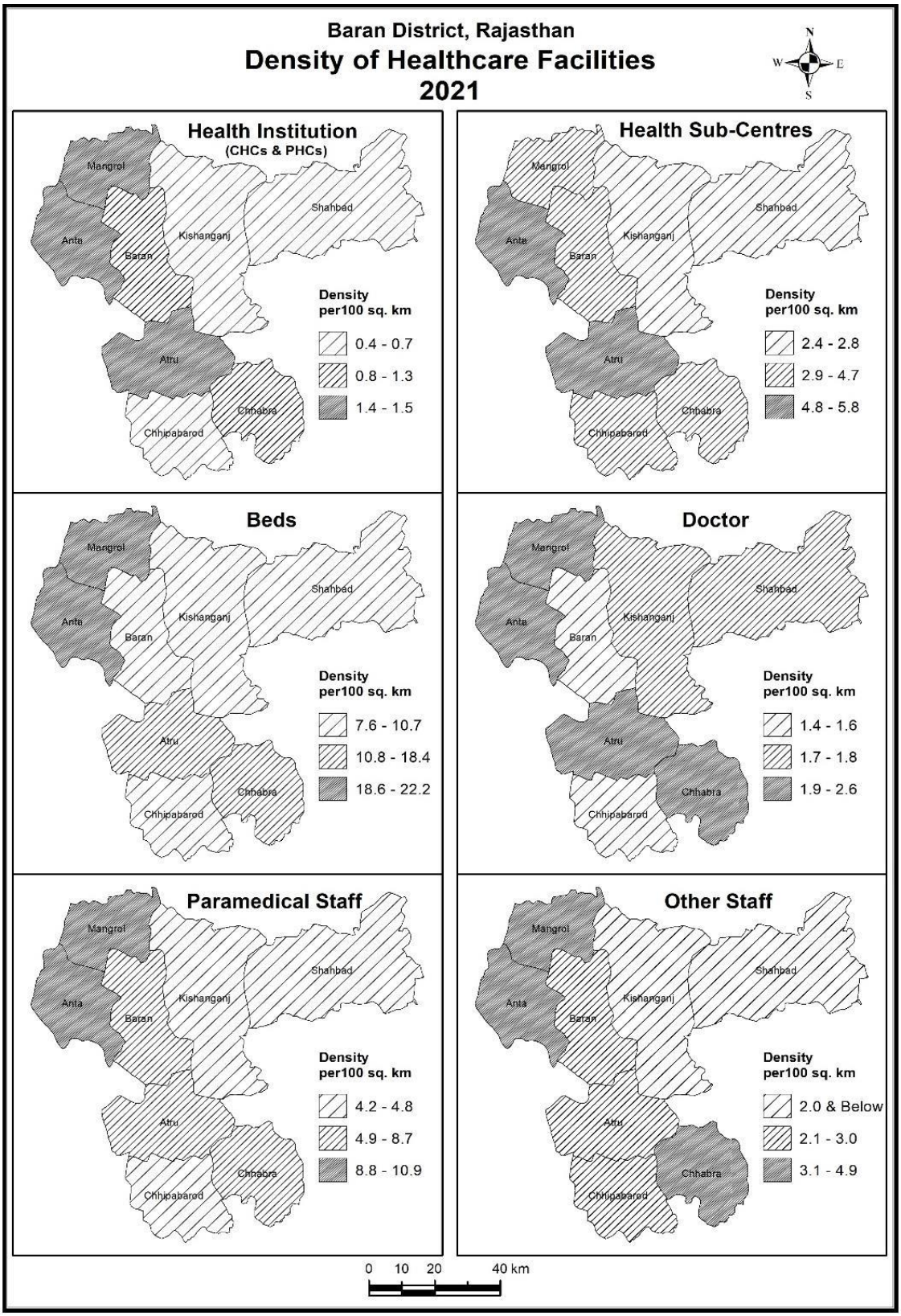


Fig. 2.6

Beds per 100sq. km- The number of beds at a facility is a crucial indicator of both the quality and scope of the healthcare facility. In 2011, on an average 8.13 beds per 100 sq km was observed. The distribution pattern of beds is uneven in the district. Low density

of bed distribution was found in Baran and Chhipabarod tehsil. While only Anta tehsil (10.30) recorded high density of bed. Atru, Kishanganj, Shahbad and Chhabra recorded moderate density of bed. In 2021, bed density of the district is increased to 14.28 beds per 100 sq km . Low bed density is found inBaran and Chhipabarod (Tble 2.10). While high bed density is recorded only in Anta tehsil. The table shows that the distribution pattern of bed density is uneven and remark that unbalanced increasing trends during 2011- 2021.

Doctors per 100sq.km- Density of doctor is directly proportional to the utilisation of healthcare facilities because the doctors called the back-bone of healthcare system. In 2011, Average density of doctor in the district was 1.12 doctors per 100 sq km. (Table 2.10). Low density of doctors was found in Baran, Kishanganj and Chhipabarod tehsil. High density of doctor was found in Chhabra and Anta tehsil. In 2021, the doctor density of the district increased to 1.97 per 100 sq km. Low density is found in Baran, Kishanganj, and Chhipabarod. Only Chhabra tehsil recoded high density of doctor.

Paramedical staff per 100sq. **km**- Because they assist the doctor during treatment and promptly deliver services to patients and people, such as immunizations and family welfare programmes, the density of paramedical staff is a key indicator of a healthcare facility. In 2011, Average density of paramedical staff in the district was 7.27 per 100 sq km. (Table 2.10). The distribution of paramedical staff remained inconsistent. High density of paramedical staff was recorded in only anta tehsil. Low density of paramedical staff was found in Kishanganj, shahbad and Chhipabarod tehsil. In 2021, Density of paramedical staff in the district increased to 7.34 paramedical staff per 100 sq km. High density of paramedical staff was recorded in only anta tehsil. Increase in paramedical staff is very low from 2011 to 2021.

Other Staff per100sq. Km.- Other staffs assistance is needed for the management and seamless operation of the government- and health authority-designed health plans. In 2011, Average density of other staff in the study area was 3.35 per 100 sq km(Table 2.10). Low density pattern of other staff was found in Kishanganj and Shahbad tehsil, while high density pattern of other staff found in Anta and Mangrol tehsil. In 2021, Density of other staff in the district slightly decreased to 3.18 per 100 sq km. The distribution pattern of other staff is highly disproportionate. Low density is found in Baran, Atru, Kishanganj, Shahbad and Chhipabarod, only Anta tehsil is recorded high density (Fig. 2.6).

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Chapter 3

Utilization Pattern of Healthcare Facilities

In terms of quality of care, the concept of accessibility encompasses factors such as geographic accessibility, the availability of the appropriate level of care for individuals who need it, financial accessibility, and acceptability of services are parameters of utilization. (Peters and Murlidharan, 2008). People from different geographic locations may use healthcare at varying rates or in different ways, even if their healthcare needs are the same. Numerous studies have revealed significant disparities in healthcare utilisation between urban and rural areas in both high-income and lower-middle-income nations. Geographic disparities in healthcare utilisation may also be caused by variations in geographically relevant characteristics, such as the quantity and type of healthcare facilities(Mulyanto, et al. 2019).A basic human need that can only be satisfied by high-quality medical care is maintaining one's health and general well-being. Informal and formal healthcare are the two main types of care. In the informal sector, healthcare is not a market-based activity. In a domestic or neighbourhood environment, families and communities give care. The vast majority of medical care is given on an informal basis. For instance, family, friends, and neighbours fill the majority of elders' requirements in their final years of life. On the other hand, formal healthcare is offered by public, private, and non-profit institutions including hospitals and medical professionals (Ye, 2016).

This chapter presents the interpreting result from data gathered by the researcher. The data have been coded and classified after completion of field survey.

In general, it is difficult to explore differences in utilization because the availability of services itself varies greatly across different locations. The use of allopathic medicines is more popular amongst the people as it is readilyavailable and perceived as instant relief from pain. In the district Baran it is evident that more than 75 per cent people are using allopathic system of medicine (Table 3.1 and Fig. 3.1). Utilisation of medicine system is varied to the level of education, income and residence of individuals.

Table 3.1 Use of Dominant Medicine System across Place of Residence

Residence		Allopathic	Ayurvedic	Homeopathic	Total
Rural	No.	226	52	16	294
	%	76.87	17.69	5.44	100.00
Urban	No.	83	12	11	106
	%	78.30	11.32	10.38	100.00
Total	No.	309	64	27	400
	%	77.25	16.00	6.75	100.00

Source- Field Survey (Baran), September- October 2022.

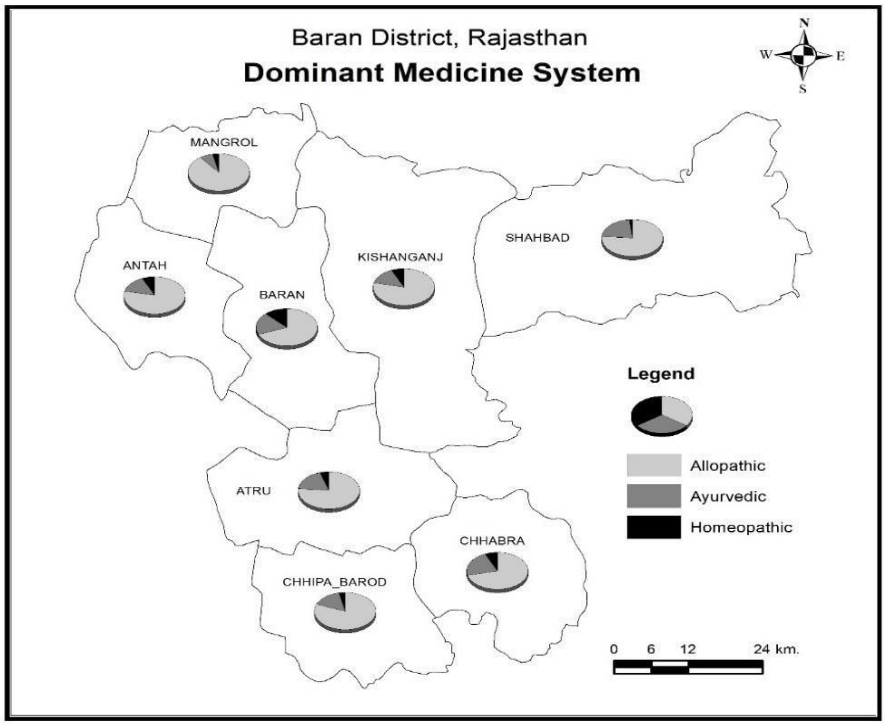

Fig 3.1

The analysis of how and why spatial organisation evolves over time, how individuals obtain health services, and the effects on health and well-being comprise the geography of health care. Health services are analysed in terms of their spatial organisation (number sizes, types, and locations). Concerns about quality, effectiveness, and access are being raised by the continued high cost of healthcare, the opening and closure of healthcare providers, and the emergence of innovative healthcare delivery models. (Rai and Nathawat, 2014).Elderly folks have the largest healthcare needs and use medical services the most frequently. (Wong et al 2009).

This chapter makes an effort to highlight the connection between socioeconomic features of the population and how they use healthcare services in the research area. Additionally, an effort is made to pinpoint the variables that influence how frequently healthcare facilities are used. The chapter in the following sections addresses the manner in which residents of the district Baran regard one another and relevant explanatory elements.

3.1 First Visit in Case of Illness.

There has been a strong locational bias in the availability of healthcare facilities and their accessibility, so residency is one of the most critical factors that influence the choice of initial treatment. Most operational PHCs and all CHCs are situated in the district's small urban centres, including Anta, Baran, Mangrol, Atru, Kishanganj, Shahbad, Chhabra, and Chhipabarod. As a result, roughly half of all families make use of CHC services. Compared to families living in villages, urban families use government healthcare facilities more frequently. Rural communities do a poor job of using the district hospital's medical resources. Distance and poor, expensive transportation options are to blame for this. Additionally, the use of government healthcare facilities is higher in metropolitan regions, whilst the use of private healthcare facilities and reliance on quacks for first treatment is higher in rural areas.

3.1.1. Place of Residence

The first healthcare facility that a patient chooses to attend in illness depends on availability, accessibility, pricing, and dependability. Out of 400 respondents in the study region, 39 (9.75%) visits the quack as their first treatment, while 196 (49%) respondents visit to CHCs and 40 (10%) respondents visits the private hospitals(Table 3.2). Poor transportation and distance from healthcare facilities are the reasons to low use of public healthcare facilities, 74(18.5%) of respondents visited district hospitals and 27(6.7%) visit PHCs (Fig. 3.2). The relatively high use of CHCs is attributable to the fact that, in addition to the guaranteed presence of doctors at CHCs, flagship programmes like mother-child and immunisation programmes are run through CHCs**.**

Table 3.2: First Treatment in Case of Illness across Place of Residence.

Residence		DH	CHC	PHC	Private	Quack	Traditional	Total
Rural	No.	46	157	19	25	30	17	294
	%	15.65	53.40	6.47	8.50	10.20	5.78	100
Urban	No.	28	39	8	15	9	7	106
	%	26.41	36.80	7.55	14.15	8.49	6.60	100
Total	No.	74	196	27	40	39	24	400
	%	18.50	49.00	6.75	10.00	9.75	6.00	100

Source:-Field Survey (Baran), September- October 2022.

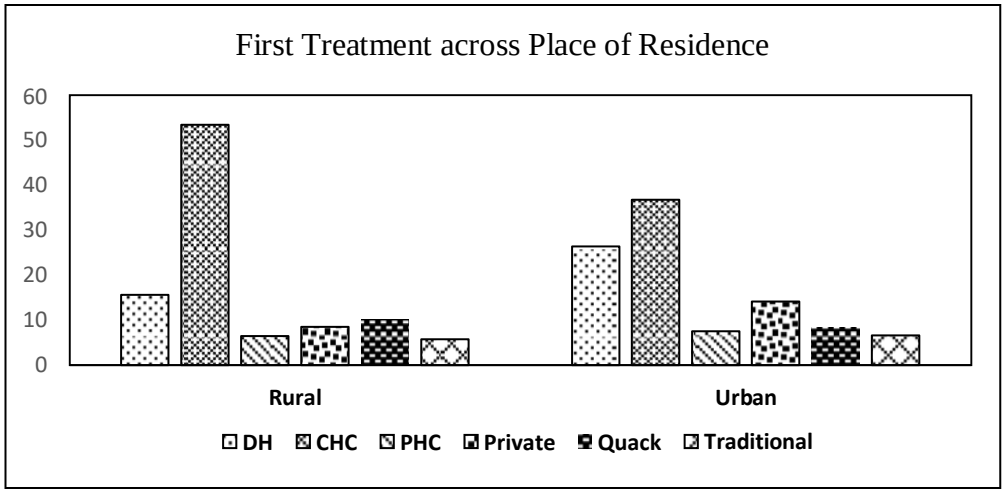

Fig. 3.2

3.1.2 Sex

Men and women use healthcare facilities in startlingly different ways. For initial visits in cases of illness, ladies have used CHCs more usually than males. However, females less use district hospitals and PHCs, government healthcare facilities. In addition, some females still depend on quacks for their initial medical care. About 50 percent of the men visit CHC first when they are sick (Table 3.3 and Fig. 3.3).

Table 3.3First Treatment in Case of Illness across Sex

Respondent sex		DH	CHC	PHC	private	Quack	Traditional healer	Total
Male	No.	37	134	28	19	34	19	271
	%	13.66	49.44	10.33	7.01	12.55	7.01	100
Female	No.	18	76	13	6	12	4	129
	%	13.95	58.91	10.08	4.65	9.30	3.10	100
Total	**No.**	**155**	**210**	**41**	**25**	**46**	**23**	**400**
	%	**13.75**	**52.5**	**10.25**	**6.25**	**11.5**	**5.75**	**100**

Source- Field survey (Baran), September- October 2022.

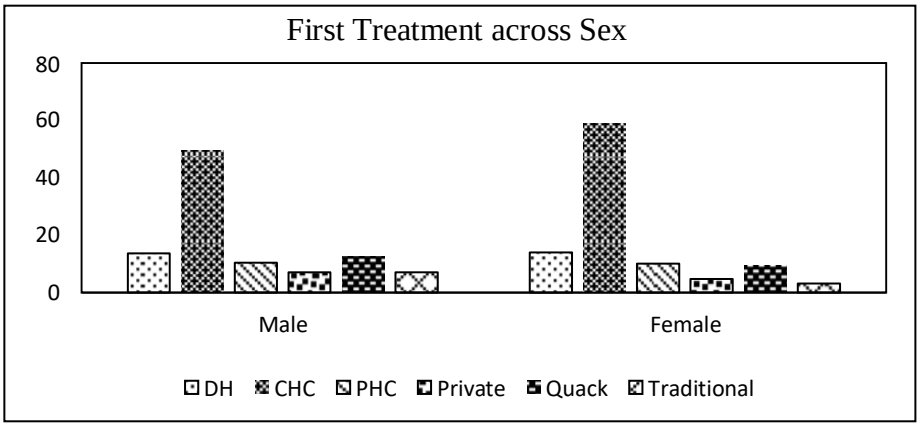

Fig. 3.3

3.1.3. Religion

In the research area, there are connection between religion and the first visit to a medical facility. According to Table 3.4, more than 50 percent of Hindus and Muslims who became ill visited CHC facilities? As a result, Muslim respondents continue to rely on hakeem (quacks/informal healers) for medical care.

Table 3.4: First treatment in case of illness across religion

Religion		DH	CHC	PHC	Private	Quack	Traditional Healer	Total
Hindu	No.	40	186	28	15	38	15	322
	%	12.42	57.77	8.70	4.65	11.80	4.65	100
Muslim	No.	12	15	5	8	26	12	78
	%	15.38	19.23	6.41	10.25	33.33	2.57	100
Total	No.	52	201	33	23	64	27	400
	%	13.00	50.25	8.25	5.75	16.00	6.75	100

Source- Field survey (Baran), September- October 2022.

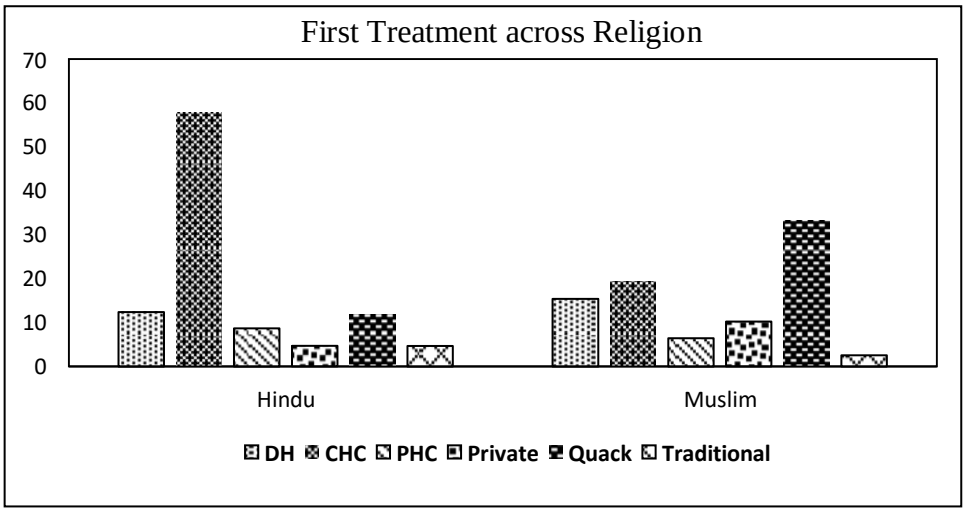

Fig. 3.4

3.1.4 Social-group

Approximately 80 percent of the population in the study region lives in rural areas. In Indian villages, one of the factors influencing a person's way of life is their caste. It represents the socioeconomic standing of the population in society. The three social groups of unreserved castes, backward castes (OBCs), and scheduled castes have been used to roughly classify all the castes in the study area (SCs).

Table 3.5: First Treatment in Case of Illness across Social-Group

Social Group		DH	CHC	PHC	Private	Quack	Traditional Healer	Total
General	No.	17	55	9	12	15	7	115
	%	14.79	47.82	7.82	10.44	13.04	6.09	100
OBC	No.	18	67	18	10	25	11	149
	%	12.08	44.97	12.08	6.71	16.78	7.38	100
SC	No.	7	21	11	3	18	14	74
	%	9.46	28.37	14.86	4.05	24.32	18.92	100.00
ST	No.	6	13	9	6	15	13	62
	%	9.68	20.96	14.51	9.68	24.19	20.96	100.00
Total	No.	48	156	47	31	73	45	400
	%	12.00	39.00	11.75	7.75	18.25	11.25	100.00

Source- Field Survey (Baran), September- October 2022.

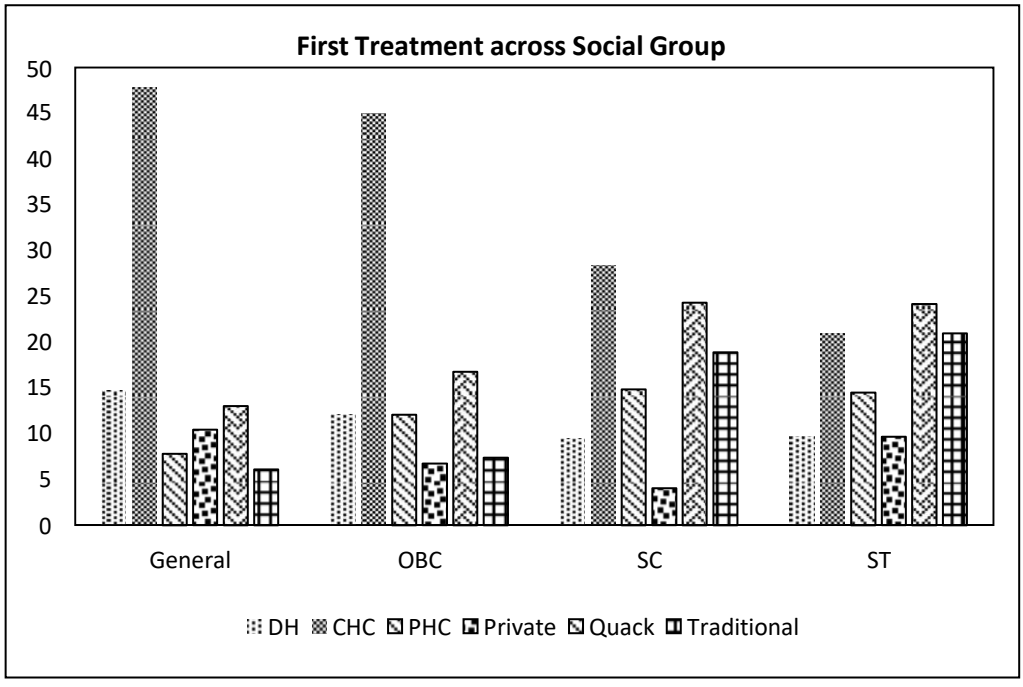

Fig. 3.5

All social groups demonstrated a strong reliance on CHC hospitals, but those from the scheduled castes and scheduled tribes, who have considerably, lower socioeconomic position and work mostly as agricultural laborer, showed a particularly high preference for the Quacks and Traditional healer (Table 3.5). It is abundantly obvious that the weaker segments of society in the study area visit quack and traditional healers.

3.1.5 Family type

The composition of the family is a key factor in influencing how frequently people use different healthcare facilities. The outcome of the field investigation shows that there is less freedom of choice in joint families because expenses are borne by the head of the households. Many respondents, both in nuclear and joint families, seek treatment from CHC. Visits to government-run healthcare facilities, such as CHCs, PHCs, and district hospitals, differ noticeably from one another (Table 3.6). PHC and district hospital usage is incredibly low among nuclear families. Nuclear families visit CHCs than PHCs or district hospitals. However, there are significant differences between the two types of families when it comes to how often they need CHC services.

Table 3.6: First Treatment in Case of Illness across Family Type.

Family Type		DH	CHC	PHC	Private	Quack	Traditional Healer	Total
Nuclear	No.	26	110	15	20	32	8	211
	%	12.33	52.13	7.10	9.48	15.17	3.79	100.00
Joint	No.	25	98	9	18	35	4	189
	%	13.23	51.86	4.77	9.52	18.51	2.11	100.00
Total	No.	51	208	24	38	67	12	400
	%	12.75	52.00	6.00	9.50	16.75	3.00	100.00

Source- Field survey (Baran), September- October 2022.

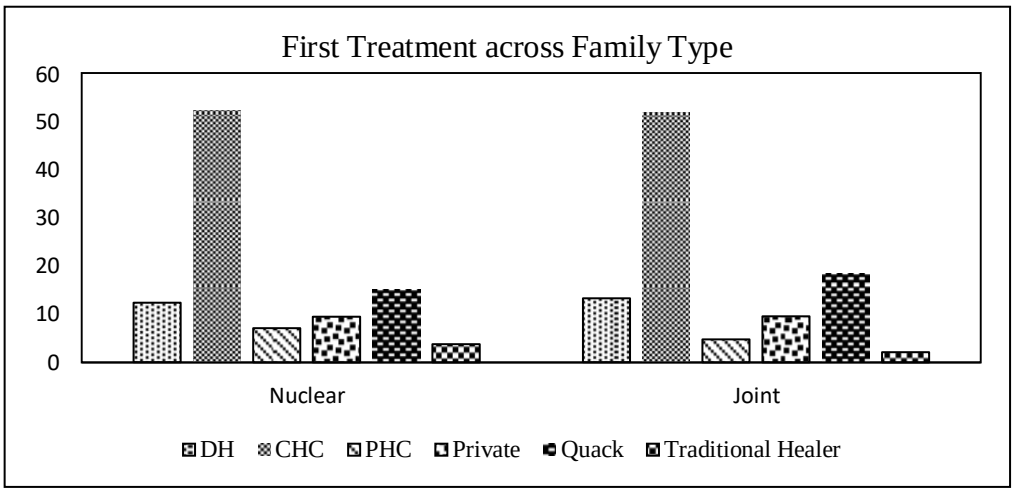

Fig. 3.6

Nearly the same percentage of respondents from nuclear families and joint families visited CHCs. Only 16.75 percent of respondents from nuclear and joint families visited quackers, compared to only 3 percent of respondents who sought treatment from traditional healers for illness.

3.1.6 House type

The type of house and how they are maintained indicate the financial health of the households. Typically, low-income residents live in huts and kutchas, which are composed of mud and thatch from the area. Pucca homes signify a household's relative improvement in economic standing. Due to two main factors, including a high percentage of illiteracy and low/poor income, respondents who live in huts and kutcha are heavily reliant on quacks. In case of illness, more over one-third of all respondents who lived in kutcha-pucca visit CHCs. Utilization of PHC services declines as respondent's economic condition. In comparison to other facilities, traditional healers are visited less frequently while someone is ill (Table 3.7 and Fig. 3.7).

Table 3.7: First Treatment in Case of Illness across House Type.

House Type		DH	CHC	PHC	Private	Quack	Traditional Healer	Total
Hut	No.	-	3	5	-	15	-	23
	%	-	13.05	21.74	-	65.21	-	100.00
Kutcha	No.	4	17	9	-	22	6	58
	%	6.90	29.31	15.51	-	37.93	10.35	100.00
Pucca	No.	32	42	6	19	22	4	125
	%	25.60	33.60	4.80	15.20	17.60	3.20	100.00
Kutcha Pucca	No.	28	103	17	25	18	3	194
	%	14.43	53.09	8.77	12.88	9.29	1.54	100.00
Total	No.	64	165	37	44	77	13	400
	%	16.00	41.25	9.25	11.00	19.25	3.25	100.00

Source- Field Survey (Baran), September- October 2022.

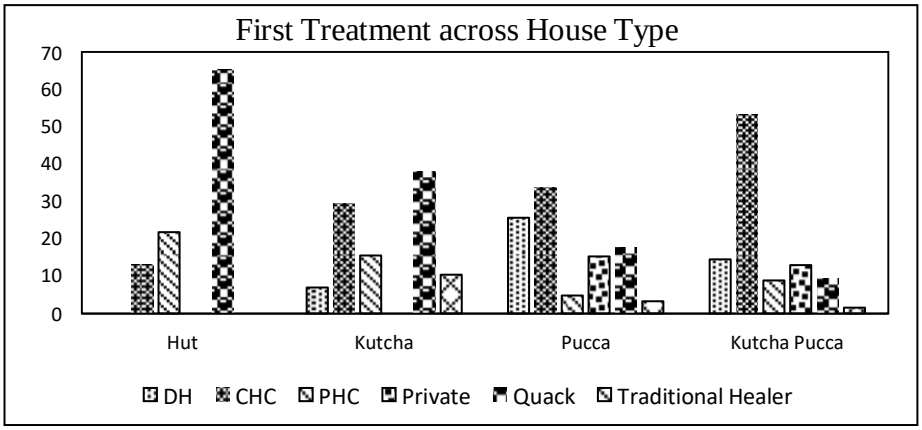

Fig. 3.7

3.1.7 Education

The use of healthcare facilities and education are strongly correlated. It's noteworthy to observe that a 36.67 percent of illiterate respondents visit quacks. However, roughly 32.14 percent of respondents with just primary or middle school education and about 32.14 percent with only high school education visit quacks. The age factor is the cause of the low primary education. Less young people have visit to quacks. When one's educational level rises, more people use the services of qualified practitioners more quickly while using quacks' services less frequently. The field survey, however, found no clear link between educational level and visits to CHCs or PHCs for sickness (Table 3.8 and Fig. 3.8).

Table 3.8: **First Treatment in Case of Illness across Education Groups.**

Education		DH	CHC	PHC	Private	Quack	Traditional Healer	Total
Illiterate	No.	2	10	7	-	11	-	30
	%	6.67	33.33	23.33	-	36.67	-	100.00
Primary	No.	1	9	5	-	9	4	28
	%	3.57	32.14	17.86	-	32.14	14.29	100.00
Middle	No.	4	18	12	2	18	2	56
	%	7.14	32.14	21.43	3.57	32.14	3.57	100.00
High School	No.	20	34	15	20	17	5	102
	%	19.61	33.33	5.88	19.61	16.67	4.90	100.00
Intermediate	No.	17	28	12	18	15	7	97
	%	17.52	28.87	12.37	18.56	15.46	7.22	100.00
Graduation and Above	No.	28	20	4	24	8	3	87
	%	32.18	22.99	4.60	27.59	9.19	3.45	100.00
Total	No.	72	119	46	64	78	21	400
	%	18.00	29.75	11.50	16.00	19.50	5.25	100.00

Source- Field Survey (Baran), September- October 2022.

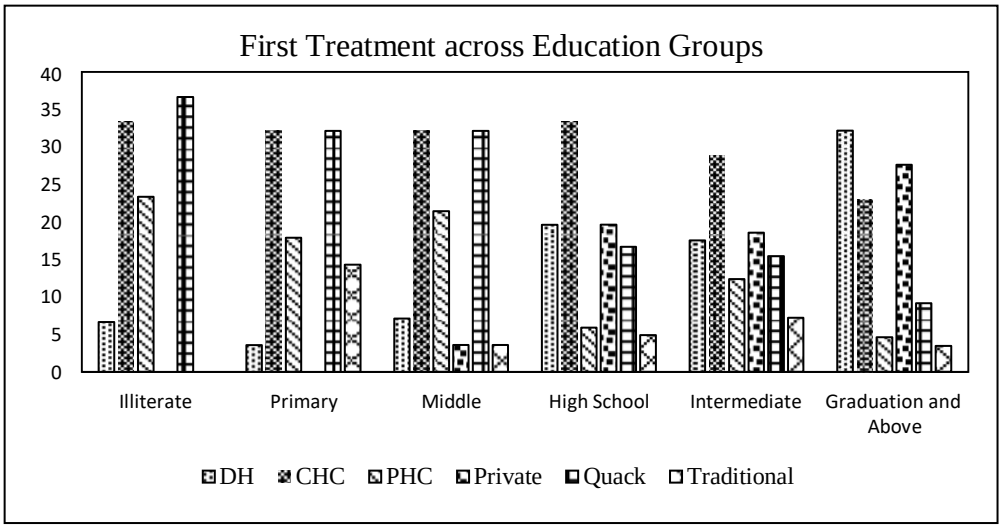

Fig. 3.8

It shows that both educated and uneducated respondents are typically unsatisfied with government-run healthcare institutions. People with higher levels of education typically make more money and are more aware of the calibre of medical services.

3.1.8 Income

The use of the accessible healthcare facilities is heavily influenced by the household's income. Table 3.9 makes it obvious that as household income increases, percentage of respondents who visit private hospitals also. According to the findings, respondents with monthly family incomes of less than Rs 5,000 are most dependent on CHCs (41.14%). Free medication distribution and low cost of medication, such as doctors' fees and diagnostic costs, are key factors in low-income and disadvantaged individuals to CHCs, whereas PHCs are under-resourced, under-maintained, and frequently lack access to doctors and paramedical staff. As a result, there is a negative association between income and visits to CHCs and PHCs. In the low income sector of society (those earning less than Rs 5,000), visits quacks in cases of disease is also very prevalent (38.61%) (Fig. 3.9).

Table 3.9: **First Treatment in Case of Illness across Income Groups**

Income		District hospital	CHC	PHC	Private hospital	Quack	Traditional Healer	Total
< 5,000	Number	3	65	12	9	61	8	158
	Per cent	1.90	41.14	7.59	5.70	38.61	5.06	100.00
5,000-10,000	Number	52	45	3	38	-	-	138
	Per cent	37.68	32.61	2.17	27.54	-	-	100.00
> 10,000	Number	15	21	12	45	5	6	104
	Per cent	14.42	20.19	11.54	43.27	4.81	5.77	100.00
Total	Number	70	131	27	92	66	14	400
	Per cent	17.5	32.75	6.75	23.00	16.5	3.5	100.00

Source: - Field Survey (Baran), September- October 2022.

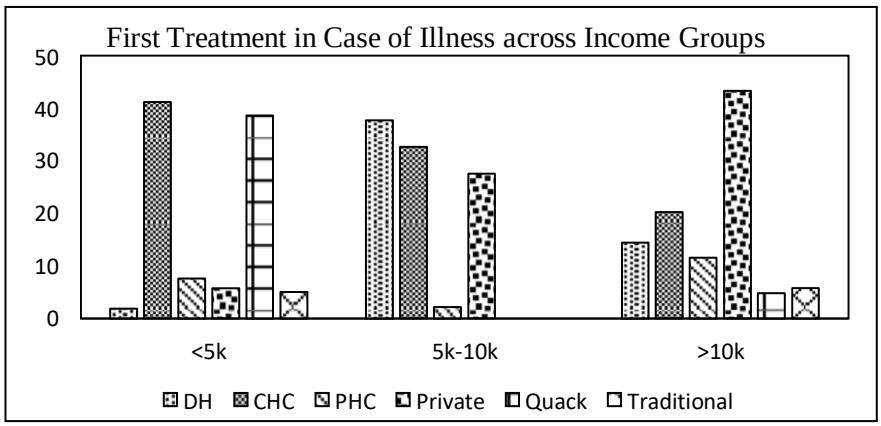

Fig. 3.9

3.1.9 Occupation

A person's occupation reflects their financial situation, which in turn affects how they use healthcare services in their household. Since the majority of people in India work in low-paying occupations, the population's occupational structure generally shows the relative economic backwardness of the country. Similar circumstances apply to the study region as well, where agriculture and related sectors account for about half of the working population. It can be partially caused by the slow rate of industrialisation and the lack of alternative work opportunities in rural areas.

According to Table 3.10, respondents who work in industry are completely dependent on government-run healthcare services, which offer medications for free or at a significantly low cost. Their lack of education, poverty, and lack of knowledge of the services offered by healthcare facilities all are contributing factors. They visit CHC/PHC and the district hospital poorly as a result of it.

Table 3.10: **First Treatment in Case of Illness across Occupation**

Occupation		DH	CHC	PHC	Private	Quack	Traditional Healer	Total
Farmer	No.	3	42	13	11	14	4	87
	%	3.44	48.28	14.96	12.64	16.09	4.59	100.00
Industrial Worker	No.	5	39	15	9	7	-	75
	%	6.67	52.00	20.00	12.00	9.33	-	100.00
Services	No.	30	33	16	50	-	-	129
	%	23.26	25.58	12.40	38.76	-	-	100.00
Other Wage Earner	No.	20	27	4	31	21	6	109
	%	18.35	24.78	3.66	28.44	19.27	5.50	100.00
Total	No.	58	141	48	101	42	10	400
	%	14.50	35.25	12.00	25.25	10.50	2.50	100.00

Source: - Field Survey (Baran), September- October 2022.

