Final Dissertation

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PART-2

Analysis of the data collected through Mobile HealthCare Units Using Management Information System for the assessment of health status of Population in India.

INTRODUCTION

MHU have helped mobilise healthcare to conduct screenings, basic diagnosis and in some instances provide complex medical treatments closer to people's homes. MHU extend its reach to the people Regardless of the difficult terrain, low connectivity, or institutional barriers, medical care can be made available to people across socio-economic groups, with much less expenditure as much as of a advance care hospital. The health of medical colleges & trainee healthcare institutions, MHU can also provide a window of opportunity to perform primary procedures of practice and help the needy, simultaneously. These exposre can also help them study the ground reality & the issues which slow down the growth of health system in India and this exposure will give them an opportunity to make a difference by providing solutions to the existing problems.

BACKGROUND:

The most challenging and serious concern facing our country today is rapidly emerging urbanization. The urban population has grown from 18 percent in 1955 to 33 percent in 2015.. Cities and towns are the base of investments, technological and economic growth, and for the creation of jobs. With the expansion and spread of urbanization the population growth in the urban areas has been growing rapidly, people from rural areas have migrated to urban areas in search of better jobs and better life style. There are some subsequent results of urbanization such as the increasing population, slums and un-notified settlements, pollution and its related health problems, unemployment etc.

5 Major Health Issues

Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis

Osteoarthritis is a common form of arthritis, it affect millions of people across the world. The major reason for this is that the protective cartilage cushions ends of your bones wears down over time.

It has been seen osteoarthritis can damage any joint, but disorder most affects joints in your knees, hands, spine and hips.

Its symptoms can usually be managed, although the damage to joints can't be reversed.

Its progression can be slowed down by Maintaining a healthy weight, Staying active and some treatments.

Where as in rheumatoid arthritis, the body's tissue is attacked by its own immune system, including joints, Some time. it attacks internal organs also.

Rheumatoid arthritis affects joint linings which causing painful swelling. Over long periods of time, the inflammation associated can even cause joint deformity & bone erosion.

There's no cure for rheumatoid arthritis, but medication & physiotherapy can help slow the disease's progression.

Diabetes mellitus

Diabetes mellitus, it is a group of metabolic disorders characterized by high blood sugar levels over a long period of time. Symptoms of high blood sugar include increased thirst & hunger & frequent urination,. Diabetes can cause many complications, if left untreated. Acute complications can include death also. Some long-term complications include CVD, chronic kidney disease, stroke, ulcers on foot, and damage to the eyes even.

Diabetes is either due to, the cells of the body not responding properly to the insulin produced or the pancreas not even producing enough insulin.

Hypertension

Hypertension, also known as high BP. High blood pressure typically does not cause symptoms. Long-term high blood pressure is a major risk factor for coronary artery disease, stroke, heart failure, peripheral vascular disease, atrial fibrillation, loss of vision, chronic kidney disease, and dementia.

Blood pressure is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively. For most adults, normal blood pressure at rest is within the range of 100–130 mmHg and 60–80 mmHg diastolic. For most adults, high blood pressure is present if the resting blood pressure is persistently at or above 130/80 or 140/90 mmHg, different numbers apply to Children. Ambulatory blood pressure monitoring over a 24-hour period appears more accurate than office-based blood pressure measurement.

Respiratory Disorder

It is a medical term that encompasses pathological conditions affecting the tissues & organs that make gas exchange possible in higher organisms, and includes conditions of the upper respiratory tract, trachea, bronchi, bronchioles, alveoli, pleura and pleural cavity, and the nerves and muscles of breathing.

The respiratory system can be subdivided into a lower & upper respiratory tract and based on anatomical features.The upper respiratory tract includes pharynx, nasal passages, and larynx, while the lower respiratory tract is comprised of the trachea, the primary bronchi and lungs.

The primary function of the respiratory system is to supply the blood with oxygen to all parts of the body. It is done by breathing. While breathing we exhale carbon dioxide & inhale oxygen.

GI Disorder

Gastrointestinal disorders is the term used to refer to any condition or disease that occurs within the gastrointestinal tract.

The gastrointestinal tract also known as hollow passage form by series of organs from mouth to anus is called GI tract. This include mouth, oesophagus, stomach, small intestine, large intestine, and anus.

An extensive network of blood vessels supply blood to these organs and also transport nutrients away to other organs in the body. Nerves and hormones work together to regulate the functioning of the digestive system and bacteria that reside within our tract play a role in digestion, immunity, and our overall health. A membranous sac called the peritoneum holds all the digestive system organs in place.

A number of different conditions or diseases can affect the GI tract and have an impact on digestion or our overall health status. Some conditions have similar symptoms,andfurther medical investigations may be required before a doctor arrives at aconclusion.