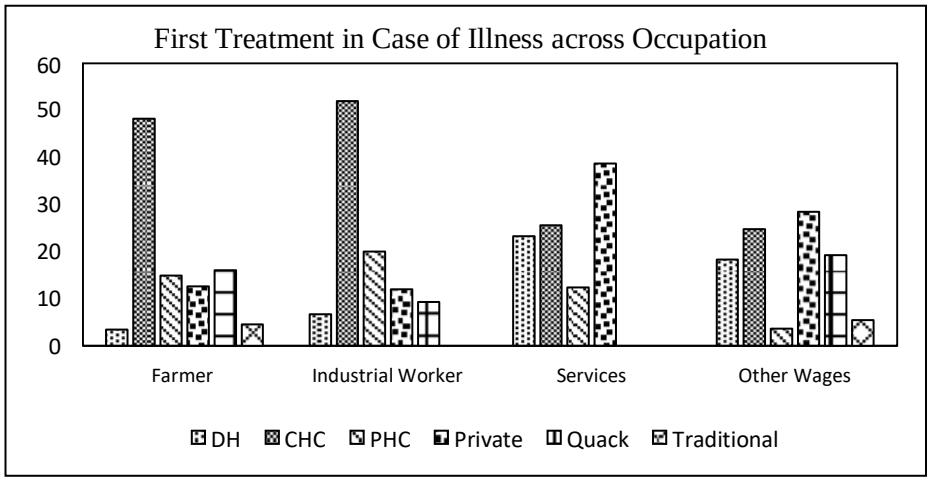

Fig. 3.10

3.1.10 Age-Group

Age has an impact on a person's healthcare behavior. The connection between the respondents age and the use of healthcare facilities is shown in Table 3.11. The percentage of respondents who seek the visit of quacks declined as respondents age increased, as seen in Figure 3.11. It's possible that an older person has a specific condition that only quacks can treat. Table 3.11 makes it obvious that respondent's dependence on CHCs is notably high up to the age range of 30-35 and declines with age. The age of 30-35 years contained the highest proportion of respondents who visit CHC. The percentage of respondents who visit PHC was low and gets lower as respondents get older (Fig. 11).

Table 3.11: First Treatment in Case of Illness across Age-groups.

Age		DH	CHC	PHC	Private	Quack	Traditional Healer	Total
<30	No.	5	23	7	12	15	-	62
	%	8.06	37.09	11.30	19.35	24.20	-	100.00
30-35	No.	6	41	6	18	28	9	108
	%	5.55	37.96	5.56	16.67	25.93	8.33	100.00
35-40	No.	18	30	8	15	22	-	93
	%	19.36	32.26	8.60	16.12	23.66	-	100.00
40-45	No.	11	9	2	25	28	10	85
	%	12.95	10.59	2.35	29.41	32.94	11.76	100.00
>45	No.	15	3	-	16	18	-	52
	%	28.85	5.76	-	30.77	34.62	-	100.00
Total	No.	55	106	23	86	111	19	400
	%	13.75	26.50	5.75	21.50	27.75	4.75	100.00

Source: - Field Survey (Baran), September- October 2022.

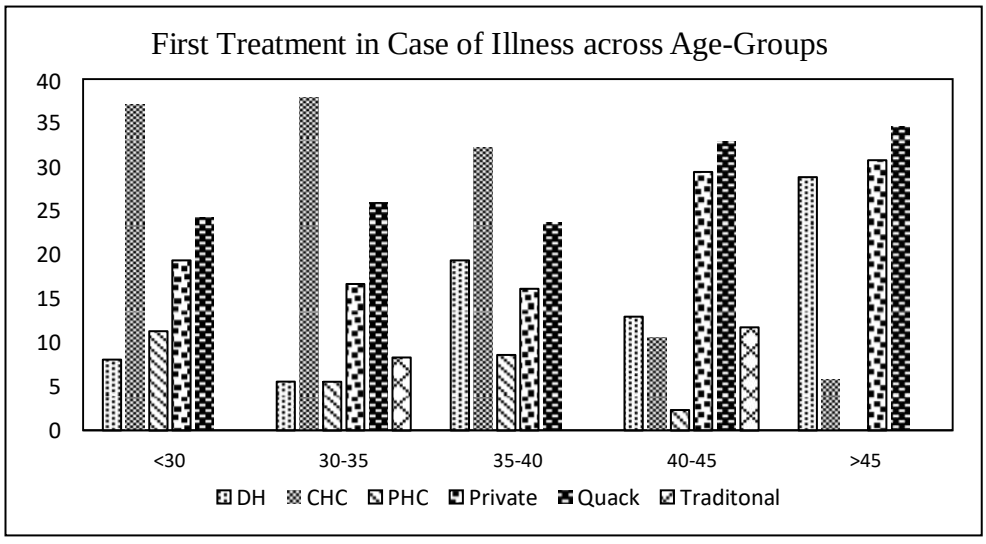

Fig. 3.11

3.2 Changes in Healthcare Facility during Treatment

Changes in healthcare facilities during illness are an indication of the effectiveness of healthcare delivery services and facilities at various healthcare institutions, as well as acceptance of those facilities. The competence, attitude and conduct of the medical and paramedical staff, as well as the availability and efficiency of medical equipment, are major determinants of the quality of healthcare services and amenities provided by healthcare institutions. Therefore, it is crucial to examine how frequently patients switch healthcare facilities throughout their illnesses across socioeconomic and demographic categories in order to evaluate the effectiveness of the medical facilities that are accessible in the Baran district. In this section, socioeconomic and demographic factors such as religion, social group (caste), and family structure, household income per month, respondent's age, education, and occupation are explored.

3.2.1 Place of Residence

According to the study, respondents in rural areas (39.80%) switched from private to public healthcare facilities during illness, as opposed to respondents in urban areas (39.62%) who switched from public to private healthcare facilities (Table 3.12). It shows that due to a lack of funding and inadequate equipment, private healthcare facilities in rural areas struggle to handle serious medical issues. They also frequently lack experienced paramedical staff and specialists. They may also believe that as their therapy lasts longer, they are less able to pay.

Respondents in urban area switched from government to private healthcare facilities mostly due to the unprofessionalism, lack of friendliness, and uncleanliness of paramedical workers and doctors toward the patients. Additionally, private hospitals in urban areas differ from those in rural and suburban areas in terms of their high financial requirements and their access to specialists. A small proportion of rural respondents (12.58%) who first switched from government to private health institutions during illness but later returned to government health institutions because of the high cost of treatment or the absence of medical equipment required for treating serious health cases. A sizable portion of respondents, both in urban and rural areas, said they did not switch healthcare facilities while receiving treatment (Fig. 3.12).

Table 3.12: Change in Healthcare Facility during Treatment across Place of Residence.

Place of residence		Govt. to Private	Private to Govt.	Multiple Change	No Facility Change	Total
Rural	Number	56	117	37	84	294
	Per cent	19.05	39.80	12.58	28.57	100.00
Urban	Number	42	25	-	39	106
	Per cent	39.62	23.59	-	36.79	100.00
Total	Number	98	142	37	123	400
	Per cent	24.50	35.50	9.25	30.75	100.00

Source: - Field Survey (Baran), September- October 2022.

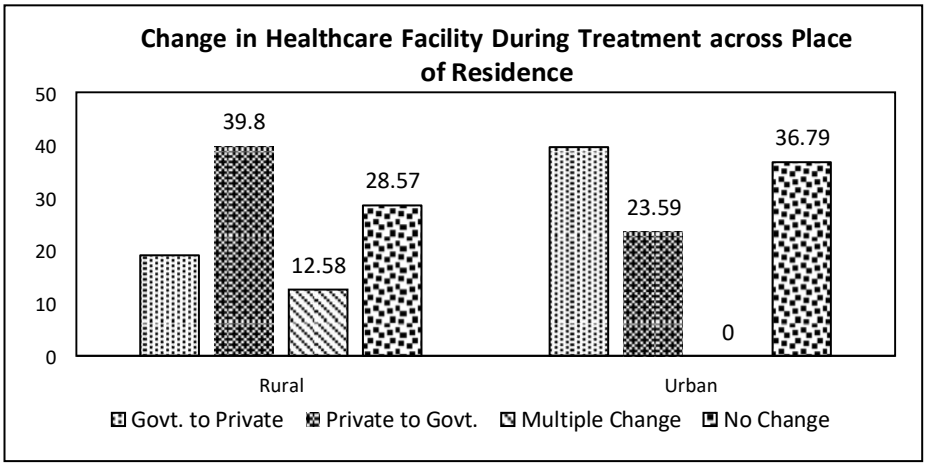

Fig. 3.12

3.2.2 Religion

In comparison to Muslim (14.10%) respondents, a higher percentage of Hindu respondents (28.88%) switched from government to private healthcare facilities while ill. This is also true when switching from a private to a public healthcare facility, the gap between the Hindu and Muslim respondents decreases. Muslim respondents are changing the facility by multiple times than Hindu respondents to have switched from government to private and back to Government (table 3.13 and Fig. 3.13).

Table 3.13: Change in Healthcare Facility during Treatment across Religion

Religion		Govt. to private	Private to govt.	Multiple change	No facility change	Total
Hindu	Number	93	127	28	74	322
	Per cent	28.88	39.44	8.69	22.99	100.00
Muslim	Number	11	24	13	30	78
	Per cent	14.10	30.77	16.67	38.46	100.00
Total	Number	104	151	41	104	400
	Per cent	26.00	37.75	10.25	26.00	100.00

Source: - Field Survey (Baran), September- October 2022.

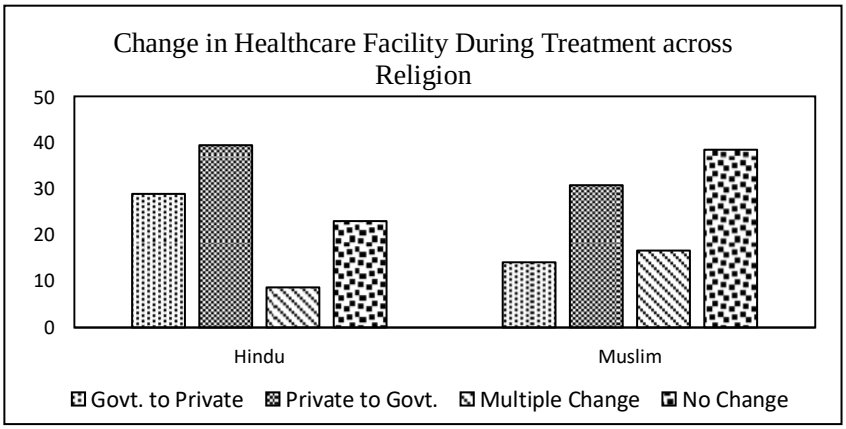

Fig. 3.13

3.2.3 Social-group

The survey's conclusion indicates that, in comparison to other healthcare facilities, a maximum share (37.39%) of the general group switched to private healthcare facilities. The biggest percentage of respondents from the OBC group (37.39%) reported switching from private to public healthcare facilities (Table 3.14 and Fig.3.14).

Table 3.14: Change in Healthcare Facility during Treatment across Social-groups

Social Group		Govt. to private	Private to Govt.	Multiple change	No facility change	Total
General	Number	20	43	17	35	115
	Per cent	17.39	37.39	14.78	30.44	100.00
OBC	Number	40	52	15	42	149
	Per cent	26.85	34.90	10.07	28.18	100.00
SC	Number	19	24	9	22	74
	Per cent	25.67	32.43	12.17	29.73	100.00
ST	Number	26	16	16	4	62
	Per cent	41.94	25.80	25.80	6.45	100.00
Total	Number	105	135	57	103	400
	Per cent	26.25	33.75	14.25	25.75	100.00

Source: - Field survey (Baran), September- October 2022.

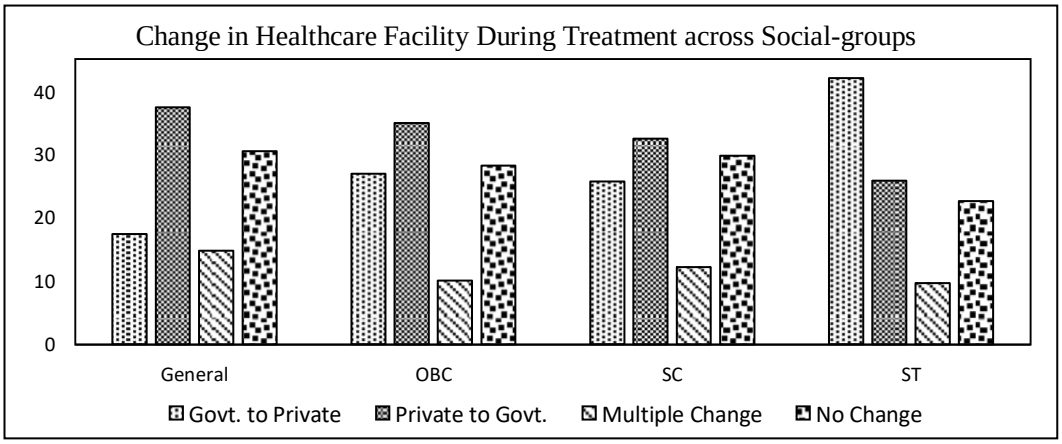

Fig. 3.14

3.2.4 Family Type

Comparing respondents from nuclear families to those from joint families, Table 3.15 shows that a higher percentage of respondents from joint families switched from government to private healthcare facilities. However, nuclear families (46.44%) respondents switched from private to public healthcare facilities. Similar to how respondents from nuclear families are more likely (8.54%) than respondents from joint families to switch between private and public healthcare facilities when ill. Those who live in joint family are less change the facility than those who are part of nuclear family (Fig. 3.15).

Table 3.15: Change in Healthcare Facility during Treatment across Family Type

Family Type		Govt to private	Private to govt	Multiple change	No facility change	Total
Nuclear	Number	49	98	18	46	211
	Per cent	23.22	46.44	8.54	21.80	100.00
Joint	Number	57	65	13	54	189
	Per cent	30.15	34.39	6.88	28.58	100.00
Total	Number	106	163	31	100	400
	Per cent	26.50	40.75	7.75	25.00	100.00

Source: - Field Survey (Baran), September- October 2022.

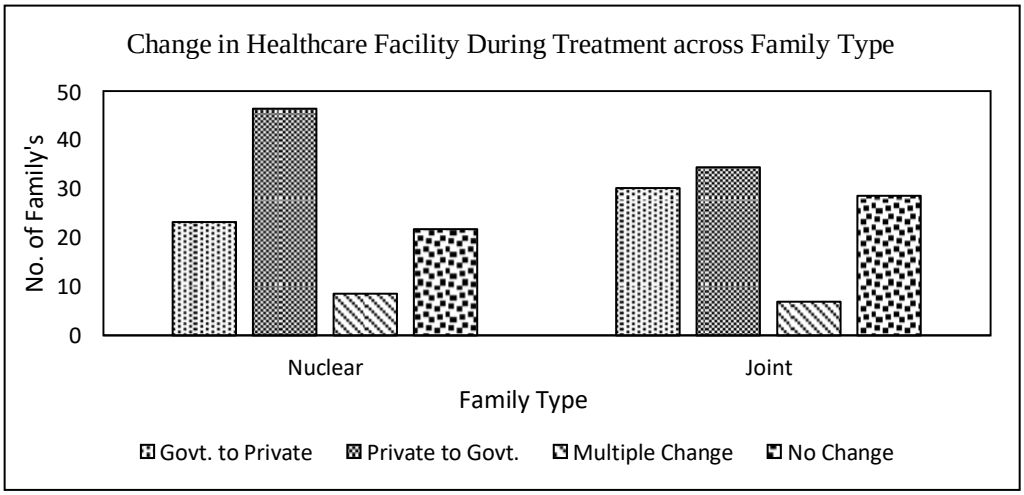

Fig. 3.15

3.2.5 Education

Education of the public, especially of patient's family, is intimately related to changing the healthcare institution while ill. People who are illiterate or have low levels of education (up to middle or high school) did not switch healthcare facilities while receiving treatment because they were not well informed about alternative healthcare

options. The majority of them sought treatment at government hospitals (Table 3.16). With schooling above the middle class and a degree, around one-fourth of all respondents had switched from government to private healthcare facilities. About 16.67 pecent of respondents with higher education switched from private to public healthcare facilities while ill (Fig. 3.16).

Table 3.16: **Change in Healthcare Facility during Treatment across Level of Education**

Level of Education		Govt. to Private	Private to Govt	Multiple Change	No Facility Change	Total
Illiterate	Number	2	12	-	16	30
	Per cent	6.66	40.00	-	53.34	100.00
Primary	Number	3	6	-	19	28
	Per cent	10.71	21.42	-	67.87	100.00
Middle	Number	13	11	6	26	56
	Per cent	23.21	19.65	10.71	46.43	100.00
High School	Number	26	17	15	44	102
	Per cent	25.49	16.67	14.70	43.14	100.00
Intermediate	Number	28	43	22	4	97
	Per cent	28.87	44.33	22.68	4.12	100.00
Graduation and above	Number	25	39	19	4	87
	Per cent	28.74	44.83	21.83	4.60	100.00
Total	Number	97	128	62	113	400
	Per cent	24.25	32.00	15.50	28.25	100.00

Source: - Field Survey (Baran), September- October 2022.

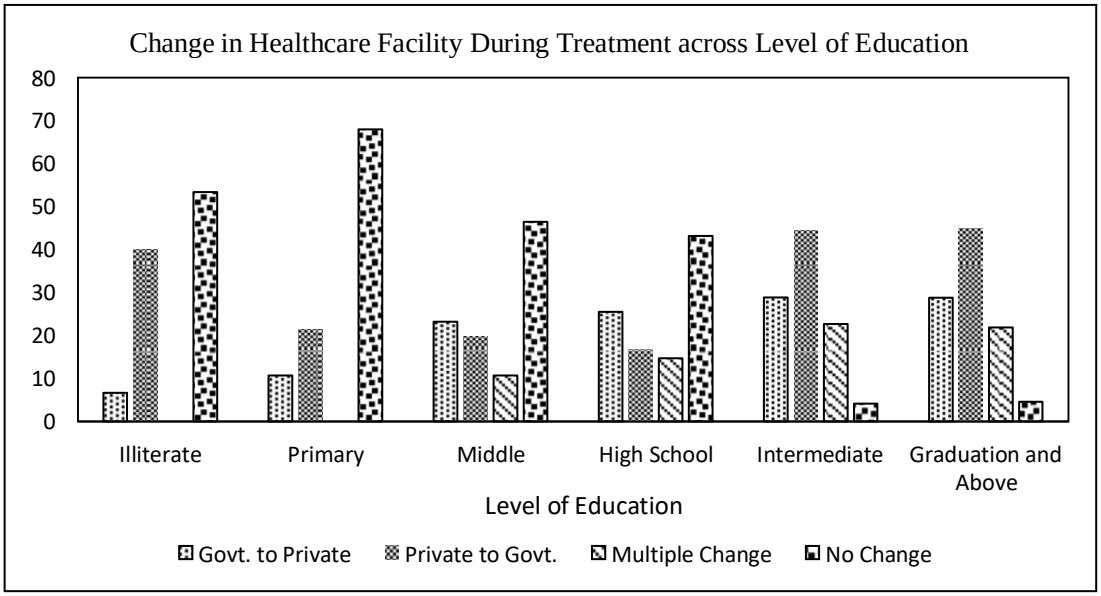

Fig. 3.16

The percentage of respondents with education levels beyond high school who switched from government to private healthcare facilities before switching back to government healthcare facilities is higher than the percentage of respondents with education levels below intermediate.

3.2.6 Income

One of the most crucial aspects in setting the healthcare facility shift schedule during treatment is income. Table 3.17, however, does not indicate a connection between income and a patient choice of healthcare facility during treatment in the Baran district. The study area has a significant percentage of respondents across all income groups who switched from private to public healthcare facilities. Since in such medical facilities, the overall cost of the medications is high and the length of the therapy is lengthy. Because of this, Rs 10,000 income group respondents (35.58%) who initially switched from government to private healthcare facilities for better care later returned to government hospitals. Compared to respondents with greater incomes, respondents with less than Rs. 10,000 in annual income had changed healthcare facilities less frequently (more than Rs 10,000) (Fig. 3.17).

Table 3.17: Change in Healthcare Facility during Treatment across Income Groups

Income (Rs)		Govt. to Private	Private to Govt.	Multiple Change	No Facility Change	Total
< 5,000	Number	28	84	15	31	158
	Per cent	17.72	53.16	9.50	19.62	100.00
5,000-10,000	Number	29	67	12	30	138
	Per cent	21.01	48.55	8.70	21.74	100.00
> 10,000	Number	16	42	37	9	104
	Per cent	15.38	40.38	35.58	8.66	100.00
Total	Number	73	193	64	70	400
	Per cent	18.25	48.25	16.00	17.50	100.00

Source: - Field Survey (Baran), September- October 2022.

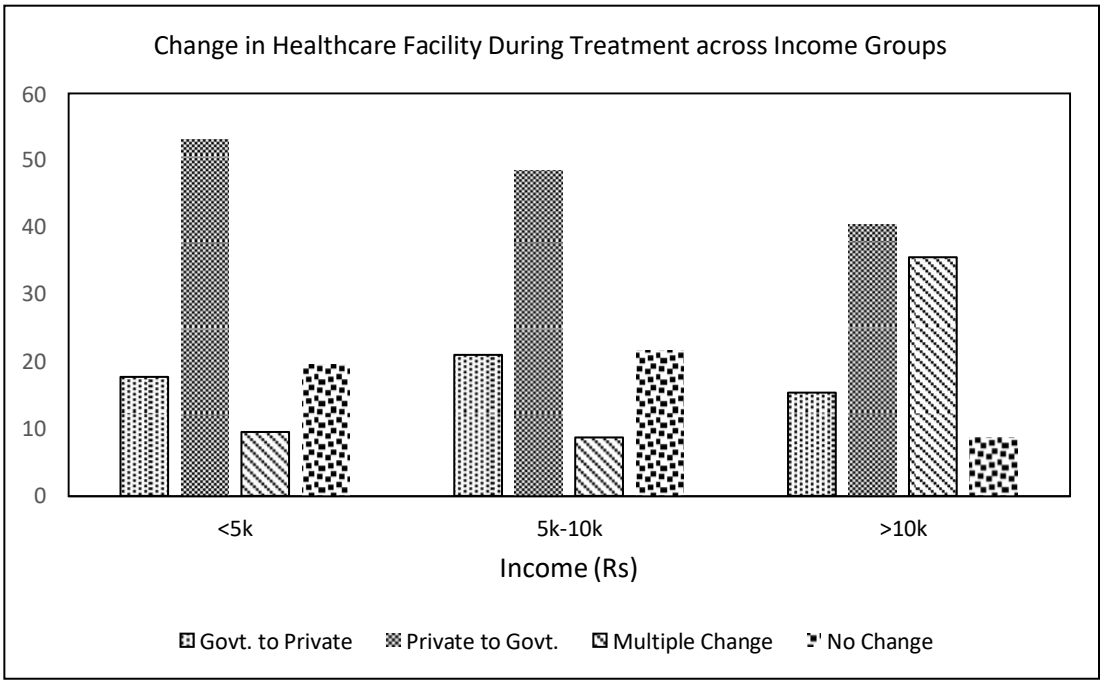

Fig. 3.17

3.2.7 Occupation

Table 3.18 shows that more than 50 percent of farmers have switched from using public to private healthcare facilities. Respondents who worked in industries, in services, and in other jobs regularly switched from private to public healthcare facilities.

Table 3.18: **Change in healthcare facility during treatment across occupation**

Occupation		Govt to Private	Private to Govt.	Multiple Change	No Facility Change	Total
Farmer	Number	45	15	12	15	87
	Per cent	51.72	17.24	13.80	17.24	100.00
Industrial workers	Number	13	19	9	34	75
	Per cent	17.33	25.33	12.00	45.34	100.00
service	Number	22	53	30	24	129
	Per cent	17.06	41.08	23.26	18.60	100.00
Other wage earner	Number	18	42	2	47	109
	Per cent	16.51	38.54	1.84	43.11	100.00
Total	Number	98	129	53	120	400
	Per cent	24.50	32.25	13.25	30.00	100.00

Source: - Field Survey (Baran), September- October 2022.

About one fourthof all respondents who participated in service activities reported switching between government and private hospitals and back again several times (Table 3.18).

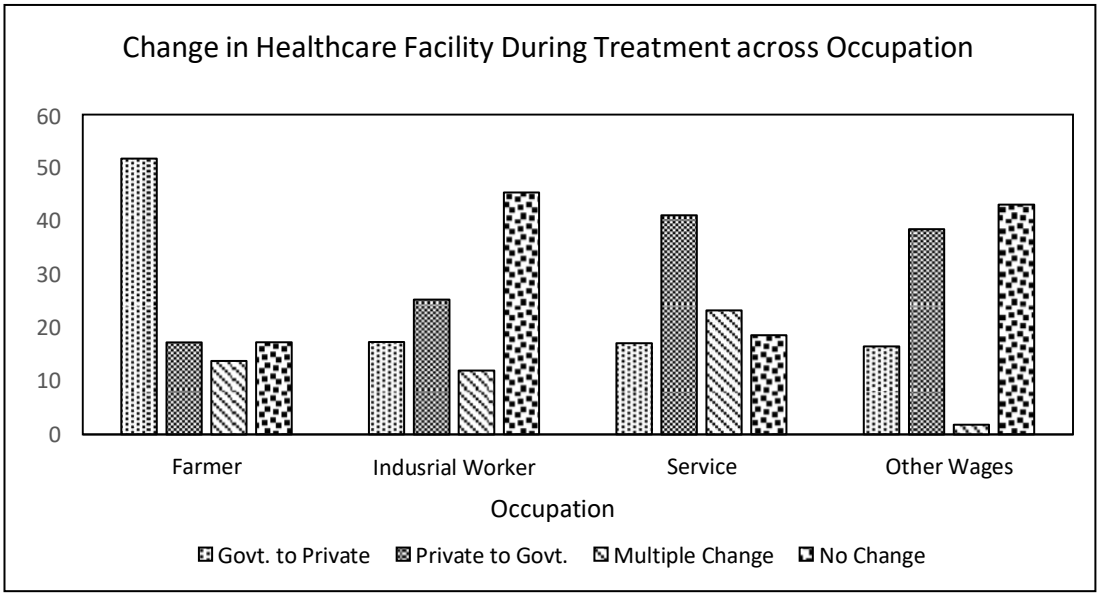

Fig. 3.18

3.2.8 Age

Table 3.19 reveals that almost one-fourth of all respondents under the age of 40 switched from government to private healthcare facilities.

Table 3.19: Change in Healthcare Facility during Treatment across Age-groups

Age-group		Govt. to Private	Private to Govt.	Multiple Change	No Change	Total
< 30	Number	22	17	12	11	62
	Per cent	35.48	27.42	19.36	17.74	100.00
30-35	Number	26	53	15	14	108
	Per cent	24.07	49.08	13.89	12.96	100.00
35-40	Number	26	35	14	18	93
	Per cent	27.95	37.64	15.06	19.35	100.00
40-45	Number	15	20	3	47	85
	Per cent	17.65	23.53	3.53	55.29	100.00
> 45	Number	-	43	4	5	52
	Per cent	-	82.70	7.69	9.61	100.00
Total	Number	89	168	48	95	400
	Per cent	22.25	42.00	12.00	23.75	100.00

Source: - Field Survey (Baran), September- October 2022.

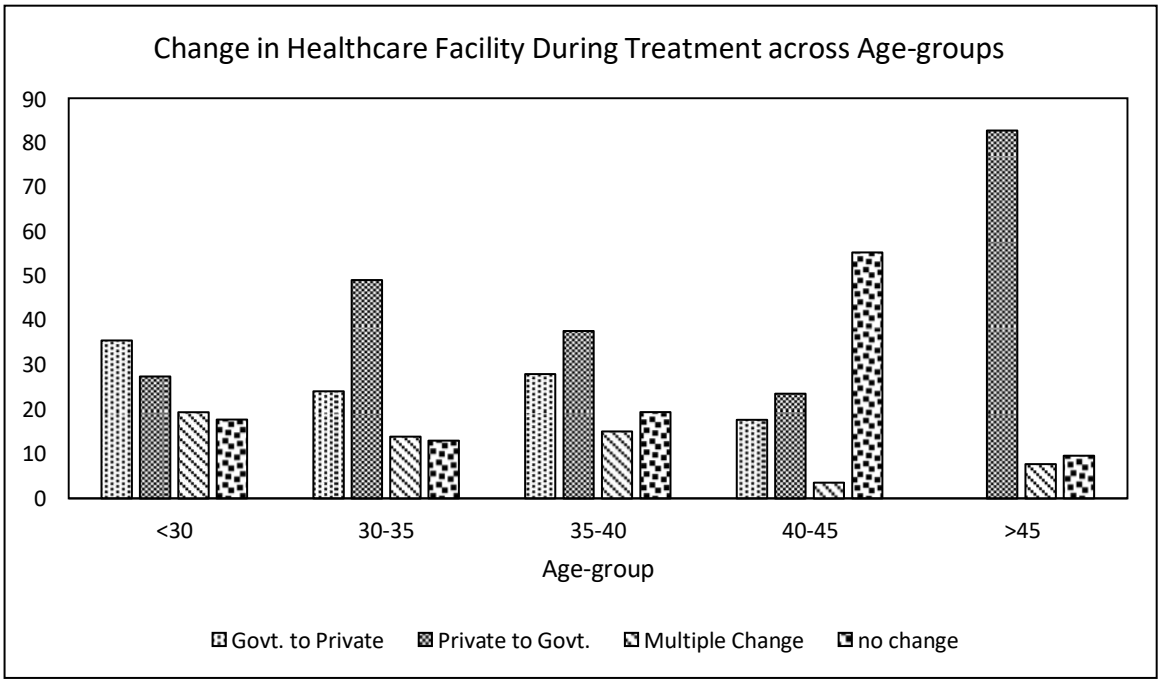

Fig. 3.19

The majority of respondents over the age of 45(82.70%), as well as those in the age group of 30-35 (49.08%) and 35-40 (37.64%), reported switching from private to public healthcare facilities. About 20 percent of all respondents who are younger than 30 years old report switching between government and private institutions for health care before returning to the former (Table 3.19). 55.29 percent of respondents between the ages of 40 and 45 reported never switching healthcare facilities while ill (Fig. 3.19).

3.3 Place of Child-birth

Encouragement of deliveries in suitable hygienic settings under the supervision of qualified health experts is one of the key focuses of healthcare. One of the elements of the RCH (Reproductive and Child Health) programme is the provision of delivery care at public health facilities.

3.3.1 Place of Residence

There is very little institutional delivery in the study locations. Despite numerous government initiatives, more than 30 percent of births happen at home. Only 29.59 percent and 28.30 percent of deliveries in rural and urban areas respectively are carried out in public health facilities, i.e., CHCs and PHCs, according to Table 3.20. Similar to this, private hospitals handled 22.10 percent and 23.58 percent of deliveries in urban

and rural areas, respectively. Untrained workers administer a sizable chunk of deliveries (Fig. 3.20).

Table 3.20: Place of Child-birth across Residence

Place of Residence		CHC	PHC	Private Hospital	At Home by Trained Birth Attendant	Neighbour Female Member	Total
Rural	Number	38	49	65	89	53	294
	Per cent	12.92	16.67	22.10	30.27	18.04	100.00
Urban	Number	30	-	25	49	2	106
	Per cent	28.30	-	23.58	46.23	1.89	100.00
Total	Number	68	49	90	138	55	400
	Per cent	17.00	12.25	22.50	34.50	13.75	100.00

Source: - Field Survey (Baran), September- October 2022.

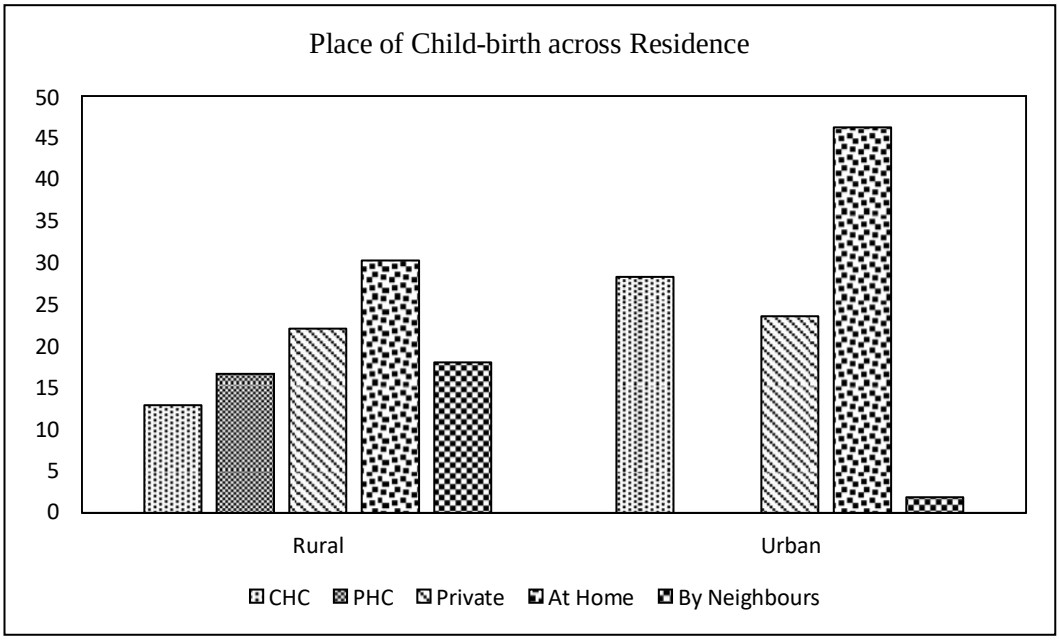

Fig. 3.20

3.3.2 Religion

Comparatively many institutional deliveries to Hindus were documented. Compared to 24 percent of Muslims, 30 percent of Hindu reported using public or government-run healthcare facilities. Muslims (11.53) use private institutions at a slightly higher rate than Hindus (6.53).

Table 3.21: Place of Child-birth across Religion

Religion		CHC	PHC	Private Hospital	At Home by Trained Birth Attendant	Neighbour female Member	Total
Hindu	Number	46	55	21	161	39	322
	Per cent	14.28	17.08	6.53	50.00	12.11	100.00
Muslim	Number	10	14	9	30	15	78
	Per cent	12.83	17.94	11.53	38.47	19.23	100.00
Total	Number	56	69	30	191	54	400
	Per cent	14.00	17.25	7.50	47.75	13.50	100.00

Source: - Field Survey (Baran), September- October 2022.

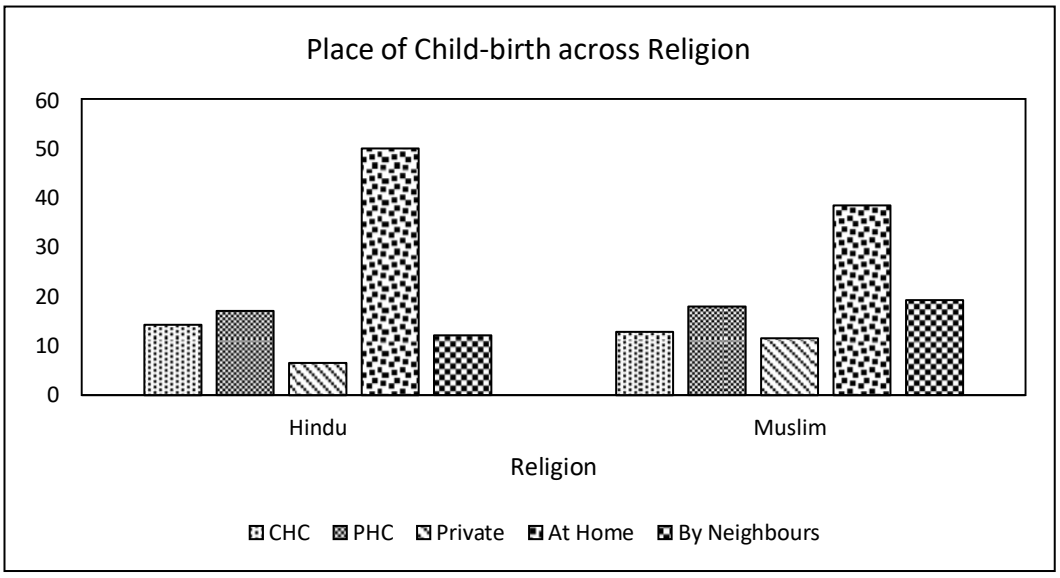

Fig. 3.21

3.3.3 Social-group

Table 3.23 shows the percentage of institutional and home delivery by social category. Respondents from the general category (35.6%) and from OBC groups (37.58 per cent) have reported a higher percentage of institutional deliveries at government. SC (32.43%) respondents make up slightly less of the institutional deliveries in government hospitals than General and OBC respondents. SCs had the lowest percentage of delivery at private hospitals, according to research. Paying for medical treatments in private hospitals is primarily related to affordability. Although a sizable fraction of scheduled caste and OBC moms gave birth in medical facilities, 43.24 percent of SC deliveries and 44.97 percent of OBC deliveries are still supported at home by untrained staff.

Table 3.22: Place of Child-birth across Social-groups

Social-group		CHC	PHC	Private Hospital	At Home by Trained Birth Attendant	Neighbour Female Member	Total
General	Number	29	12	30	39	5	115
	Per cent	25.22	10.43	26.09	33.92	4.34	100.00
OBC	Number	18	38	15	67	11	149
	Per cent	12.08	25.50	10.07	44.97	7.38	100.00
SC	Number	9	15	6	32	12	74
	Per cent	12.16	20.27	8.11	43.24	16.22	100.00
ST	Number	6	18	-	18	20	62
	Per cent	9.68	29.03	-	29.03	32.26	100.00
Total	Number	62	83	51	156	48	400
	Per cent	15.50	20.75	12.75	39.00	12.00	100.00

Source: - Field Survey (Baran), September- October 2022.

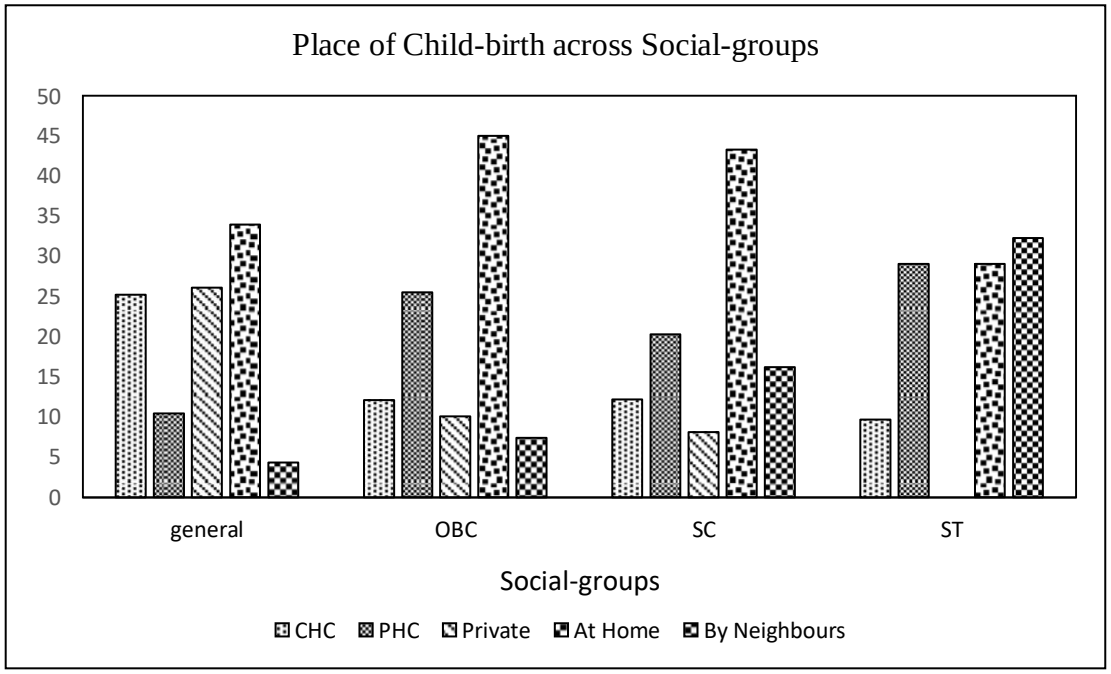

Fig. 3.22

3.3.4 Family type

Joint and nuclear families displayed a noticeable disparity in childbirth patterns. The proportion of institutional deliveries has been observed to be higher in nuclear families than joint families, regardless of caste or economic status (Table 3.23). In nuclear families, 10.19 percent of deliveries took place in government hospitals, compared to a significantly greater share of 21.80 percent, in private hospitals. When compared to joint families49.74 per cent), deliveries made at home by trained people are shown to be

less common in nuclear families (44.08%). Poor nuclear families made up of industrial and agricultural employees were discovered relying on untrained personnel (Fig. 3.23).

Table 3.23: **Place of Child-birth across Family Type**

Family Type		CHC	PHC	Private Hospital	At Home by Trained Birth Attendant	Neighbour Female Member	Total
Nuclear	Number	23	20	46	93	29	211
	Per cent	10.90	9.48	21.80	44.08	13.74	100.00
Joint	Number	20	28	20	94	27	189
	Per cent	10.58	14.82	10.58	49.74	14.28	100.00
Total	Number	43	48	66	187	56	400
	Per cent	10.75	12.00	16.50	46.75	14.00	100.00

Source: - Field Survey (Baran), September- October 2022.

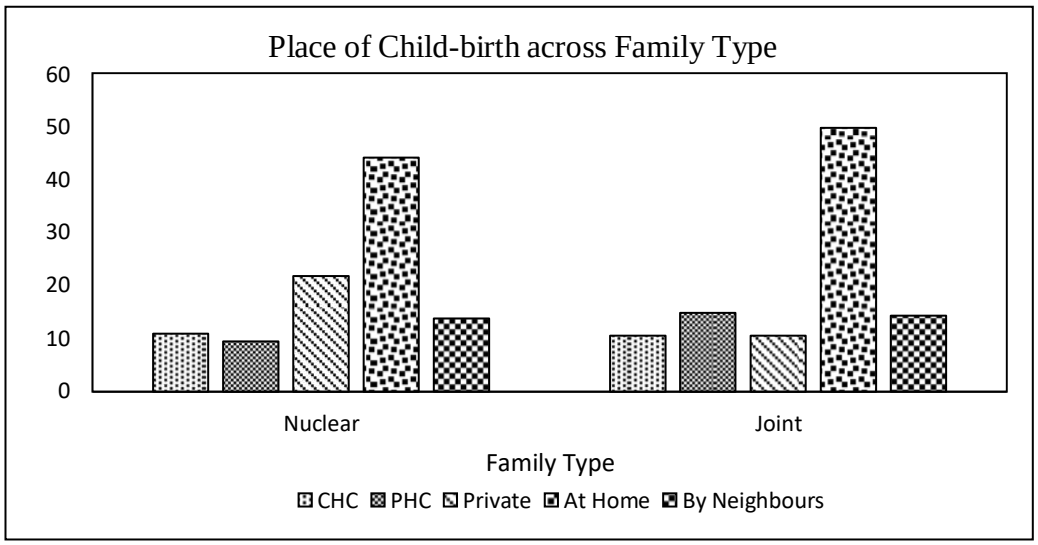

Fig. 3.23

3.3.5 Education

The respondent's education is significant among the various socioeconomic characteristics that influence the relationship between the place of delivery positively. It highly improves mothers' capacity to access and insure healthcare services during pregnancy and at a preferred birth location (delivery). According to respondent's education, the proportion of births by place of delivery is shown in Table 3.24.

Due to poor educational attainment, a maximum number of women with high school education still do not use the healthcare services offered by government and private institutions. 86.67 percent of illiterate women and 78.57 percent of women with only a

primary education give birth at home with the assistance of untrained staff. Women (50%)with education levels up to middle school (50.00%), high school (50.98%), and intermediate (45.36%) gave birth at home with the help of trained delivery attendants. While the proportion of deliveries at public and private hospitals increases with mother's education and household wealth, the proportion of deliveries at home declines with mother's education.

Table 3.24: Place of Child-birth across Level of Education

Education		CHC	PHC	Private Hospital	At Home by Trained Birth Attendant	Neighbour Female Member	Total
Illiterate	Number	-	4	-	5	21	30
	Per cent	-	13.33	-	16.67	70.00	100.00
Primary	Number	-	6	-	8	14	28
	Per cent	-	21.43	-	28.57	50.00	100.00
Middle	Number	-	16	-	28	12	56
	Per cent	-	28.57	-	50.00	21.43	100.00
High School	Number	22	-	8	52	20	102
	Per cent	21.56	-	7.84	50.98	19.62	100.00
Intermediate	Number	8	17	25	44	3	97
	Per cent	8.25	17.52	25.78	45.36	3.09	100.00
Graduation and above	Number	32	10	45	-	-	87
	Per cent	36.78	11.49	51.73	-	-	100.00
Total	Number	62	53	78	137	70	400
	Per cent	15.50	13.25	19.50	34.25	17.50	100.00

Source: - Field Survey (Baran), September- October 2022.

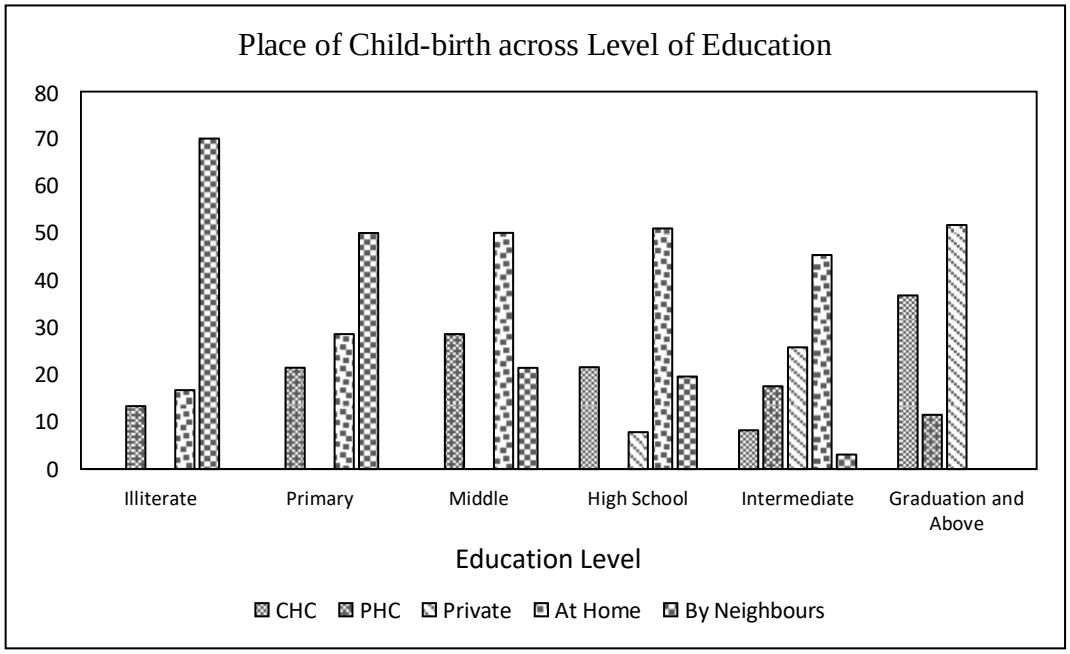

Fig. 3.24

3.3.6 Income

The location of delivery is heavily influenced by economic standard (household income). Table 3.25 demonstrates clearly that the share of births taking place in institutions—in particular, CHCs and private hospitals—increases as household income increases. Despite the fact that PHCs have a limited supply of medical facilities, the proportion of births happening there declines as household income increases.

Table 3.25 also shows that mothers from low-income families had their babies primarily at home because they could not afford the delivery fee and other costs associated with private hospitals. About 15.19 percent of women in low-income (less Rs 5,000) households reported having their babies delivered at home. With an increase in household income, the percentage of all deliveries attended by qualified staff at home likewise increases. On the other hand, not a single woman in the high income group (earning more than Rs 10,000) gave birth at home, leading one to conclude that improved economic condition is necessary to guarantee smooth institutional delivery. It has been discovered that institutional deliveries and delivery made by trained individuals are positively correlated with household income (Fig. 3.25).

Table 3.25: Place of Child-birth across Income Groups

Income Groups		CHC	PHC	Private Hospital	At Home by Trained Birth Attendant	Neighbour Female Member	Total
< 5,000	Number	14	28	4	88	24	158
	Per cent	8.86	17.72	2.53	55.70	15.19	100.00
5,000-10,000	Number	12	14	15	97	-	138
	Per cent	8.69	10.15	10.87	70.29	-	100.00
> 10,000	Number	28	17	59	-	-	104
	Per cent	26.92	16.34	56.74	-	-	100.00
Total	Number	54	59	78	185	24	400
	Per cent	13.50	14.75	19.50	46.25	6.00	100.00

Source: - Field Survey (Baran), September- October 2022.

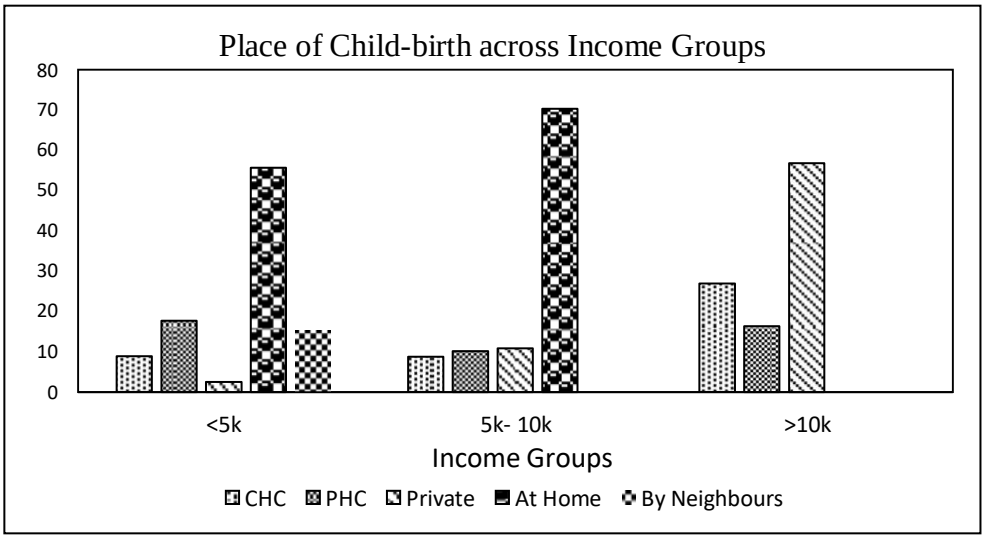

Fig. 3.25

3.4 Distribution of Free Medicine

Essential medication access is a human right. Unlimited access to necessary medication is a crucial component of its many initiatives for the promotion and protection of underprivileged communities' health. The availability of free drugs to all individuals seeking treatment in public hospitals has greatly increased access to healthcare. Due to patients starting to seek care as soon as a problem arises, the burden of catastrophic diseases has decreased.

3.4.1 Residence

At healthcare institutions in the research area, there has been difference between rural and urban resident's access to free medicine. Urban areas had a higher percentage of respondents (50.00%) who received free medication from CHS/SHS (Central Health Scheme/ State Health Scheme) than rural areas (33.00 per cent) (Table 3.26). Only 7.54 percent of respondents in urban areas and 26.19 percent of respondents in rural areas did not receive free medicine.

Table 3.26: **Availing Free Medicine across Place of Residence**

Place of Residence		Yes	No	Can't Say	Total
Rural	Number	97	77	120	294
	Per cent	33.00	26.19	40.81	100.00
Urban	Number	53	8	45	106
	Per cent	50.00	7.54	42.46	100.00
Total	Number	150	85	165	400
	Per cent	37.50	21.25	41.25	100.00

Source: - Field Survey (Baran), September- October 2022.

The question of receiving free medicine was left unanswered by more than 40 percent of the respondents. This demonstrates their ignorance of the free medication offered by medical facilities (Fig. 3.26).

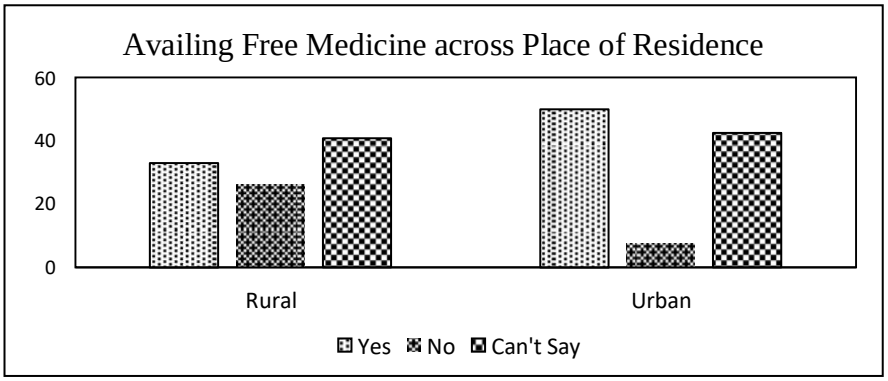

Fig. 3.26

3.4.2 Religion

The percentage of respondents who receives free medications from healthcare facilities is shown by religion in Table 3.27. Comparatively to Muslim (32.05%) respondents, the percentage of Hindu (33.23%) respondents who received free medicine is higher. About 39.72 percent of Hindu respondents and 48.72 percent of Muslim respondents reacts that they don't know about free medicine scheme. This demonstrates a more acute lack of knowledge among Muslims regarding the availability of free medication distribution at medical facilities (Fig.3.27).

Table 3.27: Availing Free Medicine across Religion.

Religion		Yes	No	Don't Know	Total
Hindu	Number	107	87	128	322
	Per cent	33.23	27.01	39.76	100.00
Muslim	Number	25	15	38	78
	Per cent	32.05	19.23	48.72	100.00
Total	Number	132	102	166	400
	Per cent	33.00	25.50	41.50	100.00

Source: - Field Survey (Baran), September- October 2022.

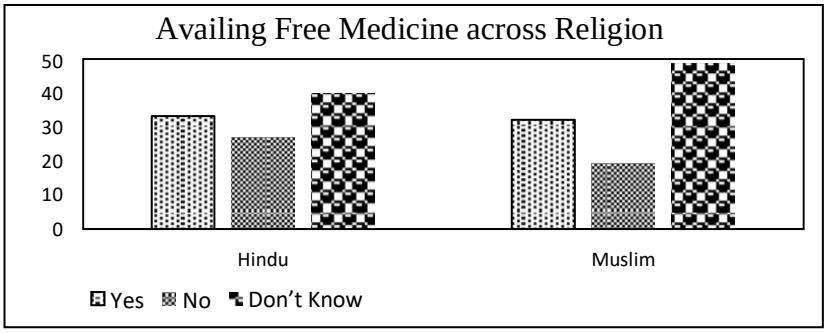

Fig. 3.27

3.4.3 Social-group

Analysis reveals the reassuring fact that more people in need than other groups have taken advantage of the availability of free medicines (Table 3.28). Maximum number of respondents don't know about the availability of free medicines except ST social group (Fig. 3.28).

Table 3.28: Availing Free Medicine across Social-groups

Social-group		Yes	No	Don't know	Total
General	Number	36	20	59	115
	Per cent	31.30	17.40	51.30	100.00
OBC	Number	55	26	68	149
	Per cent	36.91	17.45	45.64	100.00
SC	Number	25	21	28	74
	Per cent	33.78	28.38	37.84	100.00
ST	Number	30	12	20	62
	Per cent	48.39	19.35	32.26	100.00
Total	Number	146	79	175	400
	Per cent	36.50	19.75	43.75	100.00

Source: - Field Survey (Baran), September- October 2022.

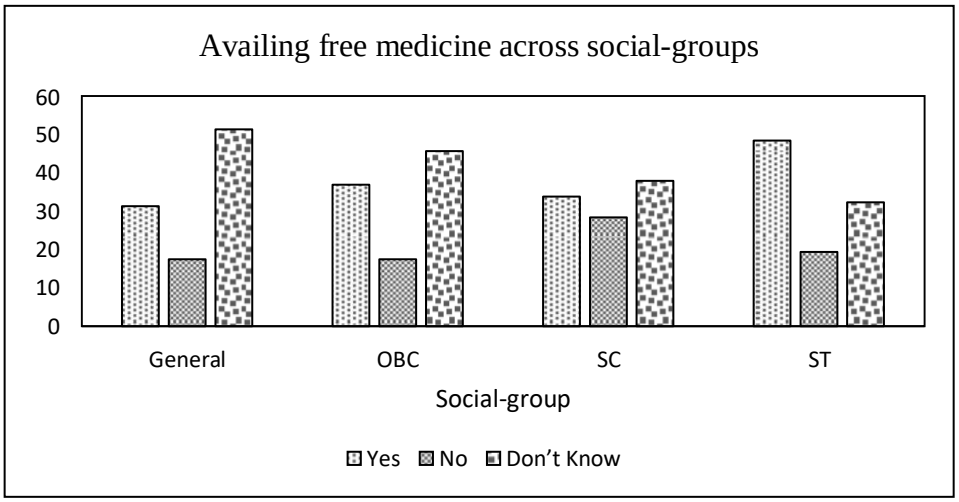

Fig. 3.28

3.4.4 Family Type

When compared to respondents from nuclear families (33.65%), the percentage of respondents from joint families (33.86%) who received free medicine is a little higher (Table 3.29 and Fig. 3.29).

Table 3.29: Availing Free Medicine across Family Type

Family Type		Yes	No	Don't know	Total
Nuclear	Number	71	42	98	211
	Per cent	33.65	19.90	46.45	100.00
Joint	Number	64	40	85	189
	Per cent	33.86	21.16	44.98	100.00
Total	Number	135	82	183	400
	Per cent	33.75	20.50	45.75	100.00

Source: - Field Survey (Baran), September- October 2022.

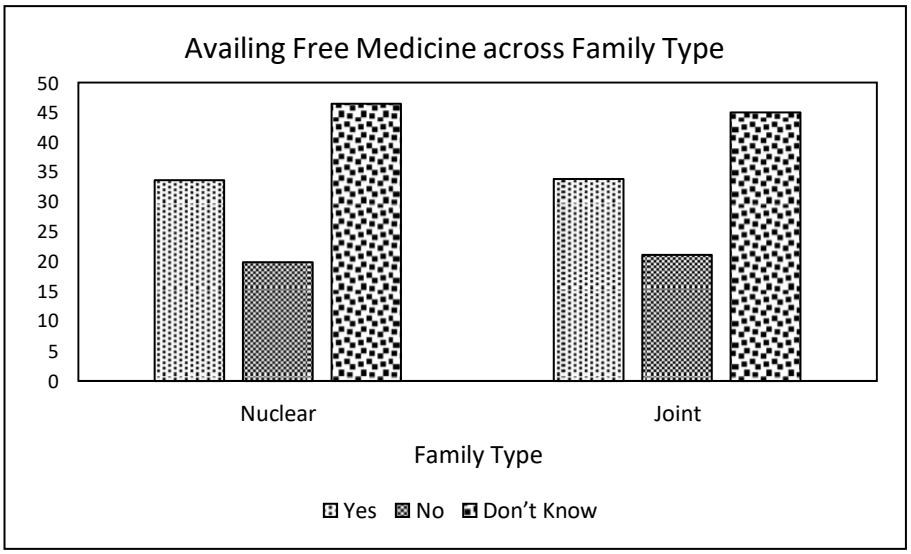

Fig. 3.29

About 45 percent of respondents from joint families reported not knowing about the distribution of free medicine, compared to 46.45 percent of respondents from the nuclear family type.

3.4.5 Level of Education

One of the key variables influencing the use of healthcare facilities is education level. The majority of respondents, including those with only a primary education and those who are illiterate, are unaware of the free medicine service offered by healthcare facilities. Ironically, over 43.68 percent of all responders with college degrees or above don't know about the free medical service. These people have not sought medical care at government facilities. However, free medication was obtained by around 39.08 percent of all respondents who completed their education and used government healthcare facilities (Table 3.30). In terms of receiving free medication from the health facilities, the percentage of respondents with education levels up to high school and

intermediate is lower than that of respondents with education levels up to primary and middle level (Fig. 3.30).

Table 3.30: Availing Free Medicine across Education Groups

Level of Education		Yes	No	Don't Know	Total
Illiterate	Number	12	-	18	30
	Per cent	40.00	-	60.00	100.00
Primary	Number	13	-	15	28
	Per cent	46.42	-	53.58	100.00
Middle	Number	31	14	11	56
	Per cent	55.36	25.00	19.64	100.00
High School	Number	28	35	39	102
	Per cent	27.45	34.31	38.24	100.00
Intermediate	Number	31	28	38	97
	Per cent	31.96	28.86	39.18	100.00
Graduation and Above	Number	34	15	38	87
	Per cent	39.08	17.24	43.68	100.00
Total	Number	149	92	159	400
	Per cent	37.25	23.00	39.75	100.00

Source: - Field Survey (Baran), September- October 2022.

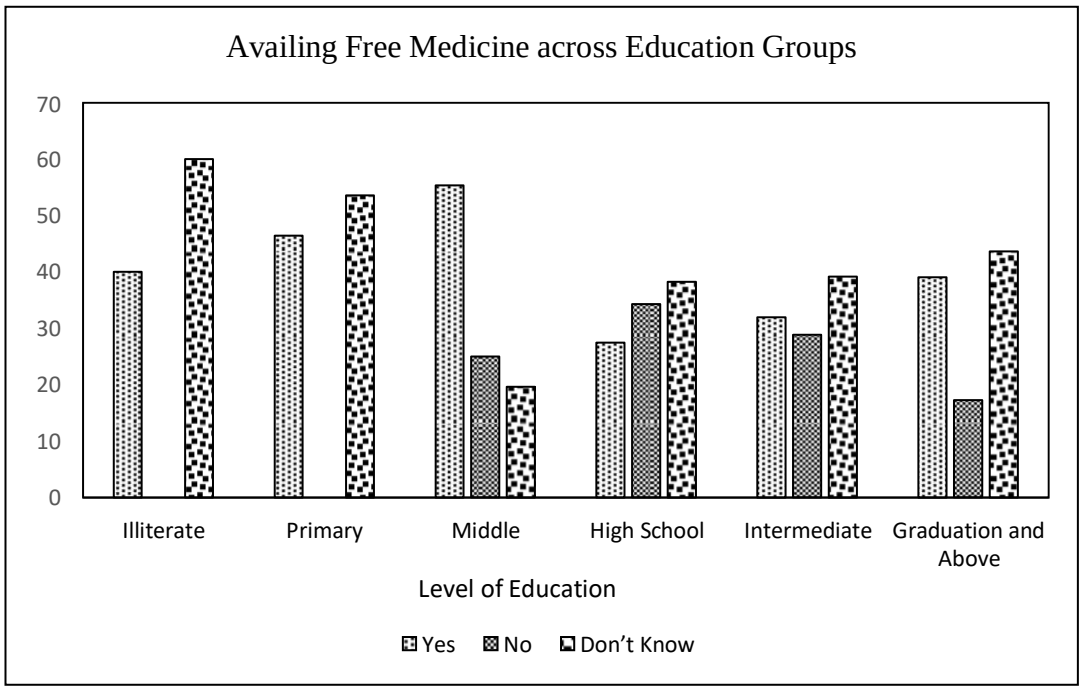

Fig. 3.30

3.4.6 Level of Income

The use of healthcare facilities is influenced by income level. When compared to the percentages of respondents with middle- and high-income levels (Rs. 5,000–10,000) and low-income levels (Rs. Less than 5,000), only about 28 percent of low-income respondents use the free medication. However, about half of respondents from low- and middle-income categories claimed that the free medications they received from medical facilities were of poor quality. Additionally, it was observed that more than 45 percent of respondents from low- and middle-income categories don't know about the availability of free medicine at public health facilities (Table 3.31 and Fig. 3.31).

Table 3.31: Availing Free Medicine across Income Groups

Monthly Income (Rs.)		Yes	No	Don't Know	Total
< 5,000	Number	44	38	76	158
	Per cent	27.85	24.05	48.10	100.00
5,000-10,000	Number	44	39	55	138
	Per cent	31.88	28.27	39.85	100.00
> 10,000	Number	38	18	48	104
	Per cent	36.54	17.30	46.16	100.00
Total	Number	126	95	179	400
	Per cent	31.50	23.75	44.75	100.00

Source: - Field Survey (Baran), September- October 2022.

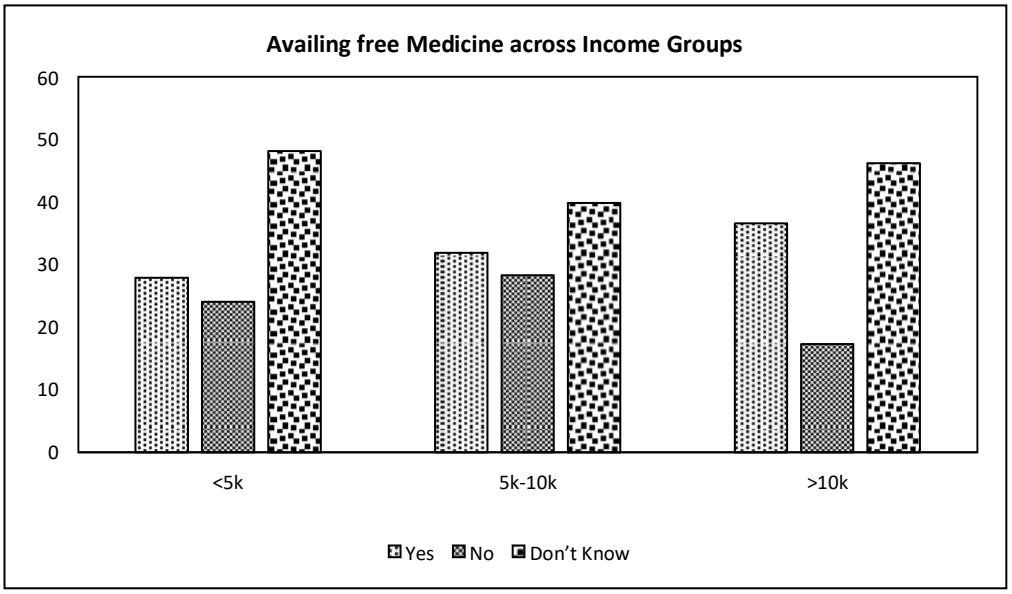

Fig. 3.31

3.4.7 Occupation

According to Table 3.32, 66 percent of all labourers in agriculture and industry consistently receive free medicine whenever they visit a hospital for treatment. Due to their occupation's lower pay, industrial employees are poor and marginalised. Farmers, whose income is higher than that of labourers but who are more prone to illness, are also aware of the hospital's free medication programme. The percentage of farmers who received free medicine is significantly lower than that of workers. The greatest rate of non-use of free medications across all occupations is 40.22 percent among farmers.

The availability of free medicine at healthcare facilities is unknown to roughly 45percent of all respondents who work in the service sector and other occupations. Only around 29.46 percent of respondents who used the services received free medication, whereas about 25 percent of respondents did not. About 39 percent of respondents in the other occupation category who are aware of the availability of free medications have fully utilised the free medication. Only 8.26 percent of respondents who worked in other occupations did not receive free medicine from government healthcare institutions, compared to more than one-third of the total respondents (Fig. 3.32).

Table 3.32: Availing Free Medicine across Occupation

Occupation		Yes	No	Don't Know	Total
Farmer	Number	33	35	19	87
	Per cent	37.93	40.22	21.85	100.00
Industrial workers	Number	50	13	12	75
	Per cent	66.64	17.33	16.00	100.00
Service	Number	38	32	59	129
	Per cent	29.46	24.81	45.73	100.00
Other wage earner	Number	42	9	58	109
	Per cent	38.53	8.26	53.21	100.00
Total	Number	163	89	148	400
	Per cent	40.75	22.25	37.00	100.00

Source: - Field survey (Baran), September- October 2022.

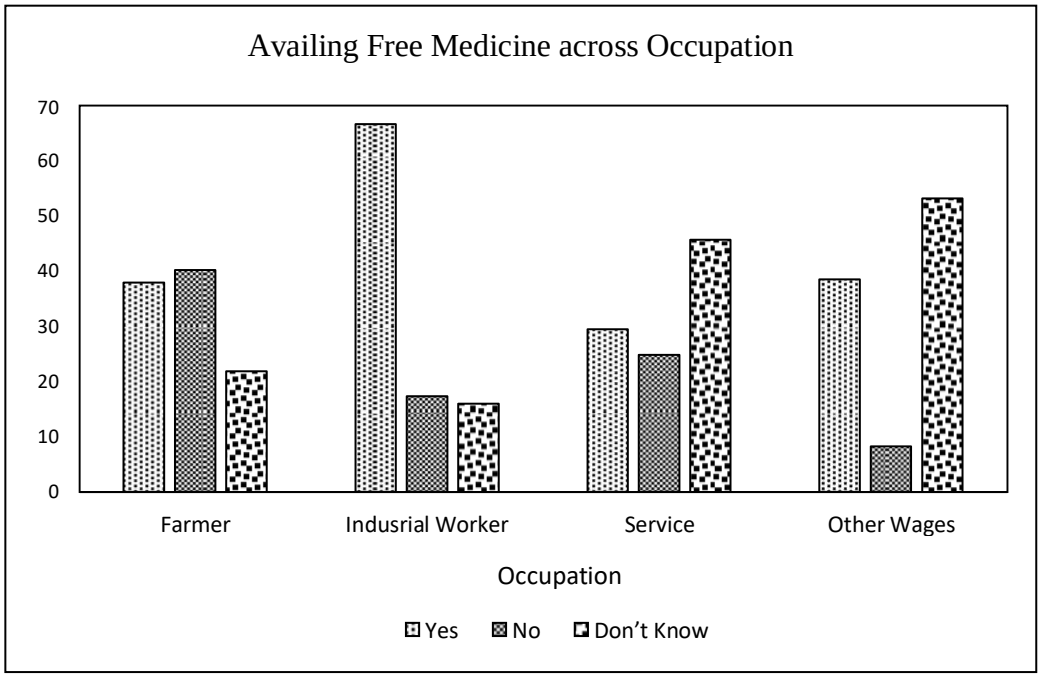

Fig. 3.32

3.4.8 Age-group

With regard to receiving free medicine, there are differences between age groups. In general, the percentage of respondents receiving free medicine increases initially as respondent's age increases, then steadily declines as respondent's ages increases, especially beyond 35. Respondents older than 45 years were not given free medication. There are two basic causes for this. First, more than two-thirds of those over 40 don't know about the availability of free healthcare; as a result, they choose to go to private hospitals rather than government-run ones. Second, drugs for the chronic disorders that are typically not offered at the counter of free medicine. Even though these medications are readily available, people are not happy with the standard of the medications (Table 3.33).

The respondents in younger age groups, especially those under 35, were discovered to be the most knowledgeable about the availability of free medicine. In these age-groups, roughly one-third respondents acquired free medicines whereas about one-fourth respondents did not obtain free medicines. The majority of these respondents rarely go to government healthcare facilities. The majority of individuals are still unaware of the availability of free medical care. Only those responders who attend government healthcare facilities when ill are discovered to be aware (Fig. 3.33).

Table 3.33: Availing Free Medicine across Age-groups

Age-group		Yes	No	Don't Know	Total
< 30	Number	20	13	29	62
	Per cent	32.26	20.97	46.77	100.00
30-35	Number	40	30	38	108
	Per cent	37.04	27.77	35.19	100.00
35-40	Number	29	20	44	93
	Per cent	31.19	21.50	47.31	100.00
40-45	Number	26	25	34	85
	Per cent	30.59	29.41	40.00	100.00
> 45	Number	-	22	30	52
	Per cent	-	42.30	57.70	100.00
Total	Number	115	110	175	400
	Per cent	28.75	27.50	43.75	100.00

Source: - Field Survey (Baran), September- October 2022.

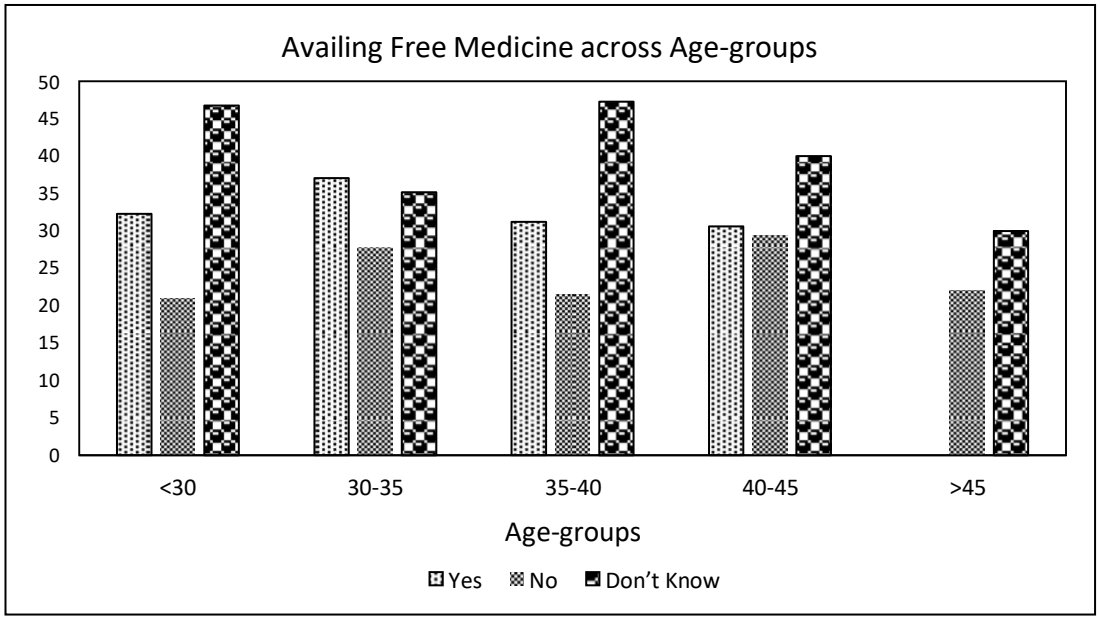

Fig. 3.33

Multivariate analysis

Multivariate analysis (MVA) is based on the statistical principle of multivariate statistics, which involves observation and analysis of more than one statistical variable at a time.The practical implementation of multivariate statistics to a particular problem may involve several types of univariate and multivariate analysis in order to understand the relationships between variables and their relevance to the actual

problem being studied.Multivariate Analysis of Variance (MANOVA), Multivariate Regression Analysis, Principal Component Analysis, Factor Analysis etc. are the different methods of multivariate analysis. Logistic regression is used to predict a categorical (usually dichotomous) variable from a set of predictor variables. With a categorical dependent variable, discriminant function analysis is usually employed if all of the predictors are continuous and nicely distributed; logit analysis is usually employed if all of the predictors are categorical; and logistic regression is often chosen if the predictor variables are a mix of continuous and categorical variables and/or if they are not nicely distributed (logistic regression makes no assumptions about the distributions of the predictor variables).