Rationale

- Analyzing the health status of the population across various MHU served locations would help in identifying the disease pattern variations which would guide in:
- Efficient resource utilization
- Minimizing wastage
- Avoid duplication of efforts
- Preventing shortage of resources/stock-outs
- Better awareness and treatment planning

Site Selection

15 Sites were selected from the longitudinal & latitudinal axis of India where the HelpAge india Van visit as per the schedule.

Zone wise strata was formed & the Sites where picked from different strata.

An alternative Site was kept in view because of many limitation's which include Donor Funding, & irregular monthly reporting.

Zone	Site
East	Muzaffarpur
East	Silchar
East	Jorhat
East	Borholla
North	Leh
North	Gurdaspur
North	Rohtak
North	Agra
South	Shamshabad
South	Bangalore
South	Vizhinjam
West	Kawai
West	Dewas
West	Radhanpur
West	Udaipur

AIM & Objective

To analyse the disease pattern among fifteen MHU (HelpAge India) served districts of India for the year 2018-19

Objective(s):

1. To assess the status of the population on five major health issues at fifteen MHU (HelpAge India) served districts of India for the year 2018-19

2. To develop an efficient disease classification system used for data analysis at HelpAge India

3. To understand the impact of MHU at regular sites

Type of Study: Descriptive, Cross-sectional study

Study Population: All MHU beneficiaries in fifteen districts of India

Sampling

Sample Size-3555496

Sampling Method- Purposive Sampling

Duration of Study: February 2019– April 2019

Type of Data: Secondary (Quantitative, Qualitative)

Source of Data: MIS database of HelpAge India

Means of Data Collection:

MIS database of all MHU's serving in the fifteen districts of India. All treatments/beneficiaries reported at the MHU site, were included. The data definite to this study was gleaned from the disease pattern of the areas covered under the MHUs.

Data Analysis Tool: MS Excel

Data Analysis Techniques: Descriptive Statistics

Bar graphs, pie chart, frequency tables were used to represent the results of this study, as and when required.

FINDINGS: State Wise

Bangalore:

Bangalore has population of 8,443,675 and 10,456,000 in the urban collection of the city, 8.5 million at 2011 census. Bangalore suffers from the major urbanisation problems seen in many fast-growing cities in developing countries, rapidly escalating social inequality, [8] mass displacement and dispossession, proliferation of slum settlements, and epidemic public health crisis due to severe water shortage and sewage problems in poor and working-class neighbourhoods.

In this location (from fig.), 26% people were diagnosed with Respiratory Diseases out of 83188 total beneficiaries, which was the highest among all other diseases, then 22% cases of Gastro-intestinal diseases were reported in which some were chronic or continous cases. 16% people were suffering from osteo-arthritis/joint pain/rheumatoid arthritis . Whereas, there were 18% cases of diabetes mellitus and hypertension were reported.

Bangalore

- Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis — 16%
- Diabetes Mellitus — 18%
- Hypertension — 18%
- Respiratory — 26%
- GI Disorder — 22%
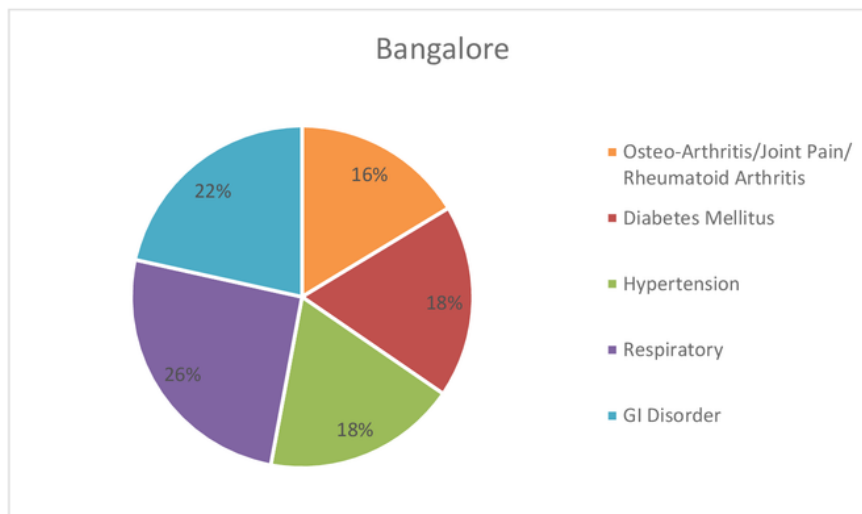
Gurdaspur:

Gurdaspur is a city in the state of Punjab, India. The city is home to 2,299,026 people, among them 1,212,995 are male and 1,086,031 are female. Its population has incread at 9.3% as compared to that of 2001

Total 51295 patients were reported at this site out of which, Gastro-intestinal diseases have the maximum share of 34% whereas, Diabetes mellitus shares the least portion i.e. 7% among other diseases. There were 32% patients suffering from Osteo-Arthritis/joint pain/Rheumatoid Arthritis. About 16% patients of Respiratory diseases, and 10% patients of hypertension were reported at Behchuhar MHU.