Multiple logistic analysis has been done in order to find out association between factors like religion, caste, education, income, occupation and family type with first treatment in case of illness (Public and private healthcare institution). Table 3.34 presents the result of logistic regression assessing the association between utilisation of healthcare facilities and the explanatory variables. For the analysis 95 per cent confidence level is taken and the result is presented in the table. The result shows that respondent's education and income is highly significant and is associated with utilisation of healthcare facilities. Contrary to this the result shows that caste, occupation and family type group are not significantly associated with utilisation of healthcare facilities. Respondents whose belong to Hindu community were more likely to up to utilisation of healthcare institutions than respondents whose belong to Muslim community.

Multiple logistic analysis revealed that families with poor economic status (below Rs. 5,000 per month family income) are less likely to opt utilisation of healthcare facilities as compared to that of families with better economic condition (Rs. 5,000-10,000 and above Rs. 10,000 per month income). Similarly, education has a strong association in utilizing of the healthcare facilities.For instance, odd ratios for respondents educated up to high school and above high school are 2.9 and 3.8 times more respectively than that of uneducated respondent. This proves hypothesis of the study that utilization of healthcare facilities is directly proportional to the status of education and economic condition of individual.

Table 3.34: Logistic regression results, predicting the odds of utilization of health care facilities by respondents according to selected socio-economic and demographic characteristics in Baran district, 2022.

Variables		Exp(B)	95.0% C. I. for EXP(B)	
			Lower	Upper
Religion	Muslim			
	Hindu	2.159**	1.219	3.826
Caste	SC&ST			
	OBC	3.993**	0.919	17.353
	UC	6.74**	2.316	19.61
Age	Less than 30			
	30-35	0.699	0.42	1.163
	35-40	0.752	0.427	1.325
	40-45	0.079	0.033	0.192
	More than 45	0.239	0.095	0.598
Education	Illiterate			
	Up to high school	4.365***	2.365	8.054
	Above high school	10.036***	2.665	17.789
Income (Rs)	Less than 5,000			
	5,000 – 10,000	2.639**	0.788	3.41
	More than 10,000	5.686**	2.116	15.282
Occupation	Other wage earner			
	Farmer	1.727	0.937	3.183
	Services	0.233	0.14	0.39
Family type	Nuclear			
	Joint	0.741	0.425	1.293
Constant		0.319		

Note: **p<0.05 and ***p<0.01, RC: Reference Category.

Comment: Result: Caste, Religion, Education and income of respondents are the important predictors of utilisation of healthcare facilities.

3.5 Health Workers Visited by Villages/Households

Health professional's visits to villages and households are crucial for providing door-to-door curative and preventive care, particularly for the less mobile and vulnerable segments of the population, such as women, pregnant women, children, and the elderly(Table 3.35). These visits also aid in the dissemination of health knowledge and awareness among society.

Table 3.35: Health Worker Visited the House of Respondents during Last Six Months

Health Worker	Number	Per cent
Govt doctor	19	4.75
ANM	96	24.00
ASHA	122	30.50
Anganwadi Worker	94	23.50
Health worker/ volunteer	23	5.75
None of these	46	11.50
Total	**400**	**100.00**

Source: - Field Survey (Baran), September- October 2022.

Very few villages or families reported that any government doctors had visited them within the previous six months. Some households indicated that no healthcare providers had ever visited. Over 54percent of houses in the research region are visited by ANMs (Auxiliary Nurse Midwives) and ASHAs (Accredited Social Health Activists) (Table 3.35). Visits by Anganwadi staff members were also made, however they only reached roughly 23 percent of all households. Very few houses were also visited by volunteer health workers throughout the course of the previous six months.

5.6 Health Camp

The health camp's goals included raising people's awareness of general health issues, providing them with general healthcare services, and counselling them on fundamental hygiene and healthcare practices. The government health personnel were in charge of organising the camps. The major goal was to increase awareness of health issues using a variety of audio-visual demonstration programmes so that everyone could quickly comprehend the fundamental concepts, such as gain and loss.

Table 3.36 provides information on how local health camps are organised. Only 9.50 percent of respondents denied any activity occurred, compared to an opinion held by over 85 percent of respondents that health camps were organised in their communities.

Table 3.36: Health Camp in the Locality

Health camp	Number	Per cent
Yes	337	84.25
No	38	9.50
Don't know	25	6.25
Total	400	100.00

Source: - Field Survey (Baran), September- October 2022.

3.6.1 Camp Type

A significant portion of the population (53%) believes that vaccination clinics are organised more regularly by health professionals; 25.75 percent believes that these clinics are related to other health issues; only 8.75 percent believes that these clinics are tied to various health awareness campaigns. It was discovered that about 12 percent of people were unaware of these camps (Table 3.37).

Table 3.37: Purpose of Organisation of Health Camps

Health Camp	Number	Per cent
Health Awareness	35	8.75
Other Health Related	103	25.75
Vaccination	213	53.25
Don't know	49	12.25
Total	400	100.00

Source: - Field Survey (Baran), September- October 2022.

3.6.2 Camp Frequency

The frequency with which health camps are organised in various regions is shown in Table 3.38. Nearly 47 percent of the respondents believe that these camps are organised twice a year, while over a third (31.25%) believe they are only held once a year. Since the camps are held more regularly in some areas, 1.25 percent of people are in favour of them happening three times a year.

Table 3.38: Frequency of Organisation of Health Camp (Yearly)

Frequency	Number	Per cent
Once	125	31.25
Twice	187	46.75
Thrice	5	1.25
Don't know	83	20.75
Total	400	100.00

Source: - Field Survey (Baran), September- October 2022.

3.7 Free check-up

Certain free medical check-up were provided in the government healthcare facilities, whose frequency is relatively low in the study area (Table 3.39).

Table 3.39: Free Check-up at Government Healthcare Institutions

Free Check-up	Number	Per cent
Yes	25	6.25
No	177	44.25
Sometimes	154	38.50
Don't know	44	11.00
Total	400	100.00

Source: - Field Survey (Baran), September- October 2022.

Over 45 percent of those surveyed believe there are no free check-ups, while 38.50 percent believe they very occasionally occur. Only 6.25 percent of respondents claimed that there were any camps. According to the respondents, the public awareness of and interest in using health facilities play a crucial role, but extension services for awareness.

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Chapter 4

Healthcare Practices and Beliefs among Tribes

It is widely established that tribal people's cultural background influences both their health and illness. Regardless of their locations or beliefs, tribal people all over India adhere to a set of customary norms around their health and illness. One of the crucial stages of tribal development, tribal health has long been neglected and misused. Without giving their beliefs and traditions in healthcare the appropriate consideration, tribal development cannot be realised in its purest form. India's tribal population makes up 8.6 percent of the nation's overall population, according to the Census of India 2011. In addition to ADIMJATI, VANVASI, ADIVASI, PAHARI, and ANUSUCHIT JANJATI, the tribe is also known by these names. Constitutionally speaking, they are referred to and called ANUSUCHIT JANJATI. There are currently 705 Schedule Tribal groups recognised and notified in India. Tribes as a whole show off their distinctive and varied way of life, culture, and sense of self in the age of globalisation. They continue to be the nation's most vulnerable and disenfranchised group of people. Even though the Indian government has implemented numerous development and welfare initiatives and programmes for their advancement and mainstreaming, these groups continue to be vulnerable in terms of their economic and social standing.

Tribal people's health is in extremely poor shape. There is insufficient information accessible on the health state of the tribes throughout the nation, despite the fact that numerous studies have shown the terrible health conditions of the tribes throughout the length and breadth of the country. The poor health of the tribes in India has a wide range of root causes and contributing variables. The low health situation of the nation's tribes is largely due to a lack of trained medical workers, access to care, and inadequate infrastructure. It is even more challenging to approach them and handle their health issues due to their geographic settlement patterns and tremendously diverse geographies. Poverty, illiteracy, a lack of knowledge about diseases, poor sanitation, outdated traditional methods of treating illnesses, and irrational belief systems all serve to exacerbate and deepen this agony.

Health Care Practices and Beliefs every society has its unique set of beliefs, customs, and knowledge around health and disease. The health care system used by tribal people is based on their own beliefs. The indigenous people have a robust traditional medical system. Yet, current empirical data shows that tribal indigenous health practises are heading in the wrong direction. The majority of the tribe adheres to a magico-religious healthcare system. (Negi and Singh, 2018)

The tribal communities in India vary from one another in a number of ways, including the languages they use, their cultural customs and practises, and their socioeconomic status. They frequently remain isolated and undisturbed by civilization and are mostly unaffected by the developmental processes that take place around them because the bulk of them reside in distant locations like forests and steep terrains. In general, tribal communities believe in four different kinds of supernatural powers: (1) protective spirits who constantly watch over them; (2) benevolent spirits who are worshipped on a regular basis at the communal and familial levels; (3) malevolent spirits—the evil spirits in charge of smallpox, fever, abortion, etc.; and (4) ancestral spirits, the spirits of the ancestors who constantly watch over them (Islary, 2014).

Tribal, Adivasi, Vanvasi, and Girijan communities are unique to India and are recognised as Scheduled Tribes under Article 342 of the Indian Constitution. 12 tribes, including the Bhil, Damor, Dhanka, Garasia, Kathodi, Kokna, Koli, Meena, Nayaka, Patelia, Bhilala, and Sahariya, are among the more than 705 tribes in India that have currently been notified under Article 342 of the Constitution. These tribes are all located in the state of Rajasthan. Rajasthan is home to 7 percent of the nation's tribal population. Under the category of particularly vulnerable tribal groups (PVTGs), there are 75 different groups. They are economically marginalised, socially and geographically isolated, and have limited access to resources in addition to a low literacy rate. A few of the groups are in danger of going extinct. At the federal and state levels, they are not given much consideration. Only the Sahariya are Particularly Vulnerable Tribal Group (PVTG) that is marginalised more than Rajasthan's ST population. The Sahariya tribal community has been residing in Baran District's isolated woodland track. Most dropouts in this tribe have led negative lives in the community, which has a significant impact on their educational, social, and cultural well-being. They deal with several structural injustices as well, with access to healthcare being among the worst. The criteria used to designate a group as a scheduled tribe include signs of primitivism, a distinctive culture,

geographic isolation, and reluctance to interact with the majority of civilization, reliance on natural resources for survival, and backwardness. Studies on the preservation of traditional knowledge, beliefs, and practises pertaining to the indigenous peoples' traditional healthcare system are required.

For many indigenous populations, health is not just the absence of disease but also a condition of harmony and well-being on the spiritual, community, and ecological levels. The indigenous people have formed well-established traditional medical systems, using tried-and-true treatments created by their predecessors, thanks to a symbiotic relationship with the forest. Tribal people's traditional medical practises and beliefs are distinct from those of contemporary science and stem from their existence in medicinally abundant forests. Tribal people's healthcare practises, health-seeking behaviours, and choices are strongly influenced by this worldview and healing system.

Meena and Sahariya are the largest tribal community in Rajasthan's Baran district. The Sahariya are Rajasthan's fourth most numerous tribes. Outside the main villages, or Saharana, is where the Sahariya people live. Often, there are several residences nearby. It is composed of a few stone boulders, and the roofing is made of stone slabs, which are known as Patore locally. Mud structures are also built in some villages. They typically reside in joint families. The majority of Sahariyas are farmers who also serve as bonded labourers in farm houses and businesses run by money lenders. Sahariya is the only PVTG who lives in Rajasthan's Baran district. The largest and most primitive tribe living in this region's forest is this one. They live in the rural communities beyond the Parbati River's eastern bank, in the mountainous and steep regions covered in dense forest. There are 449 settlements in this area, 312 of which are populated, and 137 of which are deserted. 97 percent of this PVTG resides in the Baran District's Kishanganj and Shahbad tehsil. It is also crucial to remember that the majority of Sahariya in Rajasthan lack land and a stable source of income. They occasionally demand land so they can raise crops there to support their way of life. The Sahariya PVTG community in Rajasthan is mired in a generational cycle of poverty, malnutrition, illiteracy, lack of optimism, and famine. (Thamminaina, Kanungo and Mohanty, 2020)

4.1 Healthcare Beliefs among Tribes of Baran District

The tribes that have been displaced, the bulk of health problems are handled in a conventional manner. For instance, many families are not aware of the seriousness and

effects of malaria, pneumonia, or any other complications related to childbirth. They see any disease as the result of the evil eye and seek treatment from a traditional healer because they trust them and can easily access them. The custom of seeking extra medical care in the hospital if a traditional healer is unable to assist is particularly widespread among indigenous people. Some tribal cultures have extensive knowledge in using common medicinal herbs. Nevertheless, they no longer have access to the forest as a result of being evacuated, so they are unable to use traditional remedies when they are ill. A lack of competent medical consultation also makes the sickness worse. In times of disease in the family, it was evident that tribal members would consult traditional healers before visiting a medical doctor.

Table 4.1: Dependency on Traditional Treatment.

Variables	Percent	Number
Visiting traditional healer		
Yes	74.19	46
No	25.81	17
Type of tradition medicines used		
Jhadphuk	40.32	25
Medicinal Plants	30.65	19
Animals	12.90	8
Other	16.13	10
Total	100.00	62

Source- Personal Survey.

According to the analysis, traditional healers are the primary source of care for the majority of tribal households. Members of the research community hold the views that social, natural, and supernatural factors all contribute to the development of disease. When a kid or pregnant lady is ill, the family will seek treatment from traditional healers first (Table 4.1). For instance, a family may take a feverish infant to a traditional healer because they think the youngster may have received the evil eye. To treat the child, the traditional healers would perform "Jhadphuk" on him or her.

The socio-cultural beliefs are important to the tribal cultures. As a result, despite the patient's critical state, many relatives choose not to visit the hospital. The indigenous women who participated in the in-depth interviews indicated mistrust for the medical centre and its staff. The relocated women were unaware of the dangers of yellow fever, malaria, or anaemia during pregnancy. Even though there have been multiple infant

fatalities and difficulties after home deliveries, the indigenous families are unaware of the severity of the condition. The fact that they rely more on socio-cultural ideas and practises may be the root of their phobia of going to hospitals and taking contemporary medications.

4.2 Meena Tribe's Dependency on Traditional Medicine

4.2.1 Traditional use of Plants by Meena Tribe

The WHO Defines traditional medicine as the health practises, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being.

According to the research, the tribal members who had institutional deliveries and were just moderately literate depended on both contemporary and traditional remedies. The Meena tribe uses herbs for medicine like:

- Kher (Acacia catechu) is used for Abortifacient , toothache and gonorrhoea,
- Babul (Acacia nilotica) used for burning sensations, in the eyes and asthma.
- Morpankhi (Actiniopteris dichotoma) Use to control typhoid and fever.
- Tita (Ampelocissus latifolia) is used to cure bone fractures, dyspepsia, indigestion and tuberculosis orally.
- Panvada(Cassia tora Linn.) is used in night blindness & skin diseases,
- Ker leaf (Acacia ferruginea) is used for ear disorders and otorrhaea.
- Babul (Acacia nilotica) is used for burning sensations, in the eyes and asthma.
- Aandhi jhara (Achyranthes aspera) is used to cure Pneumonia, headache and earache.
- Gawarpata (Aloe barbadensis) is used in indigestion, burns, Rheumatism, liver diseases and wounds.
- Mahua (Madhuca longifolia) is used for pneumonia and stomach ache.(Meena and Rao, 2010)

4.2.2 Traditional use of Animals by Meena Tribe

Human perceptions and uses of nature have long been impacted by religious activities and beliefs. Particularly animals have a significant influence on magico-religious

activities and add historical and cultural complexity to these connections. Fundamental to the cause of effective wildlife conservation is frequently an understanding of human-faunal relationships. This study looks into the domestic and wild plants and animals that the tribal people of the Baran district use for spiritual and religious purposes.

- Spotted owlet (Athene brama) it is believed that these drive evil spirits away.
- Common lizard (Hemidactylus frenatus) Tail tied in waist and it is believed that this kept disease away.
- Jackal (Canis aureus), Charms are made out of bones, and it is believed that these drive evil spirits away.
- Seepi (Bivalves, Mactra sp.) Ash of shell is taken for weakness.
- Kachhua (Hardshelled Turtle) is used for healing of internal injuries, prurities and cough.
- Honey bee(Apis indica) Honey is used for cough and could and asthma.(Kushwah, Sisodia and Bhatnagar, 2017)

4.3 Sehariya Tribe's Dependency on Traditional Medicine

4.3.1 Traditional Use of Plants by Saharia Tribe

Despite having little access to advanced technology, the Sahariya people have long preserved ecological balance with their surroundings. Sahariya people currently reside in places with poor infrastructure, are isolated, and lack good access to bridges and roads. Tribe relies on these herbs for medicine:

- Kachnar (Bauhinia Variegeta) Buds and Root, It is used to cure asthma and ulcers. The buds and roots are good for digestive problems and skin diseases.
- Puanr (Cassia Tora) Fresh leaves are pounded into a paste and are applied in case of ringworm.
- Haldi (Curcuma Angustifolia) The paste of the rhizome with few neem leaf pastes is applied on eczema.
- Bat (Ficus Bengaalensis) Bark powder is used externally to cure scabies.
- Calihari (Gloriosa Superba) Root and Tuber, Extract of whole plants is spasmolytic useful in leprosy.

- Bhoomdi (Lantana Whitiana) The leaf is ground with Cipadessa baccifera root, leaf and bark & applied topically to treat Psoriasis skin diseases.(Sahoo and Pradhan, 2021)

4.3.2 Traditional Use of Animals by Saharia Tribe

The current study details traditional knowledge of the Saharia tribe's use of various animals and items produced from animals as medicines in the Shahabad and Kishanganj Panchayat Samiti's of the Baran district of Rajasthan, India.

- Crab (Cancer pararus) Ash of crab is used in lung diseases as cough, asthma, T. B. etc.
- Goat (Capra indicus) Bones of Legs, Soup of leg's bone used to cure weakness.
- Hardshelled Turtle (Kachuga tentoria) Ash of carapace mix with coconut oil and use for skin burns.
- Honey bee (Apis indica) Honey, Used as eye drops to cure eye disease.
- Indian Peacock (Pavo cristatus) Peacock's leg is rubbed with water and this essenced water is used in ear infections.(Mahawar and Jaroli, 2007)

4.4 Utilization of Healthcare Facility by Tribes of Baran District

4.4.1 First Visit in Case of Illness.

Out of 62 respondents in the study region, 20(52.63) sehariya tribe and 14(58.33) Meena tribe respondents turned to traditional healer as their first line of treatment(Table 4.2). While 9 (23.68%) respondents in Sehariya tribe and 4 (16.67%) respondents in Meena tribe went to CHCs for the treatment. Poor transportation, distance and poor economic condition are the main reason for the low use of public HCF (Fig. 4.1).

Table 4.2: Tribe's First Visit in Case of Illness

Facility Centre	Sehariya		Meena	
	No.	percent	No.	Percent
DH	3	7.90	3	12.5
CHC	9	23.68	4	16.67
PHC	6	15.79	3	12.5
Traditional	20	52.63	14	58.33
Total	38	100.00	24	100.00

Source- Personal Survey.

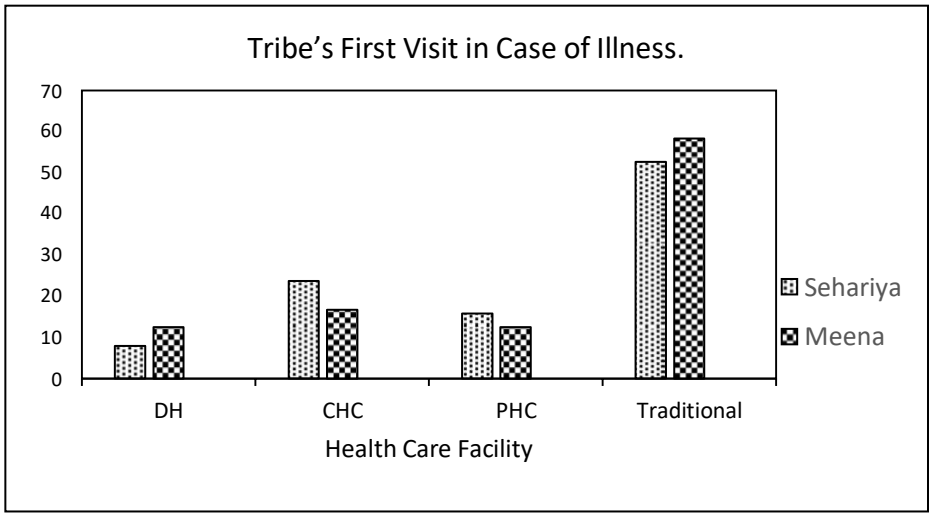

Fig. 4.1

4.4.2 Change in Healthcare Facility during Treatment

According to tribal respondents, changes in healthcare facilities during illness are a sign of both the users' acceptability of these facilities as well as the efficiency of the healthcare delivery services and amenities at different healthcare institutions. Major factors affecting the standard of healthcare services and facilities offered by healthcare institutions include the knowledge, demeanour, and behaviour of the medical and paramedical staff as well as the accessibility and effectiveness of medical equipment.

According to the survey, higher number of respondents of Sehariya tribe 17(44.74%) respondents and Meena tribe 9(37.50%) switched from govt. to private healthcare facilities during illness. (Table 4.3) shows that due to a lack of facilty and inadequate equipment, respondents change their institution. There is also few respondents who change their institutions multi times. First they go to private institutions and again come back to govt. Health care institutions. This happens just because of high cost of treatment (Fig. 4.2).

Table 4.3: Change in Healthcare Facility during Treatment.

Healthcare Facility	Sehariya		Meena	
	No.	Percent	No.	Percent
Govt. to Private	17	44.74	9	37.50
Private to Govt.	8	21.05	8	33.33
Multiple Change	10	26.31	6	25.00
No Change	3	7.90	1	4.17
Total	38	100.00	24	100.00

Source- Personal Survey.

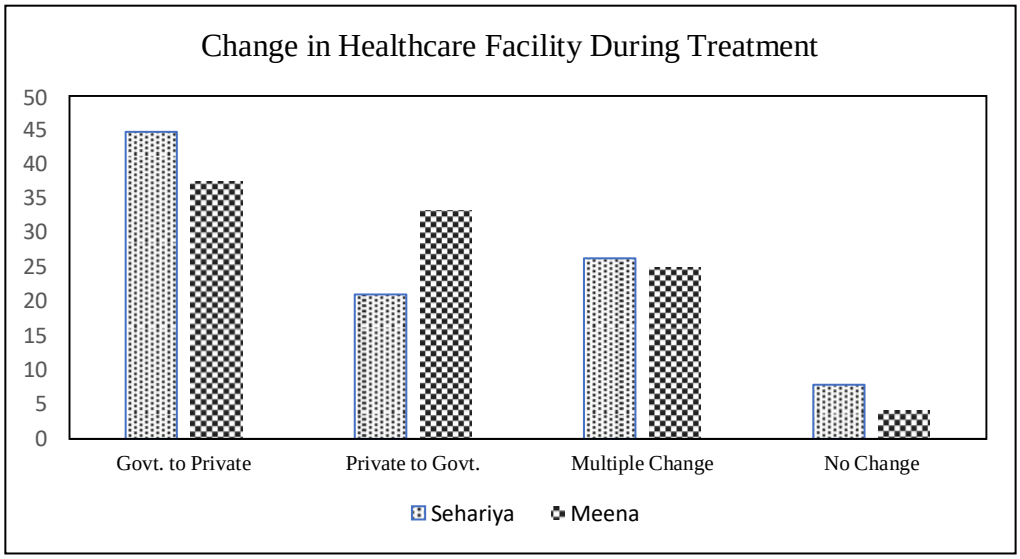

Fig. 4.2

A small proportion of Sehariya tribe 3(7.90%) and Meena tribe 1(4.17%) who doesn't switched from facility during illness.

4.4.3. Place of Child birth

There is less institutional delivery in the study locations. Despite numerous government initiatives, around 30 percent of births happen at home. Only 10.52 percent and 8.33percent, respectively, of deliveries in Sehariya and Meena tribe are carried out in CHC. According to Table 4.4. There are no private institutional deliveries happen in tribe because of high cost and transportation fare. Affordability is the main reason for place of child birth (Fig. 4.3).

Table 4.4: Place of Child birth

Birth Place	Sehariya		Meena	
	Number	Percent	Number	Percent
CHC	4	10.52	2	8.33
PHC	10	26.32	8	33.33
Private	-	-	-	-
At Home	10	26.32	8	33.33
By neighbours	14	36.84	6	25.00
Total	38	100.00	24	100.00

Source- Personal Survey

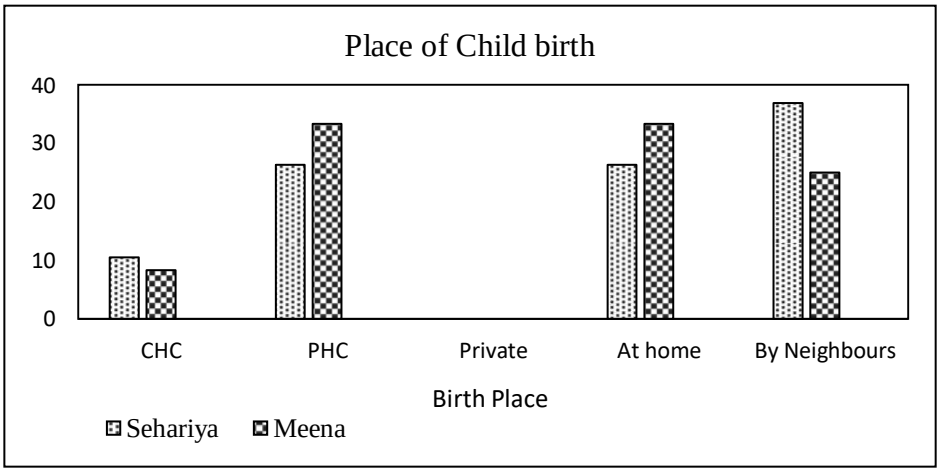

Fig. 4.3

4.4.4 Institutional Distribution of Free Medicine

At healthcare institutions in the research area, there has been a discrepancy in Institutional distribution of free medicine. Higher percentage of Sehariya 18(47.36%) and Meena 12(50.00%) respondents received free medication from CHS/SHS (Central Health Scheme/ State Health Scheme). Only 21.05percent and 16.67 percent of respondents did not receive free medicine in Sehariya and Meena tribe respectively (Table 4.5 and Fig 4.4).

Table 4.5: Institutional Distribution of Free Medicine

	Sehariya		Meena	
	Number	Percent	Number	Percent
Yes	18	47.36	12	50.00
No	8	21.05	4	16.67
Can't say	12	31.59	8	33.33
Total	38	100.00	24	100.00

Source- Personal Survey

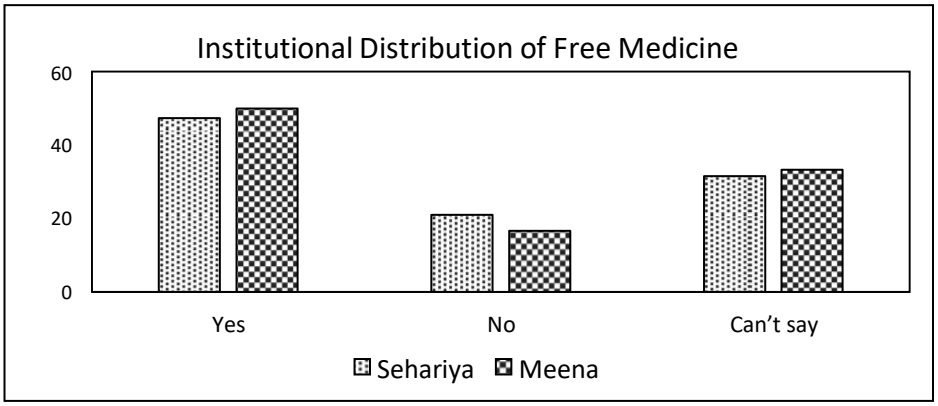

Fig. 4.4

4.4.5 Health Workers Visit Households

As shown in table 4.6, some households indicated that no healthcare providers had ever visited. While maximum numbers of respondents have knowledge about visits of health workers (Fig. 4.5).

Table- 4.6 Health Workers Visit Households

	Sehariya		Meena	
	Number	Percent	Number	Percent
Yes	18	47.37	10	41.66
No	9	23.68	5	20.84
Can't say	11	28.95	9	37.50
Total	38	100.00	24	100.00

Source-Personal Survey.

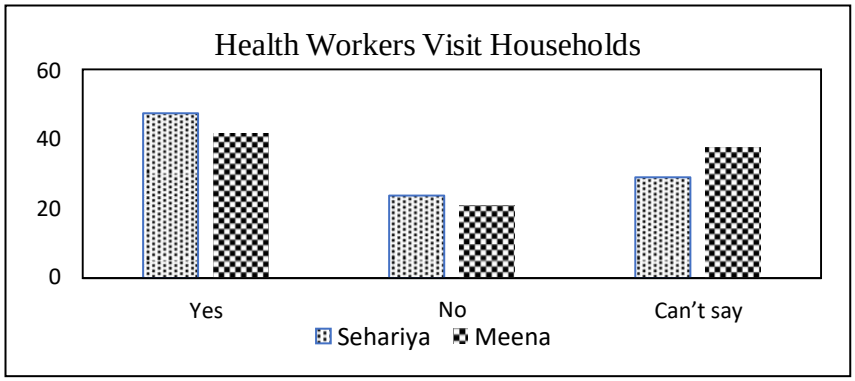

Fig. 4.5

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Chapter 5

Attitude and Perception of People about Healthcare Facilities

In recent years, as public knowledge of health-care services has increases, patients expectations have increases, and they are willing to pay more to receive high-quality care, putting pressure on health-care providers to improve their services to satisfy the demand (Ansar, et al.2021). There is no generally accepted method of measuring "illness". The term is ambiguous, encompassing everything from detailed descriptions of specific discomfort to a general sense of being ill. Specific check-lists as well as general estimate scales have been presented. A vast number of researches have been conducted to investigate the relationship between perceived sickness and usage of health care services. However, there has been little population-level research on how the use of various health care facilities varies in connection to how patients evaluate their own state of health (Krakau, 1991). Patient satisfaction is essential because it is considered when decisions regarding modifications and improvements to services are made, and it is utilized as a factor in deciding reimbursement rates, particularly in competitive healthcare environments and in the context of consumerism. When information about providers is scarce in many countries, recommendations from family or friends become a crucial source of information (Tung and Chang, 2009).

Patient's perceptions of health-care systems come across as being mainly overlooked by developing-country health-care managers. Many factors influence patient satisfaction, including: the quality of services provided, the availability of medicine, the behavior of doctors and other health care providers, the cost of services, hospital infrastructure, physical comfort, emotional support, and respect for patient preferences. Dissatisfaction is associated with a mismatch between patient expectations and the service obtained (Sodani,et.al., 2010). Measurement of quality care is an important activity in the

healthcare system to ensure continual improvement of the metrics described above and to keep the system agile and responsive to the needs of the patients.

The quality of the healthcare system can be judged using (a) patient perceptions and satisfaction, (b) the perspectives of healthcare delivery professionals. Despite the complexities and multi-dimensionalities, manage for more patient-centric and volume-to-value delivery models require the evaluation of patient perceptions and experiences. Patients' perspectives can provide vital insights into how sensitive and responsive the healthcare system is to their expectations and needs. In other words, when patients receive personalized and full care, they not only tend to be satisfied with delivery efficiency and hospital services, but they also demonstrate more confidence and desire to adhere to the agreed-upon treatment plan and course of action. (Al-Jabri et al.2021).

A representative sample of homes in the study area was used in the current study to investigate characteristics associated with patient's satisfaction of the availability and quality of healthcare facilities. Patients who had ongoing access to a provider and health services were substantially more likely to disclose their sickness to the healthcare delivery system, according to the study. These findings are not surprising given the excess of information about the benefits of healthcare delivery and the relationship between utilization and perception. In contrast, the study found that providers communicate more effectively with patients who belong to different minority and social groups, as well as those who are older and have lower educational attainment. Gender has also been identified as a factor influencing patient perceptions of communication risk. A patient may have two types of perceptions: one concerning the disease/illness and one about the treatment procedure.

The majority of people regard illness as a natural part of life as long as it does not become severe. People are considered to be unable to maintain good health indefinitely due to bad living conditions and the existence of ghosts and witches in society. Patients often recognize their sickness based on changes in normal condition, i.e. symptoms. The majority of people understand symptoms of common diseases like a cold or food poisoning, but they may be confused with other complex and less frequent ailments. When patients are diagnosed with a severe illness, they quickly form a perception of the

symptoms caused by the sickness. It is vital to highlight that the patient's perception of the symptoms may differ significantly from that of the medical team.

5.1 Knowledge and Perception of Respondents

Traditional structures are thought to be based on the use of information, whereas complex structures are based on the process of enabling knowledge generation. Organizational knowledge is seen as a strategic resource for high-complexity health care. Analyzing organizational features, an analytical framework constituted of important factors for the structural transformation from a traditional to a complex organization is provided in the context of high-complexity health services (Gonçalo and Borges, 2010)

5.1.1 Knowledge about Mukhyamantri Chiranjivi Scheme

The state government of Rajasthan has also implemented the Mukhyamantri Chiranjeevi Yojana with the aim of providing healthcare coverage to the poor and marginalized sections of the society. The scheme was launched in 2019.

Under this scheme, families living below the poverty line are eligible for free healthcare coverage of up to Rs. 5 lakh per year. The scheme covers the cost of hospitalization, surgeries, and other medical procedures, including maternity benefits. The scheme also provides cashless treatment to the beneficiaries. The scheme is available in all government and private hospitals in the state and the beneficiaries can avail the benefits of the scheme by producing their BPL card or Aadhaar card. The scheme also covers pre-existing illnesses.

The aim is to increase the availability and accessibility of quality health care for individuals, particularly those living in rural regions, the poor, women, and children. The mission is focused on establishing a fully functional, community-owned decentralised health delivery system with inter-sectoral convergence at all levels, in order to ensure simultaneous action on a wide range of health determinants such as water, sanitation, education, nutrition, social and gender equality. (Government of Rajasthan, 2019).

Table 5.1 Knowledge of the Respondents about Mukhyamantri Chiranjeevi Yojana according to their Background Characteristics.

Attribute		Number of Respondent	Knowledge about Yojana (in per cent)	
			Yes	No
Sex	Male	271	66.79	33.21
	Female	129	45.74	54.26
Religion	Hindu	322	68.63	31.37
	Muslim	78	48.72	51.28
Residence	Rural	294	61.22	38.78
	Urban	106	55.66	44.34
Level of Education	Illiterate	30	-	100.00
	Primary	28	-	100.00
	Middle	56	14.29	85.71
	High School	102	73.53	26.47
	Intermediate	97	83.51	16.49
	Graduation and above	87	100.00	-
Level of Income	< 5,000	158	35.44	64.56
	5,000-10,000	138	76.09	23.91
	>10,000	104	100.00	-
Social-group	General	115	81.74	18.26
	OBC	149	55.03	44.97
	SC	74	48.64	51.35
	ST	62	40.32	59.68
Occupation	Farmer	87	45.98	54.02
	Industrial workers	75	73.33	26.67
	Service	129	76.74	23.26
	Other wage earner	109	47.70	52.30
Age-group	< 30	62	64.52	35.48
	30-35	108	45.37	54.63
	35-40	93	69.89	30.11
	40-45	85	80.00	20.00
	> 45	52	78.85	21.15
Total		400	60.30	39.70

Source- Field Survey (Baran), September- October 2022.

Table 5.1 clearly shows that male respondents are more knowledgeable about Mukhyamantri Chiranjeevi Yojana than female respondents. Because women have relatively limited access to information sources because of tradition and rural society,

approximately half of female respondents have no knowledge about Yojana. When it comes to religious awareness of Mukhyamantri Chiranjeevi Yojana, it has been observed that a higher percentage of Hindu respondents (68.63%) have knowledge of Yojana than Muslim (48.72%) respondents.

The primary source of this lack of information regarding Mukhyamantri Chiranjeevi Yojana is a poor level of literacy among Muslims. The table also shows that educational achievement has a favourable relationship with Mukhyamantri Chiranjeevi Yojana awareness. No uneducated respondent was aware. Household income is strongly related to understanding about Yojana. When compared to their poorer counterparts, respondents from higher income groups have better awareness (Table 5.1).

Economically prosperous families have access to a variety of information sources, including newspapers, television, and phones. The wealthy are aware of Yojana as a result of this connection. The social structure of a society has a direct impact on information access. In the current study, socioeconomically well-off upper castes have greater awareness of Mukhyamantri Chiranjeevi Yojana than socioeconomically backward castes, i.e., OBC (55.03%), SC (48.64%), and ST (40.32 per cent). Agricultural labourers, who belong to the lowest economic strata of society, had less knowledge than respondents in other occupations. Younger respondents have less knowledge than their older counterparts due to a lack of awareness and communication infrastructure in rural areas, which is common.

5.2 Level of Satisfaction with Treatment

Table 5.2 displays respondents' satisfaction with medicines given by public healthcare facilities. It's distressing to see that none of the female respondents are happy with their medications. A bit less than one-third of all female respondents is unsure whether they are satisfied with the medications. A substantial number of female respondents obtained iron-folic-acid tablets from public healthcare institutions and utilized these tablets to treat various ailments. Hindu and Muslim respondents are equally satisfied with medication. More than one-third of Muslim respondents said they were unaware of the medicines offered. When the respondent's location of residence and level of satisfaction with the medicine are considered, it is observed that respondents in urban regions are more satisfied with the medicine delivered than their rural counterparts.

Table 5.2: Level of Satisfaction of Respondents with Medicine across Background Characteristics

Attribute		Number of Respondent	Satisfaction with Medicine (in percent)		
			Yes	No	Do not know
Sex	Male	271	16.61	30.25	53.14
	Female	129	-	69.77	30.23
Religion	Hindu	322	11.18	39.44	49.38
	Muslim	78	12.82	24.36	62.82
Residence	Rural	294	11.90	36.40	51.70
	Urban	106	22.64	22.64	54.72
Level of Education	Illiterate	30	-	26.67	73.33
	Primary	28	-	42.86	57.14
	Middle	56	26.79	44.64	28.57
	High School	102	12.75	34.31	52.94
	Intermediate	97	-	38.14	61.86
	Graduation and above	87	14.95	32.18	52.87
Level of Income	< 5000	158	19.62	39.24	41.14
	5000-10000	138	11.60	23.18	65.22
	>10000	104	7.69	30.77	61.54
Social-group	General	115	6.96	40.86	52.18
	OBC	149	11.41	32.89	55.70
	SC	74	17.57	39.19	43.24
	ST	62	33.87	32.26	33.87
Occupation	Farmer	87	10.34	67.82	21.84
	Industrial workers	75	40.00	25.33	34.67
	Service	129	9.30	14.73	75.97
	Other wage earners	109	17.43	32.11	50.46
Age-group	< 30	62	19.35	40.32	40.33
	30-35	108	12.04	54.63	33.33
	35-40	93	16.13	22.58	61.29
	40-45	85	10.59	17.65	71.76
	> 45	52	11.54	13.46	75.00
Total		400	13.20	35.40	51.40

Source- Field Survey (Baran), September- October 2022.

People in towns are more attentive of their health and availability, and they know which medicine should be used for a specific ailment, whereas rural people, owing to ignorance, try to cure all diseases with the same medicine. Rural residents are

dissatisfied with the medicine offered. Levels of education and money have a beneficial impact on medication satisfaction. Respondents with a higher education and a better economic background are more satisfied with the medicine delivered than those with a lower education and a lower economic level. Among the various social strata, STs (33.87%) are more satisfied with the medicine delivered than those from other castes. STs have fewer options for changing or obtaining appropriate medicine, and they are forced to utilize the medicine offered, therefore they are unaware of the influence of other drugs. Respondents from socioeconomically affluent general castes have more opportunities to examine the effectiveness of alternative medicines; hence they are less satisfied with the treatment offered. Another reason is that socioeconomically disadvantaged respondents are obligated to receive free medicine for difficult diseases, whereas well-off respondents have the choice of going to a specialised institution. It's worth noting that industrial workers are completely satisfied with the medication offered.

5.3 Problems during Hospitalization

Table 5.3 details the issues encountered by respondents who have ever been hospitalized. According to the poll, residents in the research region confront a variety of issues when they or their family members are admitted to public hospitals/CHCs/PHCs. Table 5.3 depicts the challenges faced by respondents throughout their stay at various institutions based on their background factors (Sex, Religion, Residence, Education, Income, Social-group, Occupation and Age-group).

In terms of gender, it was discovered that female respondents had more challenges than their male respondents. The biggest issue reported by female respondents were less doctor visits, poor quality of care, and misbehavior by paramedical workers. A similar proportion of Hindu and Muslim respondents mentioned issues such as less doctor visits, poor quality of service, and misbehavior by paramedics. People in rural areas have more problems than respondents in urban areas.

Table 5.3: Problem Faced during Hospitalisation across Background Characteristics

Attribute		Number of Respondent	Problem faced during admit (in percent)						
			Less Number of Doctor Visit	Poor Quality Care	Overcrowd	Misbehave by Paramedical Staff	Lack of Bed	Poor Infrastructure	Not Admitted
Sex	Male	271	1.10	14.02	1.85	1.48	2.21	2.96	76.38
	Female	129	16.27	18.60	-	6.98	-	-	58.14
Religion	Hindu	322	4.97	14.29	1.86	1.24	2.17	0.93	74.53
	Muslim	78	6.41	15.38	-	7.69	-	2.56	67.95
Residence	Rural	294	5.10	16.67	2.38	3.06	1.36	1.70	69.72
	Urban	106	-	-	-	-	-	-	100.00
Level of Education	Illiterate	30	20.00	20.00	-	-	6.67	-	53.33
	Primary	28	14.29	-	-	28.57	-	-	57.14
	Middle	56	10.71	16.07	-	-	-	5.36	67.86
	High School	102	-	12.75	-	3.92	-	-	83.33
	Intermediate	97	-	27.84	6.18	-	-	-	65.98
	Graduation and above	87	-	-	-	-	-	-	100.00
Level of Income	< 5,000	158	7.59	20.25	3.16	4.43	1.26	2.53	60.76
	5,000-10,000	138	-	15.22	-	-	-	-	84.78
	>10,000	104	-	-	-	-	-	-	100.00
Social-group	General	115	3.48	13.04	1.74	-	2.60	2.60	76.52
	OBC	149	4.03	16.78	0.67	2.68	-	1.34	74.49
	SC	74	5.40	16.21	4.05	4.05	2.70	1.35	66.22
	ST	62	4.84	17.74	4.84	9.68	-	-	62.90
Occupation	Farmer	87	3.45	24.14	8.05	-	-	4.60	59.77
	Industrial workers	75	8.00	2.67	-	-	9.33	2.67	77.33
	Services	129	6.20	18.60	-	4.65	-	-	70.54
	Other wage earner	109	4.59	6.42	-	2.75	1.83	-	84.40
Age-group	< 30	62	6.45	37.10	8.06	6.45	-	-	41.94
	30-35	108	-	-	-	-	-	10.19	89.91
	35-40	93	-	6.45	-	4.30	2.15	-	87.10
	40-45	85	12.94	22.35	-	-	-	-	64.71
	> 45	52	5.77	-	-	-	7.69	-	86.54
Total		400	5.80	14.00	1.70	3.60	1.40	1.38	72.12

Source- Field Survey (Baran), September- October 2022.

The main cause of these problems is a lack of awareness among rural residents. Respondents with a greater level of education and better socioeconomic standard had less issue. Among the many social groupings, SC and ST had the most difficulties. Because SCs and STs have low education status and economic position, they are obliged to deal with a variety of issues. Other wage earners and industrial employees had less issues than respondents in other occupations. Other wage earners and industrial employees visited public healthcare facilities on occasion and were unaware of the services given by the government. As a result, these individuals saw fewer issues at public healthcare institutions. Respondents in the middle age group had more problems than their younger and older.

5.4 Level of Satisfaction about Government Health Facility

Satisfaction is one of the most important aspects of government policy, and it can only be maintained by providing excellent service quality, which leads to increased satisfaction. The patient's perspective is become increase relevant in the process of improving a health-care delivery system. Patient satisfaction refers to the joy or contentment that patients feel while using a health service. Thus, patient care is the fundamental function of every health care practitioner. It is one of the benchmarks used to assess a hospital's efficiency and effectiveness, where efficiency is related with service delivery and quality care. Patient satisfaction is tangible proof of the effectiveness of the administration of healthcare services (Manzoor et al. 2019).

However, measuring satisfaction responsiveness to health systems is complex because both clinical and non-clinical outcomes of care influence customer satisfaction. As a result, examining patient opinions provides them a voice, allowing public health services to become more responsive to people's needs and expectations.

5.4.1 Place of Residence and Level of Satisfaction

Satisfaction with government health schemes/services varies by place of residence. More than one-fifth of all respondents in both rural and urban areas are dissatisfied with government health-care programmes. It's worth noting that the majority of respondents cited a lack of openness as the primary reason. In rural areas, 16.62 percent of respondents were satisfied with these plans because they thought they were less expensive, however only 21.57 percent urban thought they were handy (Table 5.4).

Mismanagement in the delivery system is viewed as the primary cause of unhappiness in both rural and urban locations.

Table 5.4: **Satisfaction with Government Health Schemes across Place of Residence**

Reasons	Rural		Urban		Total	
	Number	per cent	Number	per cent	Number	per cent
Good facility	25	7.16	5	9.80	30	7.50
Easy access	36	10.32	6	11.76	42	10.50
Less expensive	58	16.62	-	-	58	14.50
Convenient	17	4.87	11	21.57	28	7.00
Timely help	10	2.87	-	-	10	2.50
Poor quality	29	8.31	-	-	29	7.25
Lack of transparency	79	22.64	16	31.37	95	23.75
Mismanagement	41	11.75	7	13.73	48	12.00
Low awareness	32	9.17	6	11.76	38	9.50
Class discrimination	8	2.29	-	-	8	2.00
High number of formalities	14	4.01	-	-	14	3.50
Total	349	100.00	51	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

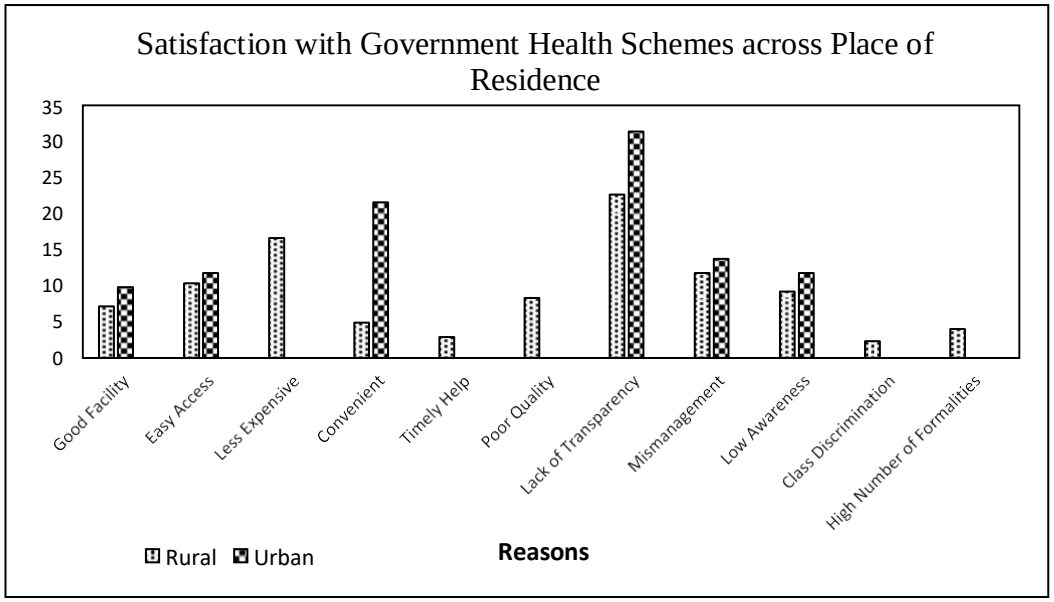

Fig. 5.1

Another factor for the failure to execute these plans is a lack of awareness. The vast amount of formalities associated with these initiatives dissatisfy the illiterate and underprivileged rural population. A small number of rural respondents expressed unhappiness with these initiatives due to class discrimination in the selection of

beneficiaries. In rural areas, only number of respondents saw these schemes as timely assistance, whilst respondents in urban areas do not see these schemes as timely assistance at all (Fig. 5.1). It has been discovered that respondents in urban areas are more satisfied with the facilities associated with these programmes.

5.4.2 Educational Attainment and Level of Satisfaction

An individual's education is believed to have a direct impact on his or her assessment of the amenities. Respondents in the research area with varying educational backgrounds regarded Government healthcare systems differently. The majority of respondents, regardless of educational attainment, are unsatisfied with these programmes. More than two-third of the illiterate respondents are unaware of these health programmes, hence they are unsatisfied with the services; they claim that the government does little for the poor (Table 5.5).

Table 5.5: Satisfaction with Government Health Schemes across Level of Education

Reasons	Illiterate		Primary		Middle		High School		Intermediate		Graduation and above		Total	
	No.	per cent	No.	per cent	No.	per cent	No.	per cent	No.	per cent	No.	per cent	No.	per cent
Good facility	-	-	-	-	8	11.59	3	2.86	-	-	19	25.33	30	7.50
Easy Access	7	26.92	-	-	6	8.69	18	17.14	5	4.46	6	8.00	42	10.50
Low Expensive	-	-	-	-	10	14.49	30	28.57	8	7.14	10	13.33	58	14.50
Convenient	-	-	5	38.46	9	13.04	13	12.38	-	-	1	1.33	28	7.00
Timely Help	-	-	-	-	-	-	-	-	-	-	10	13.33	10	2.50
Poor Quality	-	-	-	-	-	-	19	18.09	10	8.93	-	-	29	7.25
Lack of Transparency	5	19.23	-	-	8	11.59	4	3.81	68	60.71	10	13.33	95	23.75
Mismanagement	-	-	2	15.38	6	8.69	-	-	21	18.75	19	25.33	48	12.00
Low Awareness	14	53.84	6	46.15	8	11.59	10	9.52	-	-	-	-	38	9.50
Class Discrimination	-	-	-	-	-	-	8	7.62	-	-	-	-	8	2.00
High number of Formalities	-	-	-	-	14	20.29	-	-	-	-	-	-	14	3.50
Total	26	100.0	13	100.0	69	100.0	105	100.0	112	100.00	75	100.0	400	100.0

Source- Field Survey (Baran), September- October 2022.

It is worth noting that these schemes were easily accessible to 26.92 percent of total illiterate respondents. These schemes were regarded to be convenient by somewhat less than one-third of respondents with primary education. Half of the respondents with a

primary education were unaware of these schemes. A very high percentage of respondents with a high school education are satisfied with these schemes because they believe them to be easily accessible, less expensive, and convenient. More than three-quarters of respondents with up to intermediate education are dissatisfied with these initiatives due to a lack of openness and mismanagement. One-fourth of respondents with education up to and including graduation are dissatisfied with these initiatives due to mismanagement.

5.4.3 Religion and Level of Satisfaction

In the research area, Hindu and Muslim assessed government health-care programmes differently. The majority of respondents, regardless of religious affiliation, are unsatisfied with government health-care programmes due to a lack of transparency in these programmes. Because of the good facilities, easy accessibility, and low number of these schemes, a higher percentage of Hindu respondents are satisfied with them. Muslim respondents were dissatisfied due to a lack of information and a significant number of formalities. Other causes for unhappiness among respondents from both faith groups include mismanagement and poor quality (Table 5.6 and Fig. 5.2).

Table 5.6: Satisfaction with Government Health Schemes across Religion

Reasons	Hindu		Muslim		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Good Facility	28	8.70	2	2.56	30	7.50
Easy Access	31	9.63	11	14.10	42	10.50
Low Expensive	51	15.84	7	8.97	58	14.50
Convenient	23	7.14	5	6.41	28	7.00
Timely Help	10	3.10	-	-	10	2.50
Poor Quality	27	8.38	2	2.56	29	7.25
Lack of Transparency	69	21.43	26	33.33	95	23.75
Mismanagement	44	13.66	4	5.12	48	12.00
Low Awareness	25	7.76	13	16.67	38	9.50
Class Discrimination	6	1.86	2	2.56	8	2.00
High Number of Formalities	8	2.48	6	7.70	14	3.50
Total	322	100.00	78	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022

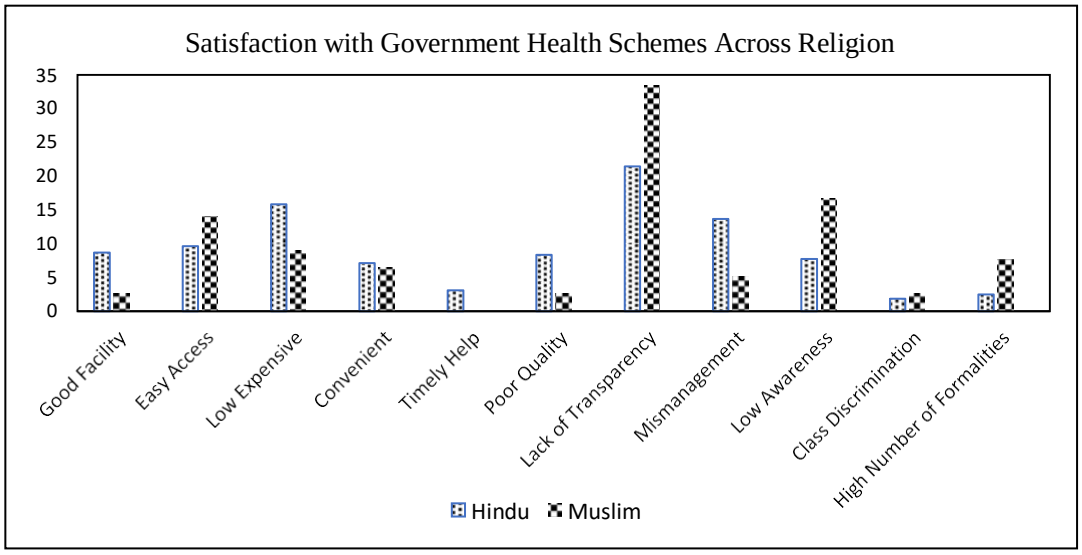

Fig. 5.2

5.4.4 Social-groups and Level of Satisfaction

When looking at social-group satisfaction with government healthcare plans, it was shown that a considerable percentage of respondents, regardless of social group, are unsatisfied with these schemes due to a lack of transparency. Because of the low cost of these initiatives, less than 20 percent of total respondents from higher caste are satisfied with them.

Table 5.7: Satisfaction with Government Health Schemes across Social-groups

Reasons	General		OBC		SC		ST		Total	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Good Facility	15	12.93	9	4.52	2	3.13	4	20.00	30	7.50
Easy Access	9	7.76	27	13.57	5	7.81	1	5.00	42	10.50
Low Expensive	17	14.66	28	14.07	11	17.18	2	10.00	58	14.50
Convenient	1	.86	14	7.03	11	17.18	2	10.00	28	7.00
Timely Help	6	5.17	3	1.51	1	1.56	-	-	10	2.50
Poor Quality	11	9.48	10	5.03	6	9.38	2	10.00	29	7.25
Lack of Transparency	17	14.66	67	33.67	8	12.50	3	15.00	95	23.75
Mismanagement	29	25.00	13	6.53	6	9.38	-	-	48	12.00
Low Awareness	11	9.48	16	8.04	8	12.50	3	15.00	38	9.50
Class Discrimination	-	-	5	2.51	2	3.13	1	5.00	8	2.00
High Number of Formalities	1	.86	7	3.51	4	6.25	2	10.00	14	3.50
Total	116	100.00	199	100.00	64	100.00	20	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

However, one-fourth of this social group's respondents are unsatisfied due to mismanagement in these initiatives. The biggest source of frustration among OBC respondents is a lack of transparency (Table 5.7). A higher number of respondents from scheduled castes are satisfied with these initiatives, citing the benefits as decent facilities, simple accessibility, low cost, and convenience. Only around one-fourth of ST respondents are satisfied with these programmes because they believe the facilities are enough.

5.4.5 Gender and Level of Satisfaction

Male and female respondents are unsatisfied with these plans in different ways. According to Table 5.8, a high number of male respondents are pleased with these initiatives. A bigger percentage of female respondents are unsatisfied with these schemes, as compared to males. The main causes for female respondents' discontent is lack of transparency, mismanagement, and a lack of awareness (Fig. 5.3).

Table 5.8: Satisfaction with Government Health Schemes across Social-groups

Reasons	Male		Female		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Good Facility	19	6.13	11	12.22	30	7.50
Easy Access	33	10.65	9	10.00	42	10.50
Low Expensive	58	18.71	-	-	58	14.50
Convenient	28	9.03	-	-	28	7.00
Timely Help	10	3.22	-	-	10	2.50
Poor Quality	9	2.90	20	22.22	29	7.25
Lack of Transparency	95	30.65	-	-	95	23.75
Mismanagement	42	13.55	6	6.66	48	12.00
Low Awareness	13	4.19	25	27.78	38	9.50
Class Discrimination	-	-	8	8.89	8	2.00
High Number of Formalities	3	0.96	11	12.22	14	3.50
Total	310	100.00	90	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022**.**

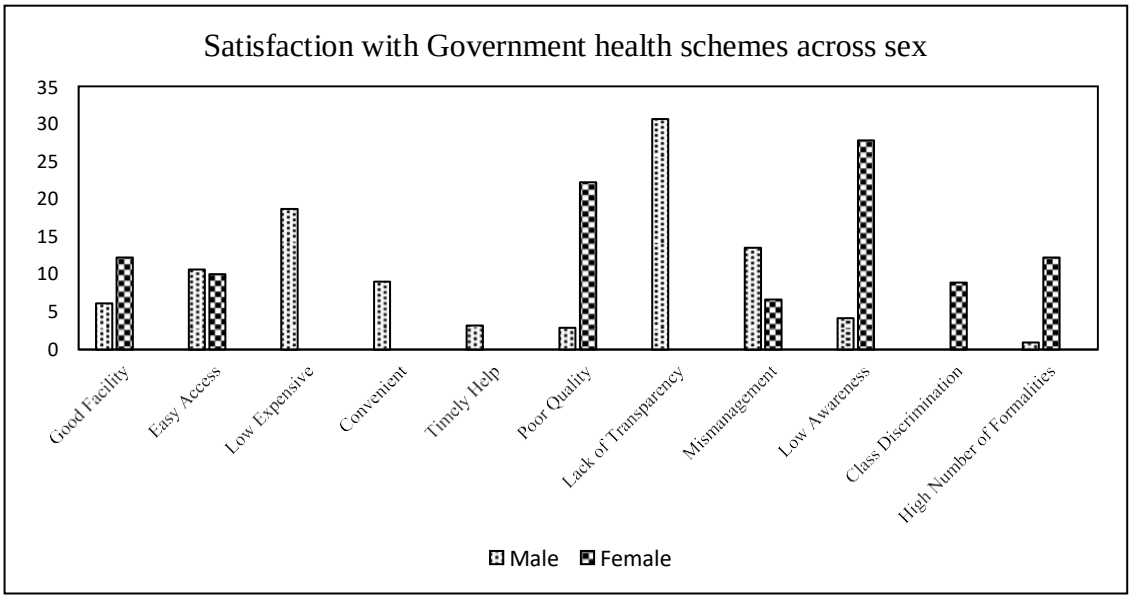

Fig. 5.3

5.4.6 Age-group and Level of Satisfaction

According to table 5.9, a little less than half of the total respondents under the age of 30 are unsatisfied with government health programmes due to a lack of transparency.

Table 5.9: Satisfaction with Government Health Schemes across Age-groups

Reasons	less than 30		30-35		35-40		40-45		Above 45		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	Nor	Percent
Good Facility	11	9.90	8	7.54	11	12.50	-	-	-	-	30	7.50
Easy Access	4	3.60	4	3.77	3	3.40	14	20.59	17	62.96	42	10.50
Low Expensive	-	-	22	20.75	7	7.95	19	27.94	10	37.04	58	14.50
Convenient	4	3.60	18	16.98	6	0.75	-	-	-	-	28	7.00
Timely Help	-	-	-	-	10	11.36	-	-	-	-	10	2.50
Poor Quality	29	26.12	-	-	-	-	-	-	-	-	29	7.25
Lack of Transparency	48	43.24	22	20.75	6	0.75	19	27.94	-	-	95	23.75
Mismanagement	-	-	11	10.37	32	36.36	5	7.35	-	-	48	12.00
Low Awareness	7	6.30	11	10.37	9	10.23	11	16.18	-	-	38	9.50
Class Discrimination	8	7.20	-	-	-	-	-	-	-	-	8	2.00
High Number of Formalities	-	-	10	9.43	4	4.55	-	-	-	-	14	3.50
Total	111	100.00	106	100.00	88	100.00	68	100.00	27	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

Respondents who are satisfied with these plans, regardless of age, see them as good, conveniently accessible, and less priced. It is worth noting that older respondents are more satisfied with these programes than younger respondents. No respondents above the age of 45 expresses unsatisfaction with these programs. It appears that older respondents are benefiting from these programs, which is a positive sign for the government healthcare policies. The major causes for unsatisfaction among respondents of all ages who are unsatisfied with these plans include a lack of transparency, mismanagement, and a lack of awareness.

5.4.7 Income and Level of Satisfaction

Respondents economic status has a significant impact on their opinion of satisfaction with government health-care programmes. Table 5.10 demonstrates how satisfied respondents of various income levels are with these healthcare programmes. The biggest causes for dissatisfaction among those earning less than Rs 5,000 are a lack of transparency and a lack of awareness. The grounds for satisfaction among respondents in the same income level are easy accessibility and lower costs.

Table 5.10: Satisfaction with Government Health Schemes across Income Groups

Reasons	less than 5,000		5,000-10,000		Above 10,000		Total	
	No.	per cent	No.	per cent	No.	per cent	No.	per cent
Good Facility	11	5.39	11	9.65	8	9.76	30	7.50
Easy Access	35	17.16	-	-	7	8.54	42	10.50
Low Expensive	18	8.82	29	25.44	11	13.41	58	14.50
Convenient	26	12.75	-	-	2	2.44	28	7.00
Timely Help	-	-	-	-	10	12.20	10	2.50
Poor Quality	29	14.22	-	-	-	-	29	7.25
Lack of Transparency	32	15.68	49	42.98	14	17.07	95	23.75
Mismanagement	6	2.94	12	10.53	30	36.59	48	12.00
Low Awareness	25	12.25	13	11.40	-	-	38	9.50
Class Discrimination	8	3.92	-	-	-	-	8	2.00
High Number of Formalities	14	6.86	-	-	-	-	14	3.50
Total	204	100.00	114	100.00	82	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

Due to a lack of transparency, mismanagement, and a lack of understanding about services, a high percentage of respondents (64.91%) in the income-group 5,000-10,000 are unsatisfied with these schemes. Due to a lack of transparency and mismanagement, a considerable percentage of respondents in the income-group (more than 10,000) are unsatisfied with these schemes.

5.4.8 Occupation and Level of Satisfaction

Table 5.11 displays the respondent's level of satisfaction by occupation. According to the table, more than 60 percent of growers are unsatisfied with these schemes due to poor quality, a lack of transparency, mismanagement, and a lack of awareness. It is really sad to see that due to a lack of information, none of the farmer who represents the weakest portion of rural community is content with these programs. Industrial workers, who often live in cities, found government health care programs more convenient, and they are satisfied with them.

More than half of those who received services were unsatisfied with the programmes due to a lack of transparency, mismanagement, class discrimination, and a high number of formalities. It is quite disheartening that the educated class of society is more unsatisfied with these programmes.

Table 5.11: Satisfaction with Government Health Schemes across Occupation

Reasons	Farmer		Industrial Workers		Services		Other Wage Earner		Total	
	Number	per cent	Number	per cent	Number	per cent	Number	per cent	Number	per cent
Good Facility	-	-	-	-	12	7.27	18	14.17	30	7.50
Easy Access	16	16.67	-	-	9	5.45	17	13.39	42	10.50
Low Expensive	16	16.67	-	-	30	18.18	12	9.45	58	14.50
Convenient	-	-	12	100.0	6	3.64	10	7.87	28	7.00
Timely Help	-	-	-	-	-	-	10	7.87	10	2.50
Poor Quality	29	30.21	-	-	-	-	-	-	29	7.25
Lack of Transparency	15	15.63	-	-	69	41.82	11	8.66	95	23.75
Mismanagement	11	11.46	-	-	28	16.97	9	7.09	48	12.00
Low Awareness	9	9.38	-	-	-	-	29	22.84	38	9.50
Class Discrimination	-	-	-	-	8	4.85	-	-	8	2.00
High Number of Formalities	-	-	-	-	3	1.82	11	8.66	14	3.50
Total	96	100.0	12	100.0	165	100.0	127	100.0	400	100.0

Source- Field Survey (Baran), September- October 2022.

5.5 Change of the Health Institutions

Respondent's use of healthcare facilities during illness reveals the efficacy of healthcare delivery services and amenities at various health institutions, as well as their acceptance by users. The proficiency, attitude, and behavior of medical and paramedical staff, as well as the availability and operation of health apparatus, all have a significant impact on the quality of healthcare services and facilities provided by health institutions. As a result, an examination of changes in healthcare facility by users during their sickness across socioeconomic and demographic categories is required to assess the effectiveness of accessible health facilities in the Baran area. Religion, social groupings (caste), family structure, monthly income of households, age, education, and occupation of respondents are among the socioeconomic and demographic characteristics examined in this section. More than one-third of all respondents stated that they changed healthcare facilities owing to a lack of specialist doctors, and approximately 26 percent stated that the major reason for changing healthcare facilities was for quick relief, good care, or carelessness. It clearly demonstrates the poor state of attitude, quality, and availability of health services and providers.

5.5.1 Place of Residence and Change of Healthcare Facility

Respondents in the research area switched healthcare facilities before finishing treatment for the ailment for which they went to the hospital (Table 5.12).

Table 5.12: Reason for Change of Healthcare Facility across Place of Residence

Reasons	Rural		Urban		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Time Consuming	18	5.16	-	-	18	4.50
Poor Facilities	20	5.73	-	-	20	5.00
High Cost	11	3.15	2	3.92	13	3.35
Specialist Doctor	114	32.66	14	27.45	128	32.00
Bureaucracy	12	3.44	-	-	12	3.00
Quick Relief	38	10.89	10	19.60	48	12.00
Good Care	26	7.45	14	27.45	40	10.00
Negligence	28	8.02	-	-	28	7.00
Irregularity of Doctors	13	3.72	-	-	13	3.25
No Change	69	19.77	11	21.57	80	20.00
Total	349	100.00	51	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

Respondents in both rural and urban areas changed healthcare facilities, yet the reasons for changing healthcare facilities varies slightly in rural and urban areas. When compared to their urban counterparts, a higher proportion of respondents in rural areas changed their healthcare facility (Fig. 5.4).

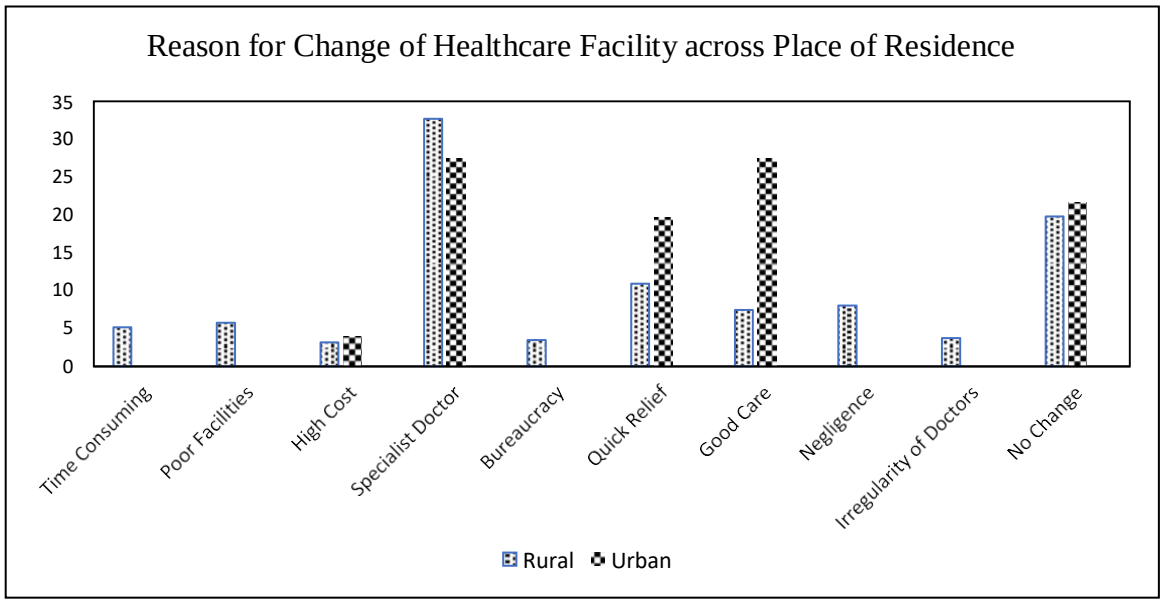

Fig. 5.4

A substantial percentage of respondents, regardless of where they lived, changed healthcare facilities to seek the assistance of a specialist doctor for a specific ailment, whereas more than one-fourth of urban respondents changed healthcare facilities to obtain immediate relief. Other factors that compelled respondents to shift healthcare facilities in both rural and urban areas included quick relief and good care.

5.5.2 Religion and Change of Healthcare Facility

According to the table (5.13), a higher percentage of Hindu respondents changed healthcare facilities during the treatment procedure than respondents from the Muslim group. Regardless of religious affiliation, the majority of respondents changed healthcare facilities to obtain the services of a specialist doctor. Respondents from both groups changed healthcare facilities in search of immediate relief and decent care. A nearly similar number of Hindu and Muslim respondents changed healthcare facilities to save time and get better care. Other concerns that compelled respondents to shift healthcare facilities included doctor inconsistency and bureaucratic insensitivity.

Table 5.13: Reason for Change of Healthcare Facility across Religion

Reasons	Hindu		Muslim		Total	
	Number	per cent	Number	per cent	Number	per cent
Time Consuming	16	4.97	2	2.56	18	4.50
Poor Facilities	17	5.28	3	3.85	20	5.00
High Cost	8	2.48	5	6.41	13	3.35
Specialist Doctor	103	31.99	25	32.05	128	32.00
Bureaucracy	10	3.10	2	2.56	12	3.00
Quick Relief	41	12.73	7	8.97	48	12.00
Good Care	40	12.42	-	-	40	10.00
Negligence	16	4.97	12	15.38	28	7.00
Irregularity of Doctors	13	4.03	-	-	13	3.25
No Change	58	18.01	22	28.21	80	20.00
Total	322	100.00	78	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

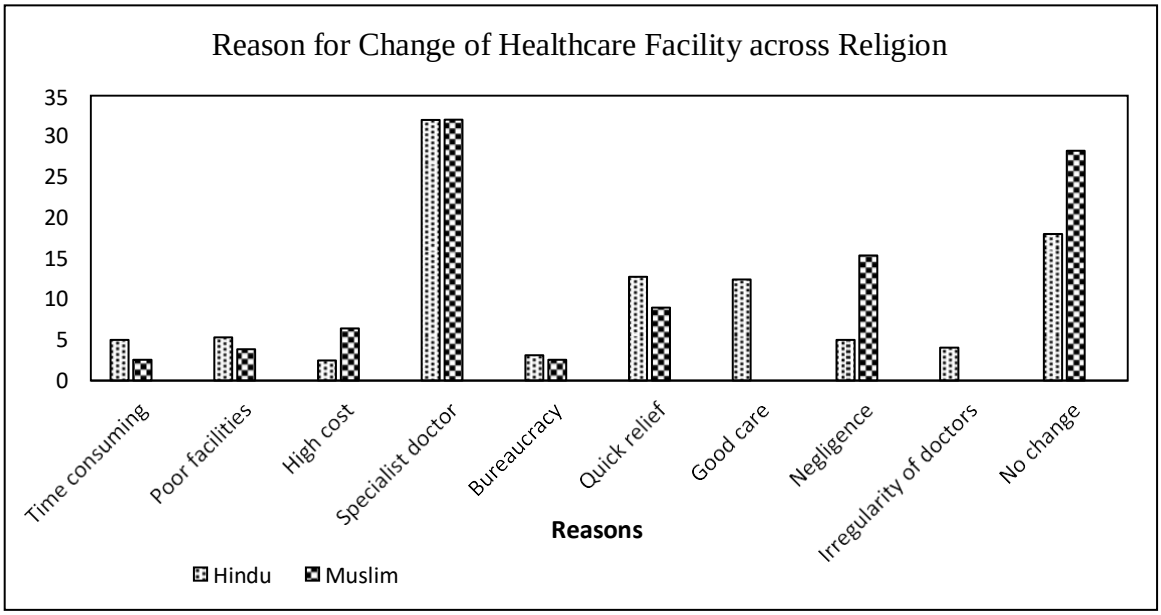

Fig. 5.5

5.5.3 Gender and Change of Health Facilities

Table 5.14 show the reasons for changing the healthcare facility, including gender. The majority of both male and female respondents changed healthcare facilities to obtain the services of a specialist doctor. When compared to their female respondents, a higher percentage of male respondents moved healthcare facilities for various reasons. Reasons for change appear to be practically identical for both groups, as quick alleviation, good

care, and carelessness are stated to be reasons for changing the healthcare facility (Fig. 5.6).