Gurdaspur pie chart — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 32%, Diabetes Mellitus 7%, Hypertension 10%, Respiratory 16%, GI Disorder 34%
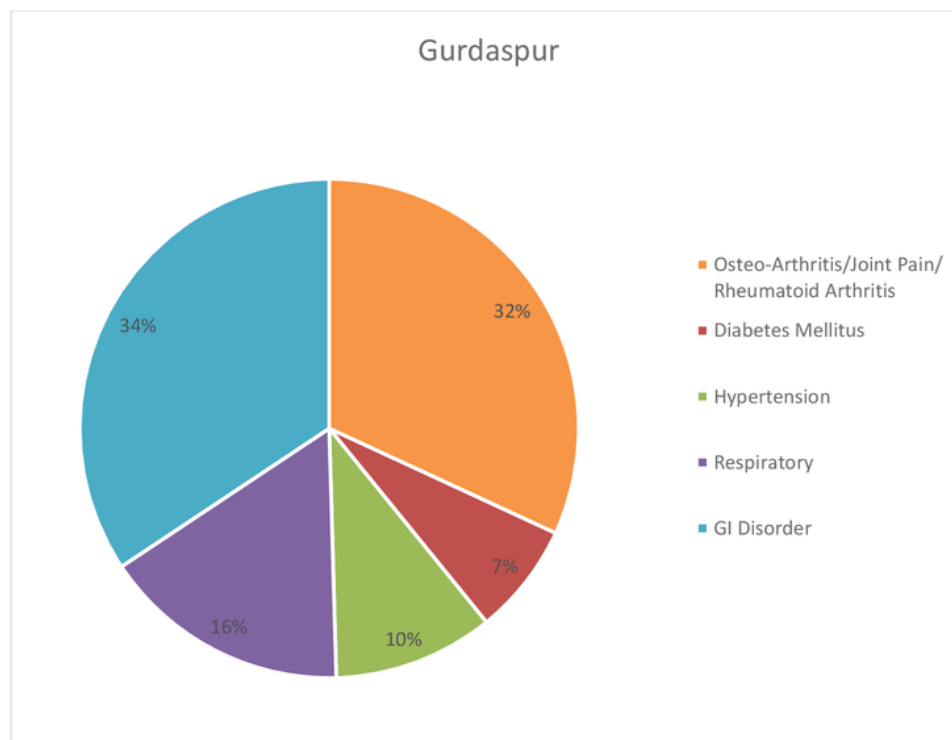
Dewas:

Dewas is a City on the Malwa plateau in Madhya Pradesh. As per India census of 2011, Dewas had a population of 289,438. Males constitute 52% of the population. Nearly 71% of the population lives in rural part and 29% lives in urban part of the Dewas district.

In 11438 total beneficiaries, 42% people were suffering from Osteo-Arthritis/joint pain/Rheumatoid arthritis, which was highest among all. 29% cases reported were of gastro-intestinal disorders. Around 14% people were suffering from Respiratory disorders, 12% cases of hypertension and 3% cases of diabetes mellitus were reported.