Table 5.14: Reason for Change of Healthcare Facility across Sex

Reasons	Male		Female		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Time Consuming	7	2.26	11	12.20	18	4.50
Poor Facilities	-	-	20	22.20	20	5.00
High Cost	5	1.61	8	8.90	13	3.35
Specialist Doctor	108	34.84	20	22.20	128	32.00
Bureaucracy	12	3.87	-	-	12	3.00
Quick Relief	48	15.48	-	-	48	12.00
Good Care	30	9.68	10	11.10	40	10.00
Negligence	28	9.03	-	-	28	7.00
Irregularity of Doctors	13	4.19	-	-	13	3.25
No Change	59	19.03	21	23.30	80	20.00
Total	310	100.00	90	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

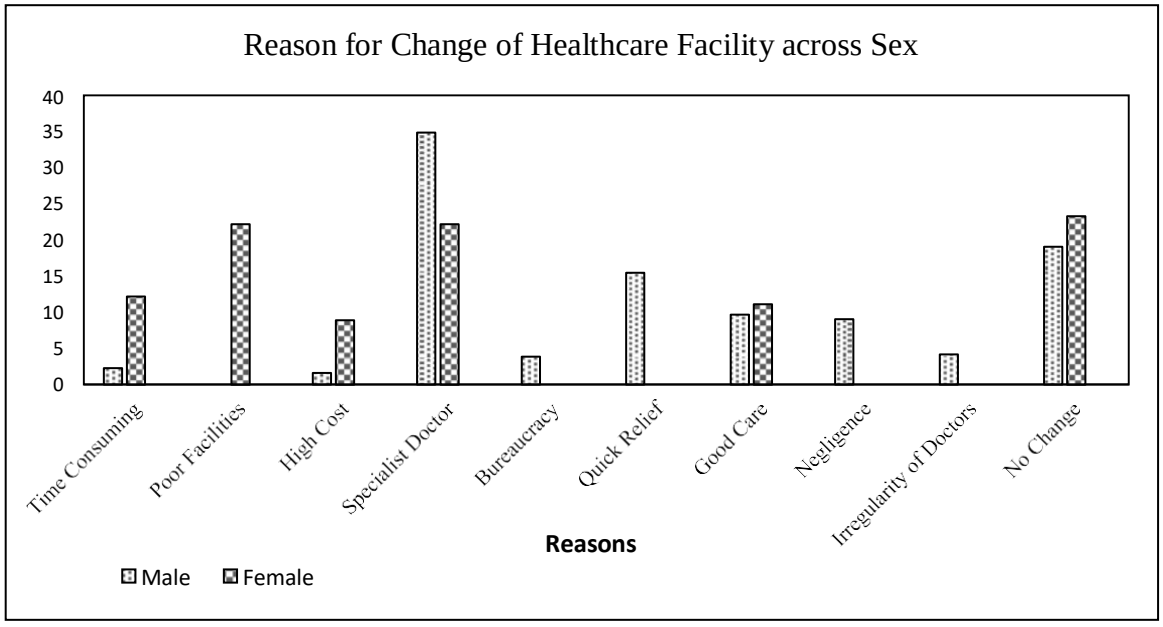

Fig. 5.6

5.5.4 Age and Change of Healthcare Institutions

Table 5.15 displays the reasons for changing healthcare institutions by age group. According to the table, all respondents aged 45 and up changed their healthcare facility. Many of the older respondents reported suffering from complex diseases, and a bigger proportion of them switched healthcare facilities to find less expensive and faster relief.

The majority of respondents, regardless of age, changed healthcare facilities to obtain the services of a specialist doctor. Other reasons that contributed to frequent changes in healthcare facilities throughout treatment were doctor negligence and abnormalities.

Table 5.15: Reason for Change of Healthcare Facility across Age-groups

Reasons	Less than 30		30-35		35-40		40-45		Above 45		Total	
	No.	per cent	No.	per cent	No.	per cent	No.	per cent	No.	per cent	No.	per cent
Time Consuming	-	-	10	9.43	-	-	8	11.76	-	-	18	4.50
Poor Facilities	20	18.01	-	-	-	-	-	-	-	-	20	5.00
High Cost	11	9.90	-	-	2	2.27	-	-	-	-	13	3.35
Specialist Doctor	27	24.32	32	30.19	39	44.32	8	11.76	22	81.48	128	32.00
Bureaucracy	-	-	12	11.32	-	-	-	-	-	-	12	3.00
Quick Relief	-	-	21	19.81	27	30.68	-	-	-	-	48	12.00
Good Care	12	10.81	16	15.09	7	7.95	-	-	5	18.52	40	10.00
Negligence	12	10.81	-	-	-	-	16	23.53	-	-	28	7.00
Irregularity of Doctors	13	11.71	-	-	-	-	-	-	-	-	13	3.25
No Change	16	14.41	15	14.15	13	14.77	36	52.94	-	-	80	20.00
Total	111	100.00	106	100.00	88	100.00	68	100.00	27	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

5.5.5 Income and Change of Healthcare Institution

Table 5.16 shows the relationship between respondent's income and their reason for changing healthcare facilities. According to the data, more than 90percent of the total respondents with an income of more than Rs.10,000 changed their healthcare facility. Economically well-off respondents have more options for changing healthcare facilities and are more aware of the specialisation of healthcare facilities, as more than half of the above Rs. 10,000 respondents changed healthcare facilities. A little less than one-third of respondents in both income groups, i.e., less than Rs. 5,000 and Rs. 5,000-10,000, changed healthcare facilities for various reasons. Respondents with incomes less than Rs. 5,000 changed healthcare facilities for time savings, access to good facilities, quick relief, and good care, whereas respondents with incomes between Rs. 5,000 and Rs. 10,000 moved healthcare facilities for quick relief, good care, and to prevent negligence.

Table 5.16: Reason for Change of Healthcare Facility across Income Groups (Rs.)

Reasons	Less than 5,000		5,000-10,000		Above 10,000		Total	
	Number	per cent	Number	per cent	Number	per cent	Number	per cent
Time Consuming	11	5.39	-	-	7	8.54	18	4.50
Poor Facilities	20	9.80	-	-	-	-	20	5.00
High Cost	13	6.37	-	-	-	-	13	3.35
Specialist Doctor	79	38.73	11	9.65	38	46.34	128	32.00
Bureaucracy	12	5.88	-	-	-	-	12	3.00
Quick Relief	15	7.35	24	21.05	9	10.98	48	12.00
Good Care	8	3.92	14	12.28	18	21.95	40	10.00
Negligence	-	-	28	24.56	-	-	28	7.00
Irregularity of Doctors	-	-	13	11.40	-	-	13	3.25
No Change	46	22.55	24	21.05	10	12.19	80	20.00
Total	204	100.00	114	100.00	82	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

5.5.6 Level of Education and Change of Healthcare Institutions

The connection between education and the reason for changing the healthcare facility is shown in Table 5.17. According to the table, illiterate respondents and respondents educated up to the primary level changed healthcare facilities in greater percentage than respondents with higher educational backgrounds because they reported a lack of specialised doctors in their areas. Illiterate or less educated people have comparatively poor knowledge about modern healthcare facilities, which is why they did not change healthcare facilities before completion of treatment. At the same time, these people belong to the poor economic class of society, with less financial assistance to get better medical care. The primary reason for illiterate respondents to move healthcare facilities is the high expense. Respondents with a high school diploma or above changed healthcare facilities for more specific reasons. The reasons that drew the highly educated respondents to another healthcare facility included a specialist doctor, speedy relief, and superior treatment.

Table 5.17: Reason for Change of Healthcare Facility across Level of Education

Reasons	Illiterate		Primary		Middle		High School		Intermediate		Graduation and above		Total	
	Number	per cent	Number	per cent	Number	per cent	Number	per cent	Number	per cent	Number	per cent	Number	per cent
Time Consuming	-	-	-	-	-	-	13	12.40	-	-	5	6.70	18	4.50
Poor Facilities	-	-	-	-	-	-	20	19.10	-	-	-	-	20	5.00
High Cost	2	7.70	-	-	-	-	-	-	11	9.80	-	-	13	3.35
Specialist Doctor	13	50.00	3	23.10	32	46.38	14	13.30	41	36.60	25	33.30	128	32.00
Bureaucracy	-	-	-	-	-	-	12	11.40	-	-	-	-	12	3.00
Quick Relief	-	-	-	-	8	11.59	10	9.50	11	9.80	19	25.30	48	12.00
Good Care	-	-	-	-	4	5.80	6	5.70	18	16.10	12	16.00	40	10.00
Negligence	-	-	-	-	-	-	-	-	18	16.10	10	13.30	28	7.00
Irregularity of Doctors	-	-	-	-	-	-	-	-	13	11.60	-	-	13	3.25
No Change	11	42.30	10	76.90	25	36.23	30	28.60	-	-	4	5.40	80	20.00
Total	26	100.0	13	100.0	69	100.0	105	100.00	112	100.00	75	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022

5.5.7 Occupation and Change of Healthcare Institutions

Table 5.18 summarizes the respondent's reasons for shifting healthcare institutions across occupations. The chart shows that the service of a specialised doctor remained the primary reason for growers changing healthcare facilities, while the demand for speedy alleviation and adequate care also fueled their desire to shift institutions. Because "our poverty is terminating our awareness," none of the agricultural labourers changed the healthcare institution.

In urban areas, industrial employees changed healthcare facilities because hospital administration is perceived as bureaucratic. Respondents in tertiary occupations changed healthcare facilities to get a specialist doctor, quick relief, competent care, and to avoid negligence.

Table 5.18: Reason for Change of Healthcare Facility across Occupation

Reasons	Farmer		Industrial workers		Services		Other wage earner		Total	
	Number	percent	Number	percent	Number	percent	Number	percent	Number	percent
Time Consuming	-	-	-	-	-	-	18	14.17	18	4.50
Poor Facilities	20	20.80	-	-	-	-	-	-	20	5.00
High Cost	-	-	-	-	9	5.45	4	3.15	13	3.35
Specialist Doctor	25	26.10	-	-	66	40.00	37	29.13	128	32.00
Bureaucracy	-	-	12	100.00	-	-	-	-	12	3.00
Quick Relief	20	20.80	-	-	16	9.70	12	9.44	48	12.00
Good Care	8	8.30	-	-	24	14.50	8	6.30	40	10.00
Negligence	-	-	-	-	28	17.00	-	-	28	7.00
Irregularity of Doctors	13	13.60	-	-	-	-	-	-	13	3.25
No Change	10	10.40	-	-	22	13.30	48	37.80	80	20.00
Total	96	100.00	12	100.00	165	100.00	127	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

5.5.8 Social-group and Change of Healthcare Institutions

According to Table 5.19, more than 75percent of respondents from upper castes changed healthcare facilities during treatment. The primary reasons for this transformation have been cited as the need for a specialist doctor, speedy relief, appropriate care, and the avoidance of malpractice. Upper caste respondents have a stronger social and economic status, as well as a good educational background, which is why a large proportion of respondents in this category modified their impression of the healthcare facility. SCs, who are the weaker members of society, changed the healthcare facility for a specialist doctor, speedy relief, and quality care. STs from the most disadvantaged sections of society moved healthcare facilities in order to receive quality care.

Table 5.19: Reason for Change of Healthcare Facility across Social-groups

Reasons	General		OBC		SC		ST		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Time Consuming	2	1.70	13	6.50	2	3.10	1	5.00	18	4.50
Poor Facilities	10	8.60	7	3.50	2	3.10	1	5.00	20	5.00
High Cost	1	0.86	7	3.50	3	4.70	1	5.00	13	3.35
Specialist Doctor	37	32.00	70	35.20	16	25.00	5	25.00	128	32.00
Bureaucracy	1	.86	3	1.50	7	10.90	1	5.00	12	3.00
Quick Relief	17	14.65	22	11.10	8	12.50	1	5.00	48	12.00
Good Care	15	12.90	13	6.50	8	12.50	4	20.00	40	10.00
Negligence	8	6.90	18	9.04	2	3.10	-	-	28	7.00
Irregularity of Doctors	4	3.45	9	4.50	-	-	-	-	13	3.25
No Change	21	18.00	37	18.60	16	25.00	6	30.00	80	20.00
Total	116	100.00	199	100.00	64	100.00	20		400	100.00

Source- Field Survey (Baran), September- October 2022.

5.6 Perception about Healthcare Facilities

Patients assessments of the entire quality of care can provide critical and holistic information. Personal encounters with healthcare providers, the setup and facilities, communication level and responsiveness, and care management methods are examples of such perceptions. These perspectives may provide important insights : (a) the level of quality care as a function of their overall satisfaction, readiness to use health facilities in the future, and adherence to provider instructions, (b) the requirements for international accreditation and monitoring programmes for hospital services, and (c) the financial performance and profitability of healthcare institutions. (Al-Jabri et al., 2021). Patient satisfaction is an important component in determining the quality of health-care services since patients are customers in the health-care industry, and customers continually expect outstanding service. A patient's perspective on a health-care service can increase service quality, which fosters confidence between the healthcare practitioner and the patient, resulting in profitability, a safe working environment, and advanced healthcare in the long run. (Ansar et al., 2021)

5.6.1 Place of Residence and Perception about Healthcare Facilities

People's perceptions of health care facilities in the research area are influenced by where they live. A significant number of respondents observed a shortage of facilities in healthcare facilities. Lack of facilities and corruption in accessing current healthcare services in rural areas have been identified as key factors in shaping perceptions of healthcare facilities. In urban areas, one-third of total respondents cited overcrowded at healthcare facilities and an insufficient number of healthcare institutions.

According to Table 5.20, more persons in rural areas have an unfavourable impression of healthcare facilities than urban areas. Unsanitary conditions and inadequate infrastructure are key factors in people's negative perceptions of public healthcare facilities. A substantial proportion of illiterate rural respondents indicated that they have not acquired any perception (have no perception) of healthcare facilities, although this proportion is very low in urban regions. It could be because rural people believe that perception is sacred.

Table 5.20: Perception about Health Facilities across Place of Residence

Perceptions	Rural		Urban		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Poor Quality	3	0.86	-	-	3	0.75
Unhygienic	19	5.44	8	15.70	27	6.75
Lack of Facility	37	10.60	9	17.65	46	11.50
Poor Infrastructure	29	8.30	-	-	29	7.25
Overcrowd	32	9.17	16	31.40	48	12.00
Lack of Doctor	21	6.00	7	13.70	28	7.00
More Time Consuming	8	2.30	-	-	8	2.00
Corruption	38	10.90	-	-	38	9.50
Reasonably Good Facility	18	5.15	-	-	18	4.50
Less Expensive	17	4.90	-	-	17	4.25
Can’t Say	127	36.40	11	21.60	138	34.50
Total	349	100.00	51	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

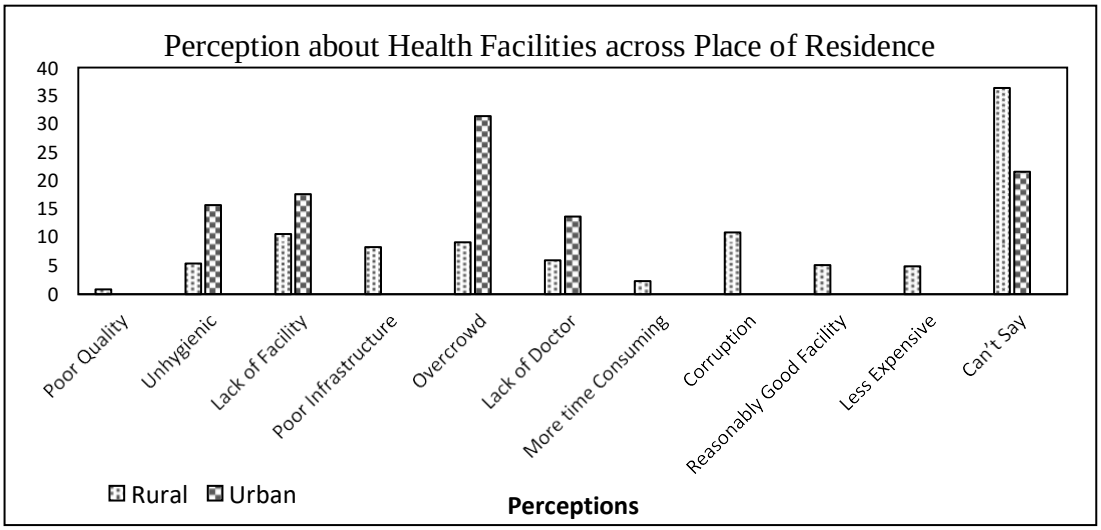

Fig. 5.7

High population strain on healthcare facilities, irregularity in the presence of health staff, administrative negligence, and unplanned distribution of healthcare facilities are important reasons for a negative view of healthcare facilities in rural areas. The district's rural sections are almost devoid of private healthcare institutions, which are regarded to provide superior facilities and services at a higher cost.

5.6.2 Religion and Perception about Healthcare Facilities

Religion is a significant cultural aspect that influences people's perceptions of healthcare services. Religion and perception of healthcare facilities was found to be substantially related among Hindu and Muslim respondents in the study location.

Table 5.21: Perception about Health Facilities across Religion

Perceptions	Hindu		Muslim		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Poor Quality	-	-	3	3.85	3	0.75
Unhygienic	18	5.60	9	11.50	27	6.75
Lack of Facility	42	13.04	4	5.10	46	11.50
Poor Infrastructure	27	8.40	2	2.55	29	7.25
Overcrowd	36	11.18	12	15.40	48	12.00
Lack of Doctor	27	8.40	1	1.28	28	7.00
More Time Consuming	6	1.90	2	2.56	8	2.00
Corruption	37	11.50	1	1.28	38	9.50
Reasonably Good Facility	16	4.95	2	2.56	18	4.50
Less Expensive	15	4.65	2	2.56	17	4.25
Can't Say	98	30.40	40	51.30	138	34.50
Total	322	100.00	78	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022.

According to Table 5.21, the majority of Hindu respondents perceived a lack of facilities, overcrowding, and various types of corruption in healthcare institutions as forming an unfavourable perception.

The majority of Hindu chooses public sector healthcare institutions, whereas the majority of Muslims prefer low-quality private clinics, and occasionally a quack. The medical system is also used differently by these two religious groups. The majority of Hindus prefer allopathic medication, but a sizable proportion of Muslim respondents prefer Unani and homoeopathic medicine, which are less expensive. More than half of all Muslim respondents stated that they have no opinion about healthcare facilities. Illiteracy, lack of awareness, and other religious elements are to blame for Muslim respondents' uneducated attitude perception. It is worth noting that the proportion of Muslims who perceive an unsanitary environment in healthcare institutions is nearly double that of Hindus. It could be linked to the fact that the majority of Muslims live in urban areas, where population pressure deteriorates the environment.

5.6.3 Social-group and Perception about Healthcare Facilities

Table 5.22 summarizes social-group perceptions of healthcare facilities. One-fifth of all respondents from the higher caste saw a shortage of facilities at healthcare institutions. Poor infrastructure, corruption, overcrowding, and a lack of facilities influenced upper caste and OBC respondents' perceptions.

Table 5.22: Perception about Health Facilities across Social-groups

Perceptions	General		OBC		SC		ST		Total	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Poor Quality	1	0.86	2	1.00	-	-	-	-	3	0.75
Unhygienic	10	8.62	16	8.04	1	1.56	-	-	27	6.75
Lack of Facility	22	18.97	17	8.54	7	10.944	-	-	46	11.50
Poor Infrastructure	12	10.30	10	5.02	3	4.70	4	20.00	29	7.25
Overcrowd	14	12.10	17	8.54	12	18.75	5	25.00	48	12.00
Lack of Doctor	12	10.30	8	4.02	8	12.50	-	-	28	7.00
More Time Consuming	1	0.86	4	2.00	2	3.12	1	5.00	8	2.00
Corruption	20	17.24	15	7.54	3	4.69	-	-	38	9.50
Reasonably Good Facility	4	3.40	9	4.50	4	6.25	1	5.00	18	4.50
Less Expensive	4	3.40	9	4.50	3	4.70	1	5.00	17	4.25
Can’t Say	16	13.80	92	46.20	21	32.80	8	40.00	138	34.50
Total	116	100.00	199	100.00	64	100.00	20	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022

Though all social groups had a negative perception, the scheduled castes, who have a lower socioeconomic status and are primarily employed as agricultural labourers, reported that they have no perception of healthcare facilities because they are still unfamiliar with the facilities at various types of healthcare institutions. It is apparent that the public health system has not yet reached the most vulnerable members of society.

5.6.4 Occupation and Perception about Healthcare Facilities

When analysing respondents perceptions of healthcare facilities by on occupation, it was discovered that somewhat less than one-fifth of all cultivators thought healthcare facilities were reasonably good. However, none of the agricultural workers had any knowledge of healthcare facilities. It appears that the bulk of agricultural labourers are SCs, as they lack perception as well (Table 5.23). It appears that the poorest members of society have no contact with public healthcare institutions.

Table 5.23: Perception about Health Facilities across Occupation

Perceptions	Farmer		Industrial workers		Services		Other wage Earner		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Poor Quality	-	-	-	-	3	1.80	-	-	3	0.75
Unhygienic	-	-	-	-	27	16.36	-	-	27	6.75
Lack of Facility	13	13.54	-	-	25	15.15	8	6.30	46	11.50
Poor Infrastructure	-	-	-	-	16	9.70	13	10.20	29	7.25
Overcrowd	3	3.12	12	100.00	15	9.10	18	14.20	48	12.00
Lack of Doctor	-	-	-	-	11	6.66	17	13.40	28	7.00
More Time Consuming	8	8.30	-	-	-	-	-	-	8	2.00
Corruption	12	12.50	-	-	8	4.80	18	14.20	38	9.50
Reasonably Good Facility	18	18.75	-	-	-	-	-	-	18	4.50
Less Expensive	-	-	-	-	27	16.40	-	-	17	4.25
Can’t Say	42	43.75	-	-	33	20.00	53	41.70	138	34.50
Total	96	100.00	12	100.00	165	100.00	127	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022

Overcrowding at healthcare institutions was seen by industrial employees who mostly live in cities. The majority of service class respondents observed unsanitary conditions and a lack of facilities at healthcare institutions.

5.6.5 Income and Perception about Healthcare Facilities

According to the Table 5.24, more than half of the respondents in the lowest income group have no perception of healthcare facilities. A substantial number of low-income respondents reported that healthcare facilities were overcrowded. The intermediate income group perceived corruption and unsanitary conditions, whereas the high income group perceived a lack of amenities and overcrowding.

Table 5.24: Perception about Health Facilities across Income Groups

Perceptions	Less than 5,000		5,000-10,000		Above 10,000		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Poor Quality	3	1.47	-	-	-	-	3	0.75
Unhygienic	-	-	17	14.90	10	12.20	27	6.75
Lack of Facility	8	3.90	11	9.65	27	32.90	46	11.50
Poor Infrastructure	15	7.35	-	-	14	17.07	29	7.25
Overcrowd	38	18.62	-	-	10	12.20	48	12.00
Lack of Doctor	5	2.45	13	11.40	10	12.20	28	7.00
More time Consuming	8	3.90	-	-	-	-	8	2.00
Corruption	-	-	27	23.70	11	13.40	38	9.50
Reasonably Good Facility	18	8.80	-	-	-	-	18	4.50
Less Expensive	-	-	17	14.90	-	-	17	4.25
Can't Say	109	53.43	29	25.44	-	-	138	34.50
Total	204	100.00	114	100.00	82	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022

5.6.6 Education and Perception about Healthcare Facilities

Table 5.25 displays people's perceptions of healthcare facilities at various levels of education. According to the data, a substantial proportion of highly educated respondents evaluated healthcare facilities as unhygenic as well as a shortage of doctors, bad infrastructure, corruption, and overcrowding.

Up to primary school (23.07%) and high school (14.30%) respondents perceived good since they were told that modern medicine and facilities control mortality. A sizable proportion of high school and intermediate respondents reported overcrowding and a lack of facilities.

Table 5.25: Perception about Health Facilities across Level of Education

Perception	Level of Education												Total	
	Illiterate		Primary		Middle		High School		Intermediate		Graduation and above			
	Number	per cent	Number	per cent	Number	per cent	Number	per cent	Number	per cent	Number	per cent	Number	per cent
Poor Quality	-	-	-	-	-	-	3	2.85	-	-	-	-	3	0.75
Unhygienic	-	-	-	-	-	-	-	-	11	9.80	16	21.33	27	6.75
Lack of Facility	-	-	-	-	9	13.04	-	-	24	21.40	15	20.00	46	11.5
Poor Infrastructure	-	-	-	-	-	-	-	-	15	13.40	14	18.66	29	7.25
Overcrowd	-	-	-	-	10	14.5	28	26.66	-	-	10	13.33	48	12.0
Lack of Doctor	-	-	-	-	6	8.70	-	-	10	8.90	12	16.00	28	7.00
More Time Consuming	-	-	-	-	8	11.6	-	-	-	-	-	-	8	2.00
Corruption	-	-	-	-	-	-	8	7.60	22	19.65	8	10.66	38	9.50
Reasonably Good Facility	-	-	3	23.0	-	-	15	14.30	-	-	-	-	18	4.50
Less Expensive	-	-	-	-	-	-	17	16.20	-	-	-	-	17	4.25
Can’t Say	26	100.0	10	76.9	36	52.17	34	32.40	31	29.50	-	-	138	34.5
Total	26	100.0	13	100.0	69	100.0	105	100.0	112	100.00	75	100.00	400	100.0

Source- Field Survey (Baran), September- October 2022

5.6.7 Age-group and Perception about Healthcare Facilities

Table 5.26 depicts people's perceptions of healthcare facilities across various age groups. According to the data, a substantial proportion of respondents under the age of 30 thought healthcare facilities were more time demanding and had poor infrastructure. Overcrowding and unsanitary conditions at healthcare institutions were perceived by respondents aged 30-35. It is noted that approximately 60 percent of respondents in the age group above 45 years have a positive perception of healthcare facilities because they perceive the facilities to be reasonably good, while approximately 40% of total respondents in the aforementioned age group perceive the prevalence of corruption at healthcare facilities (Table 5.26). The aged population of the study area, who resided in rural areas and represented the occupation cultivator, was found to have a pretty favourable perception of health facilities.

Table 5.26: Perception about Health Facilities across Age-groups

Perceptions	< 30		30-35		35-40		40-45		> 45		Total	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Poor Quality	3	2.70	-	-	-	-	-	-	-	-	3	0.75
Unhygienic	9	8.10	12	11.32	6	6.80	-	-	-	-	27	6.75
Lack of Facility	14	12.60	1	0.94	25	28.40	6	8.82	-	-	46	11.50
Poor Infrastructure	16	14.40	13	12.26	-	-	-	-	-	-	29	7.25
Overcrowd	11	9.90	28	26.40	9	10.22	-	-	-	-	48	12.00
Lack of Doctor	-	-	6	5.66	17	19.30	5	7.35	-	-	28	7.00
More Time Consuming	8	7.20	-	-	-	-	-	-	-	-	8	2.00
Corruption	-	-	12	11.32	15	17.04	-	-	11	40.74	38	9.50
Reasonably Good Facility	-	-	-	-	-	-	2	2.94	16	59.25	18	4.50
Less Expensive	-	-	-	-	-	-	17	25.00	-	-	17	4.25
Can't Say	50	45.00	34	32.07	16	18.20	38	55.88	-	-	138	34.50
Total	111	100.00	106	100.00	88	100.00	68	100.00	27	100.00	400	100.00

Source- Field Survey (Baran), September- October 2022

All illiterates and agricultural labourers have no knowledge about healthcare facilities. Respondents under the age of 40 and with intermediate or higher education from the service category in both rural and urban areas noticed unsanitary conditions in healthcare facilities.

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Chapter-6

Healthcare Problems and Planning

Since its inception, the government has established a massive public health infrastructure comprised of Sub-centres, Public Health Centres (PHCs), and Community Health Centres (CHCs). There is also a sizable number of health-care providers (Auxiliary Nurse Midwives, Male Health workers, Lady Health Visitors and Health Assistant Male). Rural India has long struggled with a lack of healthcare. According to studies, just one trained healthcare provider, including a doctor of any degree, is available for every 16 villages. Despite the fact that more than 70 percent of the population resides in rural areas, only 20 of total hospital beds are located in rural areas. The majority of health issues that people in rural communities and urban slums face are avoidable and easily curable. In view of the above issues, the National Health Mission (NHM) has been launched by Government of India (GOI). (Kapil and Chodhary,2005)

The NHM's planned decentralised planning paradigm is a positive step forward. Attempts at community control through Panchayati Raj Institutions (PRIs) have been effectively resisted in numerous states by technical health professionals, and the NHM has no plans to address this issue. Furthermore, decentralised planning and inter-sectoral convergence are intended to be achieved through the establishment of quasi-government societies, meaning further state retreat. The Hospital Development Committees, in the past, have pushed privatisation and served as mechanisms for engaging in public-private partnerships. As the first referral centre, the Sixth Five Year Plan anticipated three types of rural healthcare institutions: a Sub-Centre (SC), a Primary Health Centre (PHC), and a Community Health Centre (CHC). Each Primary Health Centre consists of the main centre with 6 beds located at the Block Headquarters and 4 sub-centres. The staffs earmarked include 1 medical officer, 1 sanitary inspector, 4 midwives (ANMs) and 2 ancilliary personnel. The centre was to be supported by District Hospitals for referral consultation, laboratory, medical, surgical, nursing and administrative services. The district hospitals intended to serve as the rural health care's secondary tier. The Mission Document, in a significant departure, states that the secondary level of health care essentially includes Community Health Centres (CHCs), which comprise the First

Referral Units (FRUs), and district hospitals, and that all National Health Programmes (NHPs) should be delivered through the CHCs. These are substantial modifications that weaken the PHC institution while focusing on specialised medical care services at the CHC level; it medicalizes the Primary Health Care approach. The responsibility for the NHP will be transferred to the newly created contractual job of Public Health Programme Manager, removing the final remnant of integration at the level of the PHC's Medical Officer. The NRHM has proposed the formation of a new group of community-based functionaries known as Accredited Social Health Activists (ASHA), who would act as health activists and mobilise the community in support of local health planning as well as increased utilisation and accountability of existing health services. However, Panchayats and PHCs are not well envisioned to provide social and professional support (Rajasthan State Health Society 2021). National Health Mission)

India's healthcare system is characterised by a variety of medical systems, mixed ownership structures, and various delivery structure types. Governments at the federal, state, municipal, and local Panchayat levels own the public sector. Teaching hospitals, second-level referral hospitals (CHCs or rural hospitals), dispensaries, primary health centres (PHCs), sub-centers, and health posts are examples of public health care facilities. (MoHFW, 2015).

India has decided to have one primary health centre for every 30,000 population (20,000 population in hilly and tribal areas), a sub centre for every 5,000 population (3,000 population in hilly and tribal areas), a CHC on every 1,20,000 population (80,000 population in hilly and tribal areas).

Problem Faced in NHM in Rural Areas:-

The National Health Mission (NHM) in India faces several planning problems in ruralareas,which can impact the delivery of healthcare services. Some of the key problems faced byNHM in rural areas are:

1.Inadequate healthcare infrastructure: Rural areas in India often lack adequate healthcare infrastructure, including healthcare facilities, equipment, and supplies. This can impact the quality of healthcare services provided and limit the reach of healthcare services.

2. Shortage of healthcare manpower: Rural areas in India often face a shortage of healthcare manpower, including doctors, nurses, and other healthcare professionals.

This can lead to a lack of access to healthcare services and limit the quality of care provided.

3. Inadequate funding: Rural areas often have limited financial resources to support healthcare infrastructure and services. This can limit the availability and accessibility of healthcare services in these areas.

4. Poor health-seeking behaviour: Rural populations often have poor health-seeking behavior, which can limit their access to healthcare services. This can be due to a lack of awareness about healthcare services, cultural beliefs, and social barriers.

5. Limited health literacy: Rural populations often have limited health literacy, which can limit their ability to understand and utilize healthcare services effectively. This can impact the quality of care provided and lead to poor health outcomes.

Problem Faced in Mukhyamantri Chiranjeevi Yojana

Mukhyamantri Chiranjeevi Yojana is a health insurance scheme launched by the government of Rajasthan in India to provide financial protection to poor families in the state. The scheme aims to provide cashless treatment for major illnesses and surgeries, including heart disease, kidney disease, cancer, and neurological disorders. While the scheme has been successful in providing financial protection to poor families, there are still some problems faced by the scheme in Rajasthan, including:-

1.Limited awareness: One of the primary problems faced by the Mukhyamantri Chiranjeevi Yojana in Rajasthan is the low level of awareness among the target population. Many poor families are not aware of the scheme and its benefits, which limits their ability to take advantage of the scheme.

2.Limited coverage: The scheme has limited coverage and does not cover all types of illnesses and surgeries. This can limit the accessibility of the scheme to those who need it the most.

3. Lack of infrastructure: The scheme requires a robust healthcare infrastructure to be able to provide quality healthcare services to beneficiaries. However, many hospitals and healthcare facilities in rural areas of Rajasthan do not have the necessary infrastructure to provide the required services.

4. Delayed payments: In some cases, the payments made by the scheme to healthcare providers are delayed, which can impact the quality of care provided to beneficiaries.

Problem of Inadequate Network of CHCs, PHCs and Sub-centres

The provision of healthcare facilities is fraught with issues. People end up finding it challenging to fully and satisfactorily utilise the facilities. Uneven distribution of health care facilities, illiteracy, low socioeconomic conditions, lack of knowledge about one's own health, and health care facilities that impede the expansion of health services in the study area are the main issues relating to health care facilities and their utilisation in the area. Therefore, an effort has been made to identify the issues and to develop plans to solve them by doing the best and most suitable actions. The findings of the current investigation have contributed in problem identification. Health care facilities are not distributed evenly across space. Even at a micro level, the unequal distribution of health facilities can be seen, both between and within regions, depending on the need for medical facilities and patient access. A total of 75 Primary Health Centers, including new PHCs, 272 Subcenters, 1 district hospital, 14 Community Health Centers, and 1 T.B. clinic make up the public health institutions of the Baran district. In addition, there are 61 Ayurvedic hospitals/dispensaries, 6 Homeopathic hospitals/dispensaries, and 3 Unani hospitals/dispensaries for the public's medical needs. In view of the norm prescribed by Indian Public Health Standard (I.P.H.S.) it is important to assess the existing situation of health care facilities networks. Table (2.6 and 2.7) shows existing availability and required number of CHCs, PHCs and Sub-centres in Baran district.

Availability and Capacity of Health Care Infrastructure

Infrastructure has been described as the basic provision for the delivery of public health activities in a productive and useful manner. The five components of health infrastructure are skilled workforce, integrated electronic information systems, public health organizations, resources and research.

Health infrastructure refers to the basic support system in the form of health centres, operational vehicle, equipment, telephone, electricity and water supply, building and the basic facilities namely, operation theatre, labour room, x-ray, refrigerator and laboratory facilities for testing blood, and urine etc. It is essential for the smooth functioning of health care system. These facilities are required at CHCs, PHCs and sub- centres. The

rural health system of India is plagued with resource crunch and shortfall of infrastructure leading to deficient health care for majority of Indians. According to the provision of Ministry of Health and Family Welfare, public health care infrastructure in India ensuring equity in access to population sub-groups has been the central theme. (Public health infrastructure, 2020)

For this reason, the health care facilities across the country – their number and location – have been defined in terms of population norms (Table 2.1). In Baran district, the population density/distribution varies significantly across the tehsil. The physical infrastructure of public health care institutions and health care personnel in Baran district do not appear to be substantially enough than the health care resources supplied to the less populated tehsils in the district. Due to this, the lower levels of health care institutions have more burdens for providing health care services. The present study indicates that there is scope to improve the situation with respect to the provision of health infrastructure. This raises the question that up to what extent the existing set- up must be expanded. Based on the national norms for providing health care infrastructure, the number of such facility required in each tehsil of the district has been estimated. Then it is compared with the actual number of facilities currently existing to measure the infrastructural gap. Thus, analysis of tehsil level disparity in health care infrastructure would help to identify specific deficiencies and suggest corrective measures to improve the health care system in the district.

Medical institution-population ratio is the expression of number of medical institutions (includes Community Health Centers, Primary Health Centers, Government Hospitals, etc.) as per IPHS norms in different tehsils of the district. This is perhaps the most important indicator in relation to the health care facilities for a particular region. Increasing number of health centres always increases the probability of higher utilization of health care facilities. But only a quantitative assessment such as the number of medical institutions in an area is not enough for the desired result, rather a quality assessment in terms of properly equipped medical centres (i.e. health related infrastructure) for better treatment facility is the most important. In case of Baran district, tehsil level disparities exist in terms of Community Health Centres-population ratio. In Baran district, Chhabra, Chhipabarod and Kishanganj tehsils have shortfall of CHC(Table-2.6), while the norm of CHC is 1,20,000. In order to fulfill the standard

norm 3 more CHCs are needed to be established at these three tehsils because of shortfall of CHC as per norm.

Since population and the total number of health care institutions vary widely across different tehsil of the district, the ratio between the population and the number of health care institutions such as PHCs that provide both in-patient and out-patient facility and PHCs and SCs that basically provide out-patient care, also vary substantially. It is worth noting that all the 50 PHCs in the district have necessary infrastructure to provide in-patient care. Though, PHCs of Baran, Anta, Atru, Chhabra and Kishanganj in the district serves excess of population which indicates moderate system load on health care services. Because of the high system load on the PHCs of these tehsils, patients are often compelled to travel to the PHCs or nearby Sub-District Hospitals not only for in-patient care but also to obtain out-patient care, which in turn increases the system load to the higher level of health care institutions. They have no other choice but to make visit to the private nursing homes and other providers to seek treatment at the subdivisions and district headquarter if they don't find any place in the over-loaded Referral Hospitals or Sub District Hospitals (RHs or SDHs). As indicated, Shahbad tehsil holds the best position in terms of PHC-population ratio followed by Kishanganj. The study reveals that there is imbalance between health care facilities existing in tehsils and the current population of the corresponding tehsil. On the whole, each tehsil of the district should be served by more than 3 PHCs under the existing national norm. In regional terms, the largest shortfall in the number of PHCs is observed in the Anta tehsil followed by Baran, Atru, Chhabra and Kishanganj in the district. Existing PHCs are not evenly distributed in the tehsils of the Baran district. Hence, there appears a shortage of 13 more PHCs in the area under study, which needs to be located at selected places. Highest number of PHCs is required in Anta (5) followed by Baran (4), Atru and Chhabra (3 PHCs each) whereas 1 PHC is needed in Kishanganj tehsil. As far as Sub-centres (SCs) are concerned, there are number of tehsils, such as Atru (12), Anta (10), Baran (2) and Chhabra (1) require additional 25 SCs under the existing norm. The most favourable position in terms of SCs per 5,000 populations is held by Chhipabarod and Kishanganj, which has more sub-centres than its requirement. On an average, every tehsil needs to four additional SCs to the existing ones. Table 2.6 depicts that the number of health sub-centres has increased from 202 to 251 during the year 2011-2021. Beside this growth, all the tehsil experienced huge gap (deficit) in terms of required

number of sub-centres. In 2011 not a single tehsil has surplus number of sub-centres and not fulfilling the population norms. It is perhaps due to population growth in Baran district. The requirement of such a significant number of Sub-centres indicate that a very large section of rural population is deprived of basic health care amenities and they have to travel long distance to nearby PHCs or new PHCs in order to access primary health care services bearing direct and indirect costs. The SCs should have adequate infrastructure like room for examination of mothers, office room, delivery room (if delivery is decided to be conducted there), adequate space for waiting of the visiting mothers, running water supply, toilet, electricity etc. Also, each Sub-centre should be connected through all- weather road. The location of proposed CHCs, PHCs and Sub-centres have been suggested on the basis of gaps appearing in the demand areas, accessibility, population of village in gap areas and favorable sites looking into the topography and vegetation covers. Availability of beds is also an important indicator to access the capacity of indoor patients at health care institutions. Table 2.7 shows that, there is no requirement of beds. On the whole, it may be inferred from the present study that there is a substantial gap in physical infrastructure as well as paucity of health personnel in the populous tehsil of the district and these requires special attention. In the case of other tehsils, it seems that the existing facilities are possibly adequate to meet current health care demand. It should also be kept in mind that due to such inadequacies of health care facilities a large section of the rural population may either seek alternative health care facilities from private practitioners (qualified or unqualified), traditional healers or simply do not seek any treatment due to a variety of constraint.

Availability and Efficiency of Staffs

The study reveals that there is acute shortfall of doctors and other Para-medical staff government health centres which causes problem to the general public to avail emergency and routine health services (Table 2.8). Availability of doctors is directly proportional to the utilization of health care facilities because the doctors are backbone of health care system. On an average 12 doctors are available per lakh population, but their distribution is not homogeneous in the district. A total of 151 doctors are providing their services in the district against the required number of 271 doctors according to existing IPHS norms. Among tehsil the maximum number of doctors required is in Anta (74) followed by Shahbad (56), Kishanganj (41), Atru (40), Chhabra (32), Chhipabarod (20) and Baran (8). It is due to greater pressure of population on health services. Para-

medical staff plays an important role in smooth functioning of health care institutions because they help doctor at the time of treatment and timely provide services to patients and people such as immunization and family welfare programmes. The para-medical staff-population ratio is very high which is not enough to cover large population utilizating health care services at government hospitals. On the basis of this, number as per recommendation there is requirement of 91 para-medical (Table-2.8) staff in different health centres of Baran district. Maximum number of required para-medical staff is calculated for Kishanganj (91) followed by Shahbad (70), Anta (67), Atru (67) and Chhabra (62) tehsil. Whereas lower number of para-medical staff is required for only Baran (5) and Chhipabarod (14). Availability of other staff is another important indicator because they help in maintaining sanitation, hygiene, and smooth running of the health plans designed by the health authorities and the government. There is requirement of 475 other staff for CHCs/PHCs in the district but at present the number of available other staffs is only 223 which varies from one tehsil to another and their distribution is not satisfactory at all the health centres. Among different tehsil the required number of other staffs is calculated for Anta (122) followed by Atru (79), Kishanganj (73), Chhabra (62), Shahbad (57), Baran (48) and Chhipabarod (34).

Suggestions to Improve Health Care Facilities/ Services

Primary Health Centres are the backbone of the rural public health care system, remained chronically weak and partially disabled. These centres are further trapped by the chronic manpower shortage especially the doctors who are usually reluctant to get posted at a remote PHC of the Baran district. To make health programmes successful, proper attention should be paid on the following points:

1. There is urgent need to strongly emphasize the process of strengthening the infrastructural facilities at CHCs/PHCs and Sub-centres to utilize their full potential.

2. Additional 13 PHCs and 25 Sub-centres should be established in the Baran district to reduce the gap between existing and required facilities.

3. All the PHCs should be renovated and equipped with necessary equipments according to their need.

4. The present plan proposes to designate at least one PHC as 24 × 7 center in each tehsil and make necessary supply arrangements within a year.

5. It is also proposed that the PHCs of eight tehsils may be upgraded to provide basic Emergency Medical Care and neo-natal services with an aim to make them full-fledged First Referral Unit (FRU) in the long run.

6. Availability of doctors (including lady doctor) and para medical staffs at subcentres, Primary Health Centres and Community Health Centres must be ensured by making adequate number of postings and also constructing residential quarters for them.

7. A sincere attempt should be made to meet the shortage of doctors and allied manpower at the PHCs, especially those which are deemed to serve people living in the least accessible region.

8. There should be transparency in medical services, distribution of free medicines to all segments of the community. Attention should be paid for providing adequate facilities and specialized services for medical treatment at CHCs and PHCs.

9. Equitable distribution of rural health care services for ensuring equity for health care should be ensured by the government. Location of health services and facilities should be in such a manner that these are easily accessible and available.

10. Most of the programmes launched by the government fail due to lack of people's participation. Therefore, efforts should be made for enhancing public participation in these programmes so that decision should be made easily.

11. Nurses, midwives, extension educators and even the doctors should come forward to create awareness about health and hygiene, immunization and family welfare programmes among villagers.

12. Access to services is an important determinant in meeting the health care needs of the people, especially living in remote areas. Ambulance service to transport serious patients to referral centres is very important. Irregular and infrequent availability of public transportation from remote areas to health care centres and high cost of private transport are other factors responsible for non-utilization of health care services. Telephone system is also not operational in many PHCs and SCs. Ambulance should be attached to each Primary Health Centre for transporting patients to the nearest accessible CHCs or next referral unit.

13. For an emergency referral case (especially for a woman requiring emergency obstetric and maternal care), the destination health centres (CHCs or SDHs) should be

alerted by the source of referral unit (i.e., PHCs/Sub-centres) to minimize delay in receiving treatment after the patient reaches the destination.

14. There shall be use of modern Information and Communication Technology (ICT). It involves extensive use of low-cost and appropriate technology in providing health service delivery at the door steps.

15. Treatment at health centres should be free for all the poor and people from lower strata of the community. There should be counseling of medical staffs to behave all the patients sympathetically.

Awareness about Health Care Facilities

Awareness plays an important role in the utilization of available health care facilities. The study reflected that awareness regarding facilities available at CHCs/PHCs and Sub-centres differs according to socio-economic conditions of the respondents. About 43 per cent respondents are not aware about existing facilities at government health institution. Of this, about 33 per cent males and 54 per cent females respondents have no knowledge about health care facilities available at CHCs/PHCs and Sub-centres. Among social groups result of the study shows that respondents belonging to general category are more aware about available health care facilities than the other categories (Table-5.1). There is also need of mass campaign for change in attitudes of the people towards preferences for male child, large family size and early marriage. People should prevent the system of early marriages. The gender discrimination should be removed through awareness, which affects woman nutritional status, health and education. More advertisement and mass campaign is needed for taking antenatal care, delivery care and post-natal care. An increase in the number of paramedical staffs is needed so that they guide and provide counseling regarding benefit of antenatal care, delivery care and post natal care.

Level of Satisfaction

An analysis of the views of the beneficiaries of the rural primary health care institutions revealed that out of the total 400 respondents, about 55 per cent respondents are either dissatisfied or partially satisfied with the facilities available at government health care institution of the study area. While only 14 per cent respondents are not satisfied at all. The reasons for dissatisfaction stem from the inadequacies of the delivery of health care system. Some of the major reasons for dissatisfaction are non-availability of doctors,

indifferent and non-sympathetic attitudes of doctors and para medical staff, non-availability of prescribed medicines and waiting time period in hospitals etc. Majority of the dissatisfied beneficiaries have made complaint about non-availability of prescribed drugs at government health institutions. Respondents desired that they should get all the prescribed and essential medicines to the patients. In addition, they also wish that pharmacists should explain the use of medicine in detail and clearly. The second most important reason for dissatisfaction is doctors, who do not give adequate time. They desired that doctors should spend sufficient time with them during physical examination. Beside this absentee of doctors, misbehaviour of doctors with patients and other factors are also the major causes for dissatisfaction.

Accessibility of Health Care Facilities

Accessibility of health care facility may affect the magnitude and frequency of their utilization in the study area. Utilization of available health care facilities at district hospitals is poor among rural people for two main reasons. First, far location of district hospital is far away and secondly, it is found suitable for critical diseases, not as a place of first visit in the case of illness. The efforts need to be exercised to reduce the distance between patients and health care facilities through their better and central location as well as introducing efficient ambulance services. Thus to increase the accessibility of people living in far villages should provide connecting roads to PHCs and it should be made pucca. Availability of ambulance at CHCs/PHCs should be ensured and need be put in operational condition so that the needy person may take the benefits of these available facilities more easily by calling on telephone.

Socio-economic Condition of Rural People

Socio- economic and health indicators show the poor condition of the people in Baran district. Socio- economic factors are major determinants of health and human well-being. People with a better socio- economic condition have better health status as compared to those who have poor socio-economic condition. All social groups have high dependency on facilities available at government health centres but the poor section of the society who is mainly engaged as agricultural labourers registered high preference for government facilities. With the increase in educational level, utilization of services provided by the government health care facilities or by qualified practitioners in private hospitals has increased rapidly while utilization of services

provided by quakes reduced sharply. It is said that socially- economically poor population is attracted more towards CHC/ PHCs while the upper caste and people of any caste who have adequate money can bear high cost of treatment for their family normally visit private hospitals. The services available at CHCs/PHCs are more frequently utilized by illiterate people. Occupation-wise utilization of health care services is very remarkable. Respondents, belonging to service class and farming community give less preference to CHCs/ PHCs as compared to labourers. For the betterment of people's health status, improvement in economic condition of rural masses through a strong network of agriculture based industries is necessary. Self Help Groups (SHGs) must be promoted efficiently. There is need to create liberal loan provision for targeted groups. To enhance the utilization of health care services available at Community Health Centre, Primary Health Centre and Sub- centre, efforts are needed to improve the living conditions of villagers and improve the conditions of facilities/ services of CHCs/ PHCs and sub-centres.

Recommendations to Improve Health Outcomes for All

Based on monitoring, the following recommendations for improving the health service delivery system in Baran district are as follows:

1. Due to the large population ratio, all levels of health facilities are operating; therefore, the number of CHCs, PHCs, and SCs should be raised (Table 2.7, 2.8 and 6.1).

2. Increase the number of health workers in rural areas and upgrade their skills (Table 2.9 and 2.10).

3. Lessen spatial disparities in healthcare facility access (Table 2.10).

4. Implement additional preventative health measures, such as enhancing road safety, cleanliness, and access to clean water; raising immunisation rates; raising cigarette tax rates; lowering salt intake; and enhancing sexual education.

5. To transfer indicated cases to the closest reachable CHCs, local transportation should be rented and attached to each PHC.

6. At every PHC, GIS-based software should be implemented to map the tehsil using various accessibility indicators for optimal surveillance and planning. It also functions as a component of an information system. The PHCs will be able to identify the least

accessible regions, for instance, with the aid of technology. It will assist in creating a more effective distribution system.

7. Priority should be given to the delivery care by hiring the necessary and sufficient number of medical and paramedical workers.

8. As soon as possible, computer inventory management, which is still rarely used, should be implemented in government health care facilities for a better management system of medical services and drug supplies.

9. Increase public health spending with an emphasis on primary and preventive care, especially in rural areas and urban areas.

10. Gradually expand public health insurance to primary care, starting with underprivileged groups, especially in the district's rural districts. spread awareness of care reimbursements offered by insurance plans.

11. Establish an open drug procurement procedure to increase the accessibility of medications in public institutions.

Healthcare Facility Enhancement for Projected Population with Respect to 2031

It is evident that a healthy society may assist social and economic development since its members will have higher levels of social well-being, which will make them more productive and effective. However, there is a direct link between economic growth and healthcare; as long as economic growth is increasing, governments will offer affordable, comprehensive healthcare that satisfies all of society's requirements. However, for a variety of reasons, including the dearth of healthcare resources and the inadequate creation and execution of short- and long-term plans for the distribution of healthcare services among regions with varying densities of population, economic growth may not be sufficient to support the provision of equitable healthcare (Drissy, 2015). Understanding the concept of spatial planning and its role in ensuring an efficient and equitable healthcare system for all can help achieve geographic equality in access to healthcare (Mokgalaka). To make the most sustainable use of the natural and human resources that are currently accessible, a variety of tools and strategies are employed in spatial planning. At the level of health, the spatial planning of the healthcare system can be characterised as a detailed policy to provide healthcare services to all people; for instance, programmes and projects aimed at achieving the ideal health level of the individual and society with specific characteristics in a given period of time, by making

the best use of the available resources (materials and people). The best sites for new services, such as healthcare services, are chosen using location-allocation models. (Kotavaara et al, 2017)**.** A number of different situations, including (1) designing a new service site, (2) integrating a new service into an existing service, and (3) eliminating an existing service, are used to inform the spatial decision-making process for allocating healthcare service locations. Modeling the ideal distribution of healthcare service sites is a crucial aspect of healthcare planning (Rahman and Smith, 2000). Therefore, this challenge has long been a theoretical one for spatial planners, especially during the predigital era, when the emphasis was on effectively planning the location of healthcare services and ensuring that healthcare systems' spatial performance was enhanced in both urban and rural locations (Afshari and Peng, 2014).

Planning for Location of New Healthcare Facility in 2031

Table: 6.1 Tehsil wise Proposed CHCs, PHCs and Sub-centres, 2031

Tehsil	Population(Projected)	CHC/DH	PHC	SC
Mangrol	1,40,973	1	5	28
Anta	1,61,992	1	5	32
Baran	2,98,589	1(DH)	10	60
Atru	1,92,063	2	6	38
Kishanganj	2,59,373	3	13	86
Shahbad	2,53,844	3	13	85
Chhabra	2,42,086	2	8	48
Chhipabarod	2,44,152	2	8	49
Total	1793072	15	68	426

Source- Calculated by Researcher.

India has decided to have one primary health centre for every 30,000 population (20,000 population in hilly and tribal areas), a sub centre for every 5,000 population (3,000 population in hilly and tribal areas), a CHC on every 1,20,000 population (80,000 population in hilly and tribal areas) as per I.P.H.S. norms.

In order to fulfil the demand of CHC in 2031 according to increase in population (projected), one CHC need to be established at Kishanganj and one CHC at Chhabra tehsil. According to norms, PHCs number for the district as a whole the position is

satisfactory. But In the study area PHC should be increased according to population. Hence there number should be increase of 23 PHCs in the study area, which need to be locating 2 PHC at Baran, 5 PHC at Kishanganj, 6 PHC at Chhabra and 10 PHC at Shahbad tehsil. And if we talk about SCs, a large number of SCs should be increase in Baran tehsil. Considering the norm for plain as well as tribal area about 174 more sub centre will be needed to provide better health facilities in the study area. There should be increase of 1 sub centre at Anta,9 at Mangrole , 9 at Atru, 17 at Chhabra, 17 at Chhipabarod, 33 at Baran and 44 subcentre at Kishanganj and Shahbad each.

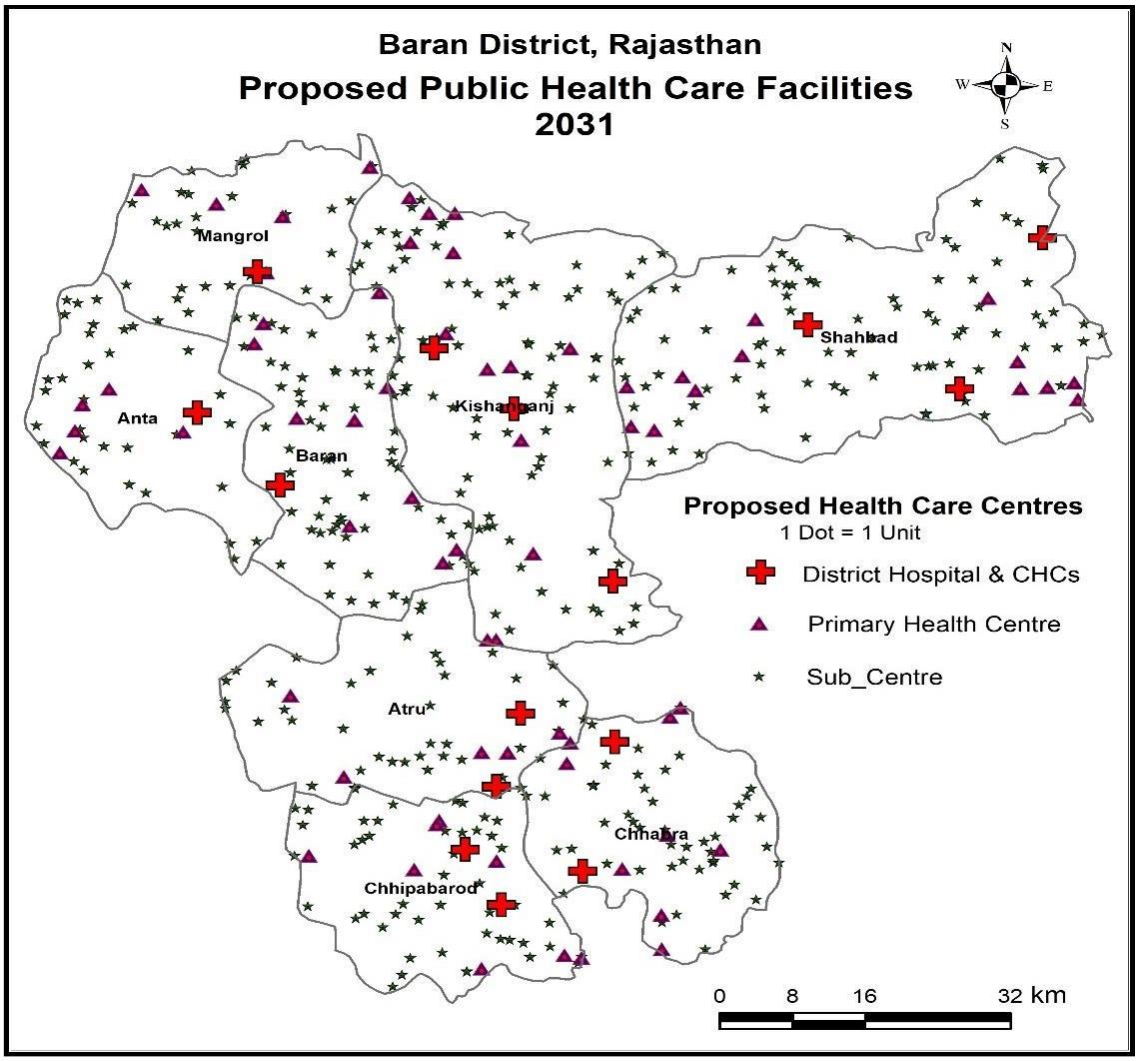

Fig. 6.1

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Summary and Conclusion

Health is not only a basic component to lead a happy life for an individual, but also necessary for all productive activities in a society. The entire development cycle of a person depends upon his intellectual calibre, curiosity and constructive thinking and all these are dependent upon health condition. The status of health of an individual and a group are determined on a range of factors including nutrition level, life-style as well as availability and accessibility of healthcare services.

This concluding chapter reflects on the major findings of this research and how the findings are placed with reference to this theoretical position in which this study is located. Institutions healthcare delivery system is based on a hierarchy i.e., from PHC, CHC and finally to multi-specialtiy hospitals for specific needs. In developing country like India, one of the serious lapses in the planning process has been the lack of understanding of the spatial or the regional structure of the healthcare systems, as it tends to organize itself in space both in terms of accessibility and need due to varying disease ecologies.

The present research was conducted on the utilisation of healthcare facilities. The researcher has attempted to find the utilisation of healthcare in Baran district. The present chapter of the thesis summarizes the findings and conclusions drawn from the study. The data and information regarding various aspects of health care infrastructure and services in the study area have been compiled by primary as well as secondary sources. The entire research work has been divided into six chapters, beside introduction followed by summary conclusion.

The conclusion drawn from discussion, analysis and interpretation, collected through field investigation and survey are summarised in the following lines. The introductory chapter of the study provides a brief note on health and health care. This chapter also details a strong theoretical background by reviewing the literature on the techniques used by different scholars on health care facilities at international, national and local levels in addition to database and methodology followed by objectives and chapter scheme.

In addition, the researcher has looked at the difficulties in accessing healthcare services, in terms of availability of health facilities, affordability and acceptability. Besides, the

researcher has examined the problems in accessing health services in an intense conflict situation. Consequently, the health providers also suffer in discharging their duties smoothly due to disturbance from physical barriers. A survey kind of structured interview schedule was used for data collection from 400 respondents, followed by in-depth interview of key informants and health personnel.

The **first chapter** titled "physic-cultural settings" details the area of the study encompassing Geographical settings like location and extent, geology, Physiography, drainage pattern, climatic characteristics, soil and natural vegetation etc. and cultural settings like growth, distribution and density of population, literacy, occupational structure, industry etc.

On April 10, 1991, the Mangrol, Antah, Baran, Kishanganj, Shahabad, Chhabra, Atru and Chhipabarod tehsils that had previously been a part of Kota district were separated to form the new Baran district. Baran district ranks 27th in terms of population, 26th in terms of population density and 19th in terms of area. There are 1221 villages in the Baran district; 1114 of them are inhabited, while 107 are uninhibited. Baran district has 79.2 percent of its inhabitants living in rural areas and 20.8 percent in urban areas. The district has a higher sex ratio 929 Females/1000Males The Baran district has a literacy rate of 66.7 percent. The percentages of Scheduled Caste and Scheduled Tribes in the Baran district are 18.1 and 22.6, respectively.

The Baran district is located between 24˚24' to 25˚26' N latitude and 76˚12' to 77˚26' E longitude. It is located in Rajasthan's south-eastern region and is bordered by the states of Madhya Pradesh on its east, south, and south-east, Kota and Jhalawar district of Rajasthan on its north and west, and the state of Rajasthan's Madhya Pradesh on its south and west. Approximately 110 km and 120 km, respectively, from north to south and west to east, represent the district's spatial extent. With a total area of 6992 square kilometres, the district is the 19th largest in the state. With an average elevation of 250 m Above Mean Sea Level (AMSL). The district had a total population of 12,22,755 (2011). The population increased to 14,66,276 (2021). Between 2001 and 2011, there was a -6.93 percent decrease in population. Average density of Baran district was 175 persons per sq. km in 2011 and increased by 210 persons per sq. km in 2021. According to census 2001, the district has registered a literacy rate of 59.5 per cent. In 2011 total literacy increased to 66.66percent. The sex ratio changed from 909 to 929 females per

thousand males in 2001 and 2011. In the district, 42.7 per cent of the total population comprises of total workers (main + marginal) and the rest 57.3 per cent as non-workers.

The **second chapter** titled "Spatio-temporal Analysis of Health Care Facilities" attempts to explore the spatio-temporal distribution of existing health care centres and level of development in health care resources in the district. Thus, at district level there are Sub-centres (SCs), Primary Health Centres (PHCs) and Community Health Centres (CHCs). District hospital has been set up as a first referral unit (FRU). The area under study is endowed with one district hospital, 14 community health centres (CHCs), 50 primary health centres (PHCs) and 272 sub-centres. Besides, there are 61 Ayurvedic, 6 Homeopathic and 3 Unani hospitals for providing health care services to the people. Presently, there exists one CHC on 1,04,734 population, one PHC on 29,325 population and one sub-centre on 5390 population. Though the study area has sufficient number of facilities but the accessibility and affordability are the major hurdles in the way of health for all. There were shortages of 3 CHCs, 13 PHCs, 25 Sub-centres and 170 doctors in 2022 as per IPHS norms. Further, according to norms there will be requirement of 91 para-medical staff and 252 other staff along with other subsidiaries health care services for more than four million population of the district according to IPHS norm.

The distribution of CHCs/PHCs was found uneven access in the study area. A large number of residents use to travel a long distance to access the health care facilities.

The area and population of different tahsils varies significantly in the study area. Therefore, the analysis of health care facilities in terms of per 100 sq. km of surface area and per one lakh of population is necessary. Density of PHCs/CHCs in terms of area is found highest in Anta tahsil while lowest in Shahbad tahsil. Density of PHCs/CHCs in terms of per lakh population also varies in the study area. So far, the availability of PHCs/CHCs per lakh population is concerned, it has been found that Anta tahsil has highest concentration and Chhipabarod tahsil has lowest concentration.

Chapter three analyses the utilisation pattern of health care services by the respondents in the study area on the basis of responses obtained through questionnaire survey. Utilization of any social services, including health services, has never been equitably distributed throughout society. It is evident from the analysis that lack of good health infrastructure, non-availability of specialist doctors in the village and the need to travel

long distance for severe illness is also the factor for not utilising the existing health facilities. CHCs/PHCs have been utilized by females more frequently than males in case of illness due to many flagship programmes running particularly for women. Utilization of health care facilities by poor section of the society is found more as compared to richer section. In the study area out of the total 400 households, 196 (49%) sought help at CHCs/PHCs as the first healing, followed by 74 (18.50%) at district hospital,40 (10.00%) at private hospitals, 39 (9.75%) visits quack and 24 (6%) respondents visited traditional healer for health care. Utilization of any social services, including health services, has never been equitably distributed throughout society. CHCs/PHCs have been utilized by females more frequently than males in case of illness due to many flagship programmes running particularly for women. There exists a strong association between educational attainment and utilization of health care facilities. It is interesting to note that health services rendered by quacks are found to be very high among illiterate respondents (36.6% per cent) as well as among those respondents having schooling upto primary level (32.14%). It is worth to mention here that percentage of respondents visiting private health facilities increases with the increase in income level of the households. The existing health care facilities in the study area provide services in three types of medicine system, i.e., allopathic, ayurvedic and homeopathic. In the study area around 77.25per cent respondents use allopathic medicine system while 6.75 per cent and 16.00 per cent respondents use homeopathic and ayurvedic medicine system respectively.

Regarding the preference of health centres, half of the respondents belonging to low Standard Living Index group preferred public health facilities. This is due to affordable expenses for the treatment on the patients in public health facilities. There is also a tendency of shifting to different health centres if the patient does not get cured or no improvement is found. For instance, a patient was admitted to a government hospital located for dysentery case. The patient‘s condition did not improve at all in spite of taking treatment for many days. Finally, the patient was shifted to an expensive private hospital and he was cured within a few days.

Percentage of total deliveries performed by trained dai at home decreases with increase in income level of the respondents. Moreover, most of the female members of the family belonging to high income group are visited hospitals for safe delivery. It is found

that, economic status has a positive correlation with safe institutional delivery and deliveries performed by trained personals.

Fourth chapter analysed the practicesand beliefs of healthcare among Meena and Sahariya tribe of Baran district. Tribe's health beliefs play a role in determining the health seeking behaviour and successful treatment of illness thus contributing to health outcomes or status. The infrastructural condition of the tribal area (shahbad and Kishanganj) has remained in a very poor state. The settlements located in hilly or tribal area have very poor rail and road connectivity with the health care institutions. The poor health of the tribes in India has a wide range of root causes and contributing variables. It is even more challenging to approach them and handle their health issues due to their geographic settlement patterns and tremendously diverse geographies. Poverty, illiteracy, a lack of knowledge about diseases, poor sanitation, outdated traditional methods of treating illnesses, and irrational belief systems all serve to exacerbate and deepen this agony. Study reveals that Traditional healers are the primary source of care for the majority of tribal households. It was observed that most respondents performed religious rites in a situation, when they consider that a person has fallen sick due to supernatural forces. 30 percent of respondents depends on jhadphuk and 43 percent depends on medicinal plants and animals. Both tribes visit traditional way in first visit. From the analysis, it can be argued that health belief is one of the most important predisposing factors to seek health services.

Chapter five identifies the perception of people about available health care facilities. It also describes the people's satisfaction and the difficulty of determining whether variation in patient's perception should be attributed to differences in expectations or actual experiences. People's participation is a prerequisite condition for the success of any programme and for the achievement of improved state of health for all. It is with the view of understanding the perception of people towards various health care facilities and programmes. Perception and sensitivity both vary from person to person and from place to place. It was found during this study that socio-economic factors play a major role in determining the awareness, availability accessibility and utilisation of health care facilities. Government may bring good health and prosperity to its people by improving health awareness and its availability and accessibility.

Level of satisfaction with the health care delivery services reveals the extent of their acceptance. In the study area around 60 percent of respondents are satisfied with the

Mukhyamantri Chiranjeevi Yojana. It is notable that more than 50 per cent respondents are don't know about any availability of free medicines, and only 13.20 percent of resondents are satisfied with availability of free medicines. In terms of gender, it was discovered that female respondents had more challenges than their male respondents. The biggest issue reported by female respondents were less doctor visits, poor quality of care, and misbehavior by paramedical workers. Around 14 percent of respondents face poor quality care during hospitalisation and around 70 percent of respondents never hospitalised.

Rural residents are unsatisfied with the medicine offered. Levels of education and money have a beneficial impact on medication satisfaction. Respondents with a higher education and a better economic background are more satisfied with the medicine delivered than those with a lower education and a lower economic level. Among the various social strata, STs (33.87%) are more satisfied with the medicine delivered than those from other castes.

In rural areas, 16.62 percent of respondents were satisfied with plans because they thought they were less expensive, however only 21.57 percent urban thought they were convenient.

The overall condition of health infrastructure has not been found satisfactory, especially in rural areas of the district. Although the availability and accessibility of health care has improved considerably, the availability of trained manpower, number of doctors and para-medical staff in different health centres of the district has been found insufficient to serve the present population. With respect to the facilities available at different health centres, the level of awareness among rural community has not been found very well, therefore, people's awareness and participation should be enhanced for ensuring healthier and cleaner environment in the society.

Lastly, **in sixth chapter** it is recommended that the socio-economic conditions of the rural people should be improved, as it has great bearing on the availability of health care facilities. Concrete efforts to bring behavioral changes in utilisation of available health care facilities are urgently needed for bridging the gap between awareness and utilisation of health care facilities. A suitable mechanism ensuring people's participation should also be developed for effective management of health care facilities. Health care programmes are to be made more effective by community participation to increase the

ratio of beneficiaries. Non-compilation of reliable data on health care facilities and diseases with the concerned alternatives poses a lot of problem in providing timely health care services. Therefore, constant efforts have to be made on collection and dissemination of information about diseases, medicines, health care facilities along with ways and means of maintaining good health.

There are many issues which can be looked at in terms of population health and difficulties of service providers. As conflict becomes a part of life of people, it affects the health which has hardly been recognised as yet by the government and private organisations which are working in the health sector in the region.

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Appendix -I

Questionnaire

Healthcare facility and Their utilisation:

A Geographical Study of Baran District (Rajasthan)

Saniya Khan

Research Scholar

Department of Geography, VMOU, Kota

1. Name of tahsil-
2. Village/Urban area-
3. Name and age of the respondent-
4. Relationship to the head of household-
5. Religion- (1) Hindu (2) Muslim (3) Sikh (4) Christian (5) Jain (6) Buddhist (7) Other
6. Caste- (1) General (2) Other Backward Cast (3) Scheduled Caste (4) Scheduled Tribe
7. Family type- (1) Nuclear (2) Joint
8. Marital status (1) married (2) unmarried
9. Monthly household income (Rs)- _____
10. Type of ration card household possesses- 1. BPL 2. APL
11. House type- (1) Hut
    (2) Kutchha (unburnt bricks)
    (3) Kutcha and Pucca
    (4) Pucca (Burnt bricks)
12. Does the household have separated room for married couple (s) - (1) Yes (2) No
13. Education- Illiterate
    Primary
    Secondary
    High secondary
    Graduation

14. How many children between 7-14 years drop out the school or never attended the school- Drop out Boys Girls,

Never attended Boys Girls

15. Reason for drop out/not attending-

(1) School too far away (2) Poverty

(3) Required for care of siblings (4) Costs too much

(5) Low status of School (6) Not interested in studies

(7) Lack of transportation (8) Education not considered necessary

(9) Not safe to send girls school (10) Girl education is money wasting

16. General information about household members-

Member No.	Name of the household member	Sex- (1) Male (2) Female
1		1 2
2		1 2
3		1 2
4		1 2
5		1 2
6		1 2
7		1 2
8		1 2
9		1 2
10		1 2

17. How much agricultural land does the household own (in *Bigha*)-

(1) Less than 5

(2) 5-10

(3) 10-15

(4) More than 15

18. Information about health of household members-

Sl. No.	During preceding 12 months, has he /she had a disease	Type of disease	Whether taking treatment	If yes, then from where
		(1) Asthma (2) Gastric (3) Auotharitis (4) Skin disease (5) Fever (6) Jaundice (7) Tuberculosis (8) Blood- Pressure (9) Other	(1) Yes (2) No	(1) District hospital (2) CHC/PHC/Sub-centre (3) Private hospital (4) Traditional healer (5) Other
1	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
2	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
3	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5

4	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
5	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
6	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
7	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
8	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
9	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5
10	1 2	1 2 3 4 5 6 7 8 9	1 2	1 2 3 4 5

19. When any of the household member falls ill he first visits to-

(1) District hospital (2) CHC/PHC/Sub-centre/

(3) Private hospital (4) Traditional healer

(5) Quack (6) Registered Medical Practitioner (RMP)

(7) Other

20. Information about health care facilities-

Health Institution	Distance (km)	Mode of transport	Expenditure (Rs)	Level of service	Frequency to visit
District hospital		1 2 3 4 5 6		1 2 3 4	1 2 3 4
Private hospital		1 2 3 4 5 6		1 2 3 4	1 2 3 4
CHC/PHC/ Sub-centre		1 2 3 4 5 6		1 2 3 4	1 2 3 4
Family welfare centre		1 2 3 4 5 6		1 2 3 4	1 2 3 4
Traditional healer		1 2 3 4 5 6		1 2 3 4	1 2 3 4
		(1) Train (2) Bus (3) Car/Jeep (4) Cart (5)Rickshaw (6) Bicycle (7) Walking		(1) Good (2) Average (3) Poor (4) Can't say	(1) Weekly (2) Fortnightly (3) Monthly (4) Annually

21. Which types of facilities your household receives

Health Facility	Status of facility- (1) Satisfactory (2) Partially satisfactory (3)Unsatisfactory (4) Can't say			
(1)Vaccination	1	2	3	4
(2)Family welfare	1	2	3	4
(3) Antenatal care	1	2	3	4
(4) Delivery care	1	2	3	4
(5) Postnatal care	1	2	3	4
(6) Child health	1	2	3	4
(7) Cleanliness/hygiene	1	2	3	4
(8) Nutrition	1	2	3	4
(9) Other	1	2	3	4

22. Rate the following questions as per the service received….

Sr. No.	Statements	Poor	Fair	Good
a.	How do you rate the waiting time before consultation?			
b.	How thoroughly does doctor ask about your symptoms?			
c.	How well the doctor listens to what you had to say?			
d.	How well the doctor explained your problems?			
e.	How well does the nurse listen to what you say?			
f.	How do you rate the quality of care they provide?			

23. RATE THE CLEANLINES

i	Premises Cleanliness GOOD_____FAIR____POOR_____
ii	Wards Cleanliness GOOD_____FAIR____POOR_____
iii	OPD Cleanliness GOOD_____FAIR____POOR_____

24. Are you aware about the various health facilities provided by government which are free? Yes ( ) No ( )

25. Availability of sonography /ultrasound facility in the village or within 5 kms: YES……NO...…

26. Whether the village was covered by Mobile Health Clinic? YES……NO...…

27. Home visit of govt. health workers- YES……. NO……

28. What are your suggestions to make health care facilities more beneficial-?

1.

2.

3.

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Volume XVI **No. 1** **Dec. 2019**

STATUS OF SCHOOL INFRASTRUCTURE FACILITIES IN RAJASTHAN: A DISTRICT LEVEL ANALYSIS

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Abstract
The study looks at the provision of facilities in terms of physical infrastructure and education facilities available for children in the school level (Government and private schools from Primary to Intermediate) in Rajasthan state. The study is based on secondary data obtained from DISE. Based on HDI technique of UNDP, a composite index of school infrastructural development has been computed taking 16 indicators. The study highlights that northern part of the state has the highest level of school infrastructural development while southern part has the lowest.

Key Words : Enrolment Ratio, Drop-out Rate, DISE.

Introduction

Equal access to education is among the basic human rights to which everyone is entitled. Education develops human skills for providing the needed services to the community (Kumar et al, 2015). The quality of education infrastructure, specifically its appropriate educational planning and design with a focus on child development, has been widely discussed in recent years (Barrett et al, 2019). An encouraging learning atmosphere is essential for effective education to happen. The state of educational infrastructure is one such indicator of the learning atmosphere in place (Das, 2007).

The facilities available in the school not only attract students directly but also indirectly increase school enrolment. In a developing country like India, the educational and related facilities available in the school are extremely important for the overall personality development of the students. Institutional factors such as poor quality of schools often without level playing field, lack of job oriented education, distance between school and settlement, insufficient number of girl's school and teachers, lack of separate toilets for girls in co-education schools etc. deters rural population's access to education.

It has been comprehensively understood that the infrastructure development in schools is regarded to be having a considerable influence in enabling them to achieve the desired educational objectives (Ajayi, 2002; Hallack, 1990; Kuuskorpi and Gonzalez, 2011; Bandhopadhyay, 2012; Nayar, 2015). The Right to Education Act, 2009 has recommended that every school should have proper facilities and amenities like restrooms, clean drinking water, playgrounds, proper environmental conditions, nutritious and healthy mid-day meals, proper boundary walls and so forth.

Rajasthan, the largest state of India in terms of area has varied physical as well as socio-cultural settings. The state has the dubious distinction of having lowest female literacy among all the states of union of India. The state also holds the dubious distinction of having the highest (27.85 per cent) gender gap in literacy in 2011. As per Census 2011 overall literacy rate in the state was 67.06 per cent, 80.51 per cent among males and 52.66 among females. The corresponding figures for national average are 74.04 per cent, 82.14 and 65.46 per cent respectively for overall,

males and females. Aggressive state government action, in the form of the District Primary Education Programme, the Shiksha Karmi initiative and the Lok Jumbish programme are credited with the rapid improvement. The primary school coverage in villages has drastically improved (Mehta, 2001). Despite the advances in terms of access, it is apparent that many challenges persist that result in children having to leave primary school without learning basic skills of reading and writing (Sadgopal 2010).

In the present study an attempt has been made to assess the levels of school infrastructure in all the districts of Rajasthan state. The study finds out the extent to which the schools are equipped with different physical facilities at district level in Rajasthan and what are the future challenges that remain to meet for its further improvement.

Study Area

The State of Rajasthan is situated in the north-western part of India between 23°3' and 30°12' north latitudes and 69°30' and 78°17' east longitudes (Fig. 1). It occupies 342,239 km2 and 10.41 per cent of the land area of the country. Physiographically, the state can be divided into four major regions, namely (i) the western desert with barren hills, rocky plains and sandy plains (ii) the Aravalli hills running south-west to north-east starting from Gujarat and ending in Delhi **(iii)** the eastern plains with rich alluvial soils and (iv) the south-eastern plateau. Mahi, Chambal and Banas are the three major rivers of the state. About 62 per cent of the state area consists of sandy plains, which is why it is known as the Desert State of India. The Aravalli hills running diagonally across the state form the geomorphic and climatic boundary of the desert in the east.

Objectives

The present study intends to fulfill the following objectives:

1. To assess the levels of school infrastructure at district level in the state.
2. To find out the correlation between school infrastructure and different enrolment related indicators.

Data and Methodology

The present study is exclusively based on secondary data collected from DISE, 2016-17, Statistical Yearbook of Rajasthan, 2018 and Census of Rajasthan, 2011. The district has been taken as the basic unit to study regional disparities. To find out levels of school infrastructure and identify regional disparities among various indicators of school infrastructure at the district level, 16 indicators have been taken into account (Table 1). Following the Human Development Index, the technique used was a three-step exercise: firstly, deprivations score of each district was worked out and secondly, it was converted into a development score. The development score of each district on twelve indicators was summed up to arrive at the district's composite school infrastructure index as under:

$$\text{Deprivation Score} = \frac{\text{Value of the district at top position} - \text{Value of the specific district}}{\text{Value of the district at top position} - \text{Value of the district at the position}}$$

Development score = 1- Deprivation Score

With the help of this development score composite index of overall school infrastructure is calculated as follows:

$$\text{Composite index} = \frac{\text{Summation of development scores of all the 12 indicators used}}{12}$$

For comparability of districts, the normalized index of the districts has been calculated by taking state average as 100.

$$\text{Normalized index} = \frac{\text{Composite Index Value}}{\text{State average}} \times 100$$

The composite index of all the districts has been normalized with respect to the state average.

It may be noted here that the higher value of Ni will indicate a high level of development whereas a smaller value of Ni will indicate a low level of development. Finally, for classifying the districts of the study area into various categories ranging from 'very low' to 'very high' levels of development, a suitable fractile classification of the districts from the assumed distribution of the mean of the normalized indices have been made as follows:

Value of Normalized Index	Level of Development
≤ Mean - S.D.	Low
(Mean - S.D.) to Mean	Moderate
Mean to (Mean + S.D.)	Moderately High
(Mean + S.D.) to (Mean + 2S.D.)	High
> Mean + 2S.D.	Very High

Results and Discussion

The facilities that are needed to facilitate effective education development and learning in an educational institution includes the girl's toilet, library, boundary wall, computer, play ground, classrooms, offices and other buildings structure (Bhunia, Kumar and Duary, 2012).

Sixteen such indicators (Table 1) have been taken into consideration to examine the levels of school infrastructure at the district level in the state under study. The results thus obtained (Table 3) have been discussed in the succeeding paragraphs in the sequel. Some enrolment and literacy related indicators which may have significant association with levels of school infrastructure have also been presented in Table 3 to correlate the levels of school infrastructure with these indicators.

High level of school infrastructure (N_i= more than 120)

Figure 2 depicts that Hanumangarh, Ajmer, Jhunjhunun, Churu and Ganganagar districts registered the highest level of school infrastructure. Only Five districts out of total thirty three districts have registered high level of school infrastructure. It clearly reveals that the state has to perform a lot to improve the school infrastructure. Among these districts, Churu, Hanumangarh and Jhunjhunun districts have shown best performance in almost all of the indicators related with school infrastructure. Churu district has the highest availability of school facilities in the entire state. It is important to mention here that all these districts have very high literacy rates (Table 4). While noticing these districts, it may be pointed out that school infrastructure possesses positive bearing on literacy.

Moderately high level of school infrastructure (N_i= 105- 120)

Thirteen districts of the state have moderately high level of school infrastructure (Table 3). Most of the districts in this category belong to hilly and tribal dominant areas where awareness and accessibility both are poor in the context of school infrastructure. In these areas, social taboos and traditions are also hindering the path of better schooling facilities. Physical obstacles and inappropriate implementation of governmental policies resulted in comparatively low level of school infrastructure in these districts. Lack of social and community participation also resulted in poor level of school infrastructure.

Moderate level of school infrastructure (N_i= 88-104)

Nine districts of the state have moderately high level of school infrastructure (Fig. 2). Among these districts Jodhpur and Barmer are located in Thar Desert. Due to physical barriers it is very

difficult to develop better facilities in schools in these districts. The adverse physical and climatic conditions of these districts distract teachers, especially female teachers to stay and work in these districts. Teachers posted in these districts always try to transfer themselves from these districts. Continued change in staff decelerates the development of school infrastructure. Dhaulpur district is badly affected by the ravines of river Chambal; therefore investment in human resource is very limited in this district. Remaining districts in this category are predominantly agrarian in nature where agriculture and related activities gain more attention in the society. Negligence of society slows down the governmental efforts to improve school infrastructure.

Low level of school infrastructure N_i= Less or equal to 87)

Udaipur, Baran, Banswara, Karauli, Jaisalmer and Pratapgarh districts have low level of school infrastructure. Banswara and Pratapgarh districts are the worst performer in terms of availability of school facilities in the entire state.

All the districts in this category except Jaisalmer district have a high concentration of tribal population. Udaipur, Banswara and Pratapgarh district are hilly districts which face physical as well as economic obstacle to develop facilities in the schools. Jaisalmer district is located in desert laden western part of the state. Physical barriers, social taboos with regard to women education, poor infrastructure coupled with agrarian society, poor implementation of Govt. policies, low level of awareness and insufficient number of separate schools for girls etc. are responsible for low availability of facilities in school.

It is evident from Fig. 2 that Northern regions have a high level school infrastructure in comparison of southern regions while central and southern districts have a high and moderate level of school infrastructure. Further Table 4 shows that school infrastructure is instrumental for gross enrollment ratio at upper primary better. There is a high correlation between school infrastructure and GER. It is also clear from correlation coefficients (Table 4) that better school infrastructure decreases the drop-out rates. Drop-out rate of girls at primary level is negatively correlated with school infrastructure. Table 4 clearly shows that both total and female literacy are positively correlated with the level of school infrastructure. It clearly reveals that investment in school infrastructure is an important mean to increase the level of literacy in the state.

Conclusion

Rajasthan fairs well in terms of infrastructure availability, and has implemented the RTE impressively in terms of toilet facilities and mid day meals. However, Rajasthan falls drastically below the national average on parameters of electricity and computers, while also lagging in availability of playgrounds, disabled friendly access and libraries. While Rajasthan falls short only marginally for drinking water facilities. Disjointed efforts in implementing educational reforms have increased the dimension of disparity. It would appear reasonable therefore to suggest that investment in infrastructure should be a part of policy initiatives with lofty ideals such as universal primary education in rural India. This would ensure both achievement of goals and sustenance of educational initiatives.

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Table 2: Absolute Value of Indicators Used to Calculate Levels of School Infrastructure

District	X_1 X	$_2$ X	$_3$	X_4	X_5	X_6	X_7	X_8	X_9 X	$_{10}$	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}
Ajmer	93.19	99.91	99.73	78.76	98.66	100.00	90.66	43.39	79.93	60.32	84.33	4.13	59.48	45.83	8.10	82.46
Alwar	88.48	99.11	95.05	62.40	99.90	95.39	67.31	40.71	80.06	53.95	81.24	22.74	58.01	23.29	5.31	72.23
Banswara	.88 10	.00 96.0	2 31.6	7 99.6	96.7	29.9	62.3	55.8	34.36	79.97	22.19	84.70	17.43	3.40	56.54	
Baran	72.99	99.69	88.66	45.67	97.21	100.00	21.73	36.34	59.02	51.12	68.71	28.13	72.86	25.22	10.09	53.30
Barmer	81.56	98.38	98.02	41.81	98.89	96.11	54.98	77.02	56.48	49.93	70.26	44.49	87.77	13.85	4.03	36.27
Bharatpur	88.75	99.38	92.42	62.92	98.12	97.57	75.26	39.45	86.73	55.08	78.61	30.31	58.07	29.78	7.21	65.31
Bhilwara	78.72 99	37 98.3	58.8	99.5	96.4	70.5	64.2	60.6	57.59	81.50	48.62	72.90	24.66	6.24	68.15	
Bikaner	84.65	99.91	99.76	58.19	98.06	96.91	68.55	42.63	61.91	49.17	80.17	27.52	62.78	35.09	7.84	64.13
Bundi	75.54	99.53	98.37	62.36	99.79	94.92	47.48	56.48	80.00	55.17	79.16	33.60	69.45	32.65	13.96	68.24
Chittaurgarh	87.17	99.81	97.75	61.11	99.88	95.41	74.34	28.34	80.50	59.87	82.28	35.36	74.49	31.17	9.89	68.63
Churu	96.36	99.77	99.77	79.18	99.61	96.27	79.70	44.10	84.70	58.90	84.13	34.20	57.17	48.08	9.85	73.93
Dausa	0.80 99	.78 91.0	46.9	99.9	97.2	5 82.9	43.9	78.5	38.50	86.04	45.60	74.68	32.41	12.91	57.01	
Dhaulpur	61.98	100.00	96.79	37.42	95.41	100.00	61.13	54.23	64.68	32.98	83.83	17.25	81.87	22.33	7.58	56.63
Dungarpur	83.12	100.00	97.21	46.45	99.34	96.52	62.38	45.48	82.31	52.31	82.54	24.76	61.62	28.87	9.39	54.44
Ganganagar	93.04	99.77	99.84	79.55	99.74	95.07	83.50	59.58	80.16	51.18	83.80	26.70	63.57	37.20	8.66	78.36
Hanumangarh	94.92	99.95	99.72	84.33	99.95	97.39	81.36	47.44	84.47	64.85	89.22	39.06	55.72	47.48	10.87	73.84
Jaipur	90.36	99.34	99.10	71.37	99.42	96.33	76.75	19.79	82.88	62.02	87.81	26.25	44.86	50.03	3.18	84.93
Jaisalmer	32.62 99	07 98.3	8 40.9	3 98.9	92.0	29.0	7 62.7	55.5	1 37.69	63.55	28.10	85.11	22.87	10.40	32.21	
Jalor	90.54	99.10	98.59	54.69	99.85	96.55	67.04	59.64	69.42	52.31	75.70	37.62	70.65	28.30	8.99	42.82
Jhalawar	82.16	99.69	97.46	49.15	99.86	97.06	70.52	52.68	73.73	51.92	76.63	40.54	80.95	14.85	11.95	54.55
Jhunjhunun	94.48	100.00	100.00	84.44	100.00	95.05	50.31	52.38	85.65	69.01	86.30	33.06	58.18	47.27	8.56	86.44
Jodhpur	86.61	99.02	98.58	56.70	99.82	96.42	52.52	50.62	77.12	61.89	78.12	34.99	64.26	36.25	4.73	61.25
Karauli	79.73 99	41 90.4	3 44.0	8 99.8	96.5	52.2	26.9	72.9	51.75	77.10	25.67	65.94	24.17	9.48	48.48	
Kota	93.21 99	79 99.7	5 74.3	9 99.7	95.8	45.6	32.5	76.9	56.77	92.99	17.03	51.72	37.45	9.68	84.03	
Nagaur	89.25	99.49	98.95	58.62	98.56	96.76	38.69	58.17	69.63	59.11	78.42	36.48	66.37	33.24	5.99	60.22
Pali	91.38 99	03 98.9	2 76.3	0 99.4	96.4	77.4	1 54.9	75.7	1 55.63	82.21	41.14	63.69	39.72	8.83	65.74	
Pratapgarh	59.22	99.63	93.77	36.34	91.70	105.99	39.07	61.54	58.58	43.74	66.72	23.40	79.93	20.97	10.78	46.12
Rajsamand	2.60 100	0.00 99.8	7 65.6	6 100	0 97.3	5 72.7	5 55.4	64.9	49.33	83.63	29.93	77.74	33.72	10.88	61.91	
Sawai Madhopur	90.60	99.60	95.92	70.35	99.80	97.10	71.20	41.14	77.66	53.53	81.79	33.68	57.16	35.62	9.80	60.60
Sikar	93.10	99.75	98.53	67.18	99.42	96.20	63.49	42.72	76.83	65.92	83.94	21.56	58.29	37.76	6.90	74.29
Sirohi	88.45	99.62	96.02	68.34	97.17	99.70	67.70	53.19	80.35	48.31	83.57	17.10	70.07	41.49	17.70	53.94
Tonk	91.67	99.36	98.68	65.71	98.00	96.86	93.66	49.36	70.79	59.38	81.37	54.37	67.43	35.10	9.94	66.71
Udaipur	73.39	100.00	95.77	42.89	97.92	98.82	65.17	53.17	61.18	37.34	69.10	18.89	82.49	20.48	4.80	62.95
Rajasthan	84.38	99.52	97.47	59.56	98.98	96.95	63.70	48.28	72.81	53.62	80.23	30.31	66.78	32.17	7.52	64.50

Source: District Information System for Education (DISE) data, National University of Educational Planning and Administration (2016-17).

Table 3: Normalized Index Value (Ni) for School Infrastructure and Its Correlation with Some Enrollment Related Indicators

District	N_i Value	Gross Enrollment Ratio at Primary Level	Gross Enrollment Ratio at Upper Primary Level	Drop-out rate at Primary Level	Drop-out rate at Primary Level (Girls)	Drop-out rate at Upper Primary Level	Drop-out rate at Upper Primary Level (Girls)	Total Literacy*	Female Literacy*
Ajmer	130.61	106.60	89.09	3.41	3.46	2.64	2.64	69.3	55.7
Alwar	96.64	100.72	83.24	8.68	8.56	3.91	3.91	70.7	56.3
Banswara	81.53	103.12	79.40	8.19	8.34	3.41	3.41	56.3	43.1
Baran	81.80	112.63	82.49	8.80	9.51	5.78	5.78	66.7	52.0
Barmer	88.42	102.22	76.70	9.29	9.68	8.57	8.57	56.5	40.6
Bharatpur	99.58	95.33	78.15	5.30	5.09	3.97	3.97	70.1	54.2
Bhilwara	113.83	99.49	80.09	9.06	9.53	7.75	7.75	61.4	47.2
Bikaner	107.49	104.19	75.58	3.52	3.26	2.34	2.34	65.1	53.2
Bundi	110.48	102.92	84.81	4.29	3.82	2.65	2.65	61.5	46.6
Chittaurgarh	114.44	98.02	81.95	6.71	6.98	4.41	4.41	61.7	46.5
Churu	128.48	104.32	85.42	6.82	7.01	4.78	4.78	66.8	54.0
Dhaulpur	109.97	129.46	80.47	6.68	6.13	8.08	8.08	69.1	51.9
Dungarpur	90.46	105.83	86.96	4.61	4.49	4.09	4.09	59.5	54.7
Dausa	100.91	102.90	88.78	7.73	6.84	4.86	4.86	68.2	46.2
Ganganagar	123.15	105.71	88.98	7.41	7.27	4.91	4.91	69.6	59.7
Hanuman garh	137.15	107.41	86.72	8.05	7.59	5.23	5.23	67.1	55.8
Jaipur	110.76	117.17	94.11	4.94	5.31	1.14	1.14	75.5	64.0
Jaisalmer	75.06	110.82	64.46	10.61	12.25	8.75	8.75	57.2	39.7
Jalor	102.05	100.74	80.50	6.30	6.96	9.66	9.66	54.9	38.5
Jhalawar	105.57	109.07	82.59	3.97	3.92	4.29	4.29	61.5	46.5
Jhunjhunun	129.54	102.27	91.89	6.67	6.89	1.02	1.02	74.1	61.0
Jodhpur	100.37	108.10	75.67	7.90	7.96	4.95	4.95	65.9	51.8
Karauli	78.41	109.06	75.18	9.56	8.78	6.53	6.53	66.2	48.6
Kota	111.55	108.61	91.24	4.73	5.26	2.06	2.06	76.6	65.9
Nagaur	100.94	108.86	81.52	9.21	9.04	5.32	5.32	62.8	47.8
Pali	113.83	100.97	88.80	5.78	6.05	4.91	4.91	62.4	48.0
Pratapgarh	69.12	107.66	78.87	8.19	8.52	5.30	5.30	56.0	42.4
Rajsamand	115.75	106.13	89.35	9.82	9.65	5.55	5.55	63.1	48.0
Sawai Madhopur	103.50	106.34	81.92	8.03	7.35	5.22	5.22	65.4	47.5
Sikar	107.61	102.49	89.19	8.81	8.59	2.01	2.01	71.9	58.2
Sirohi	108.96	93.98	73.78	6.78	7.64	5.76	5.76	55.3	39.7
Tonk	114.93	105.15	83.50	5.48	5.36	2.13	2.13	61.6	45.4
Udaipur	82.20	95.89	74.22	7.51	7.95	3.86	3.86	61.8	48.4
Rajasthan	100.00	97.80	91.99	6.99	7.06	4.34	5.17	66.1	52.1
Correlation Coefficient with N_i Value		**-0.034**	**0.618**	**-0.398**	**-0.43**	**-0.33**	**-0.33**	**0.45**	**0.46**

Source: District Information System for Education (DISE) data, National University of Educational Planning and Administration (2016-17).

* Statistical Year Book of Rajasthan- 2018 and Census of India, Rajasthan, 2011.

Fig. 1

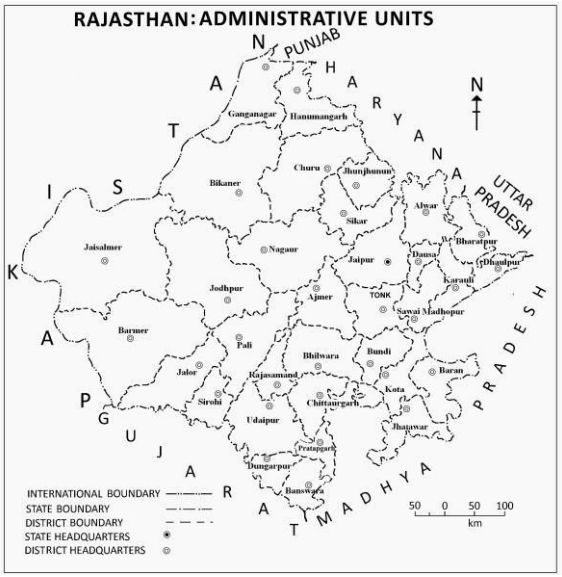
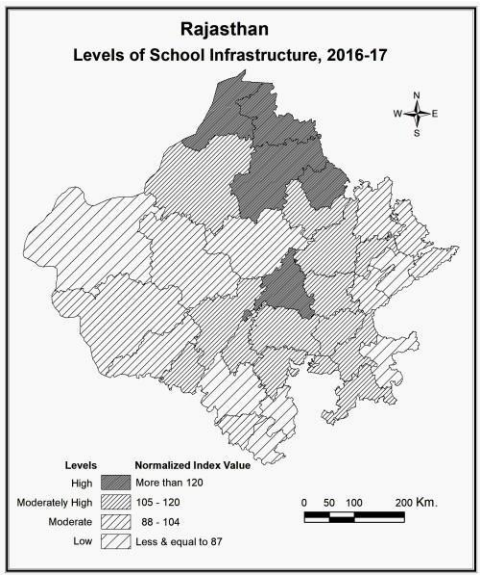


Fig. 2



***School refers to all Government and Private school from Primary to Intermediate Level.**

Table 1: Indicators Used to Measure Levels of School* Infrastructure			
X_1	Schools having boundary wall	X_9	Schools having library facility
X_2	Schools having building	X_{10}	Schools having playground facility
X_3	Schools having water facility	X_{11}	Schools approachable by all weather road
X_4	Schools having electric facility	X_{12}	Schools having ramp facility
X_5	Schools having boys toilet	X_{13}	Schools having mid day meal facility
X_6	Schools having girls toilet	X_{14}	Schools having computer
X_7	Schools having hand wash facility near toilet	X_{15}	Schools having computer application lab
X_8	Schools having Kitchen Shed	X_{16}	Schools having female teacher

Table 4: Level of School Infrastructure in Rajasthan		
Level	**Name of Districts**	**N_i Value**
High	Hanumangarh, Ajmer, Jhunjhunun, Churu and Ganganagar	More than 120
Moderately High	Rajsamand, Tonk, Chittaurgarh, Pali, Bhilwara, Kota, Jaipur, Bundi, Dausa, Sirohi, Sikar, Bikaner and Jhalawar	105-120
Moderate	Sawai Madhopur, Jalor, Nagaur, Dungarpur, Jodhpur, Bharatpur, Alwar, Dhaulpur and Barmer	88-104
Low	Udaipur, Baran, Banswara, Karauli, Jaisalmer and Pratapgarh	Less or equal to 87

AN ASSESSMENT OF LAND USE-LAND COVER CHANGE OF LUCKNOW CITY

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Abstract
Land use change depends on changing human activities of a place over a period of time. This study has focussed on the spatial-temporal changes in Land use/land cover pattern of Lucknow city. The analysis of temporal changes has been done for the years 2003 and 2020 using supervised image classification. Land use change can be identified using google earth data spatially and temporally. The results reveal increase and decrease in different land use types. Changes in Land use/ land cover of Lucknow city is caused because of the urban growth in population. The decrease in plantation and open land is because of the increased use of land for residential purpose and growing commercial zones. The area of the city has increased over the decades; however, it has been used primarily utilized in sectors such as transportation, recreation, etc. The reduction in plantation and open land are prominently evident through the interpretation of satellite imagery. Accuracy assessment for 2003 shows 82% accuracy and kappa coefficient is 0.77 while in 2020, the overall accuracy has been computed as 86% and the kappa coefficient is 0.81. Therefore, it concludes that the assessment is reliable as the maps have been prepared in the acceptable range of kappa coefficient. The assessment of land use/land cover offers a basis for the consideration of sustainable development of the city.

Key Words : land use/land cover, urbanization, supervised image classification, confusion matrix.

Introduction

Land cover represents physical land type such as a water body or a forest whereas land use documents human activities over the land. Land use change is a continuous process of anthropogenic imprints on the natural landscape. According to National Ocean Service, land use/land cover maps can help managers assess urban growth, model water quality issues, predict and assess impacts from floods and storm surges, track wetland losses and potential impacts from sea level rise, prioritize areas for conservation efforts, and compare land cover changes with effects in the environment or to connections in socioeconomic changes such as increasing population.

According to the estimates of UNDESA (2018), the global population living in urban areas will reach 68.4% by 2050. Urbanization brings permanent transformations in landscape, land use/land cover, a shift in demographic patterns, social, economic and most essentially environmental impacts on a place.Lucknow is primarily an urban area and this paper investigates about the changes in land use/land cover over two decades.

One of the previous studies done in the study area by Kumar et.al (2014) the pattern of land use change around the business centre of the city. The study mainly focused on the sprawl of the city rather than the change assessment of the Land use/ land cover pattern. Another study by Singh et. al in 2016 to measure the impact of land use change and urban heat island. The authors have

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Population Growth in Baran District (Rajasthan)

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Abstract

Population is essentially required for economic development but it should not be optimum in relation to the availability of natural resources. The rapid growth has created many problems. Population rather than a resource has become a burden. The population studies have been gained a paramount social economic advancement and political setup. The quality of people is measured by the economic efficiency level of scientific and technological development, managerial abilities and cultural values as well as social and political organization. Population growth is an index of its economic development, social awakening, cultural background, historical events. In this paper the attempt made to analyse the growth and all the components and structure of population in Baran district.

Introduction

Physico-cultural elements of concerned area have great bearing on growth and distribution of population of any area. Therefore, after studying the geographical background, it will be quite pertinent to examine the pattern of population growth in the study area and its distribution. Understanding the phenomenon of population growth in an area has special significance for social scientists including population geographers, especially in the developing countries because rapid population growth in these countries is considered a causal factor of many undesirable social, economic and ecological consequences. Obviously, great pressure is mounting on physical resources such as arable land, forest, water etc. and basic infrastructure. As a result incidence of poverty, inequality and human sufferings are increasing on the one hand and deterioration in quality of life on the other. Besides, it is also imperative to understand the demographic structure of the concerned area. With this background, attempt has been made here to examine the trends of population growth and its distribution in the study area, i.e., Baran district

Methodology

The present study is based on secondary data collected from various sources. The secondary data were collected from district statistical office and census of India data for 2001 and 2011. Maps have been prepared with the help of Mapinfo software.

Any change in population is referred to as population growth, and it also refers to the increase in the number of people in a certain area during a given time. The rate of rise in a population's size during a specified time period, represented as a percentage of its beginning population, is known as the "population growth rate." Population growth rate specifically refers to the change in population over a unit of time, which is frequently stated as a percentage of the population's size at the start of the period (MerriamWebster‟s collegiate Dictionary,2004). Population increase is a subject that is getting more and more crucial to examine. This is mostly due to how much it has taxed administrators, planners, economists, and other professionals to investigate the global population boom. A total of 70 geographers, demographers, sociologists, anthropologists, and legislators, as well as social, educational, economic, and political institutions, have expressed worry over it. (Hans Raj,1978)

Table 1: Decadal Population Growth of Baran district 1991-2001 and 2001 - 2011.

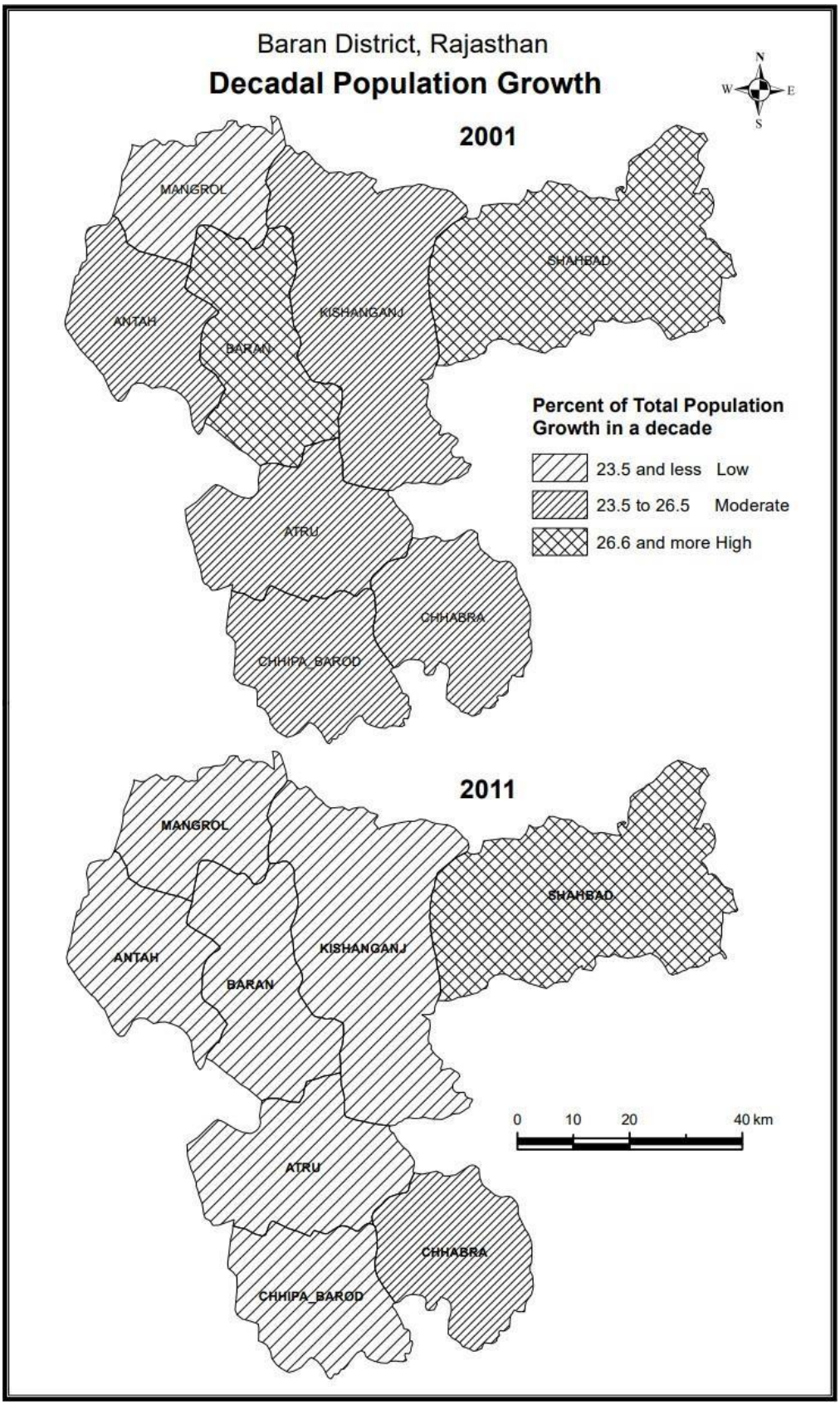
	Baran (2001)		**B*aran (2011)***	
	population	**percentage**	**population**	**percentage**
Total	211,327	26.1	2,01,282	19.71
Males	107,825	25.2	98,902	18.48
Females	103,502	27.0	1,02,380	21.05

Source- DCHB-2001,2011 Baran.

Table 2: Tehsil wise decadal population growth change 2001 and 2011

Tehsil	**2001**	**2011**
Mangrol	22.1	14.34
Anta	26.2	15.60
Baran	31.2	17.58
Atru	23.7	12.80
Kishanganj	24.8	23.40
Shahbad	30.3	31.36
Chhabra	24.8	24.67
chhipabarod	24.0	18.77

Source- DCHB **- 2001 and 2011**


Baran District, Rajasthan
Decadal Population Growth
N
W
E
S
2001
MANGROL
SHAHBAD
ANTAH
KISHANGANJ
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
Percent of Total Population Growth in a decade
23.5 and less Low
23.5 to 26.5 Moderate
26.6 and more High
2011
MANGROL
SHAHBAD
ANTAH
KISHANGANJ
BARAN
ATRU
CHHABRA
CHHIPA_BAROD
0 10 20 40 km

Between 2001 and 2011, there was a -6.93 percent decrease in population. Except for Shahbad, all the tehsils have negative growth. The district recorded a 26.1 percentage point decadal variation between 1991 and 2001, according to decadal growth in 2001. In terms of total areas, it ranges from the lowest of 22.1% in Mangrol tehsil to the highest of 31.2% in Baran tehsil. The district recorded a percentage decadal variation of 19.71 between 2001 and 2011 in terms of decadal growth. At the tehsil level, it ranges from a minimum of 12.80 percent in Atru tehsil to a maximum of 31.36 percent in Shahbad tehsil in total areas.

Conclusion

It has been found that the rate of population has been decreased during 2001-2011. The tahsil wise population growth from 2001 to 2011 was maximum Shahbad tahsil. In 2001 only one tahsil registered low population growth while in 2011 as many as six tahsils registered low population growth. It shows the decelerating pace of population growth rate in the study area.

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We appreciate your association in this persistent journey of academic learning.

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