Dewas pie chart: Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 42%, Diabetes Mellitus 3%, Hypertension 12%, Respiratory 14%, GI Disorder 29%
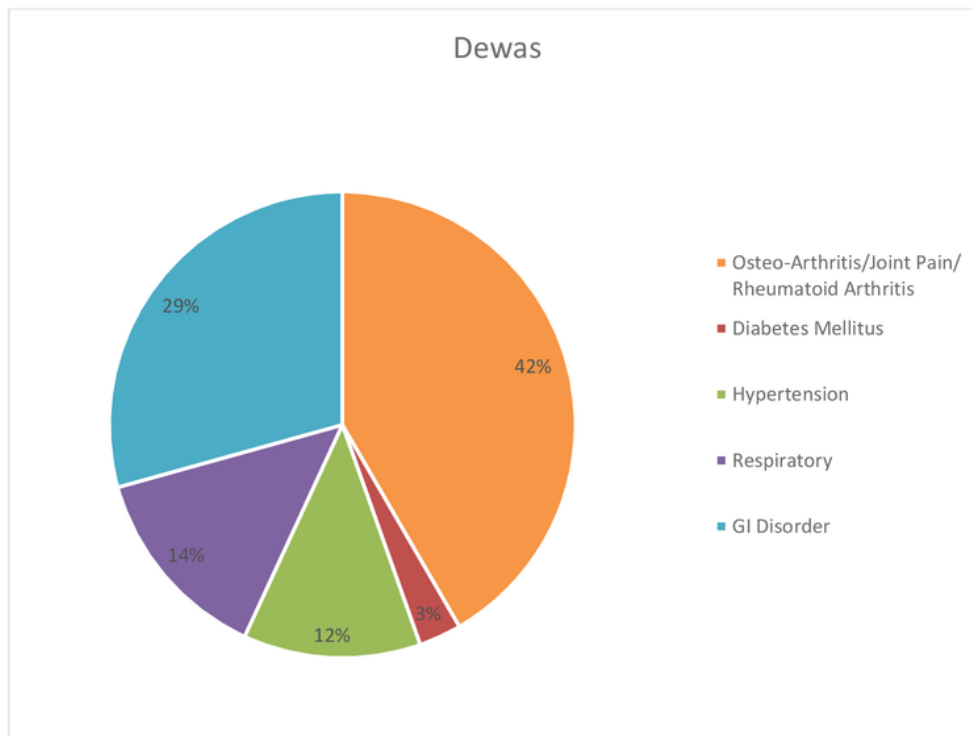
Kawai

Kawai is a city in Rajasthan.

There were 27319 total patients were reported at Kawai MHU. In which 42% cases of respiratory disorder were reported. Next to it, there were cases of Osteo-Arthritis/Joint pain/Rheumatoid Arthritis which has a share of 32%. Around 5% patients were suffering from diabetes mellitus and 10% cases of gastro-intestinal disorder and hypertension were recorded.
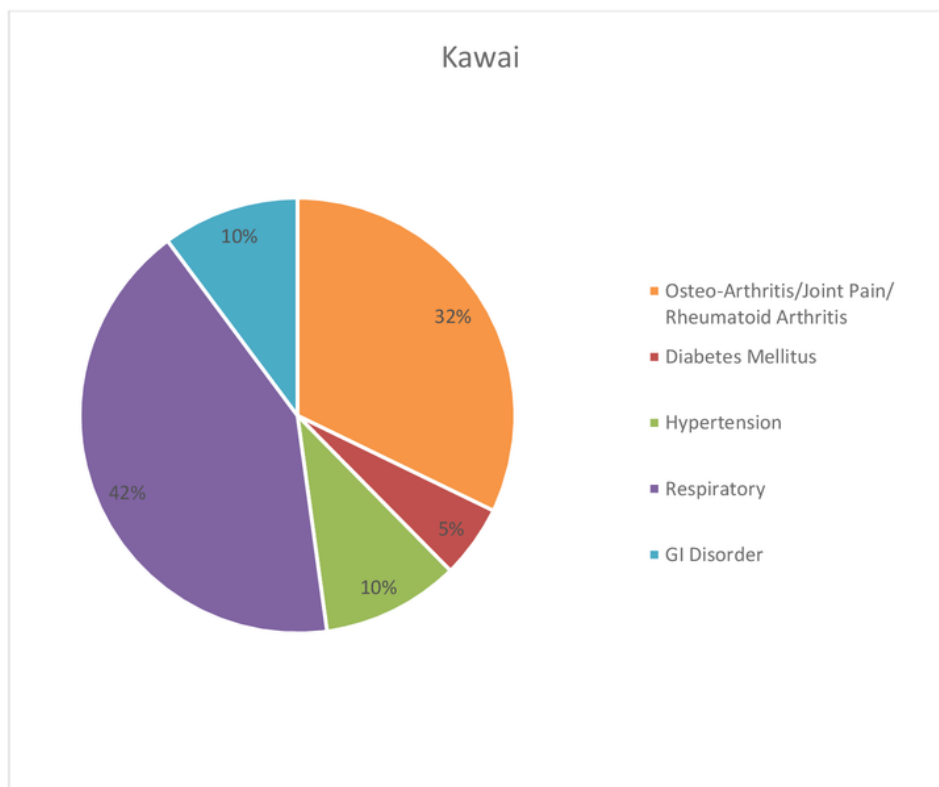
Shamshabad

Shamshabad is a village in Telangana state of India.

Due to the raising pollution or degrading air quality, 52% cases of respiratory disorders were registered at Shamshabad village out of 45455 total patients. Then there were 16% patients suffering from gastro-intestinal diseases. Around 19% patients were recorded of having diabetes and Osteo-Arthritis/joint pain/rheumatoid arthritis.

Shamshabad

- 19%
- 16%
- 19%
- 24%
- 21%

■ Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis
■ Diabetes Mellitus
■ Hypertension
■ Respiratory
■ GI Disorder
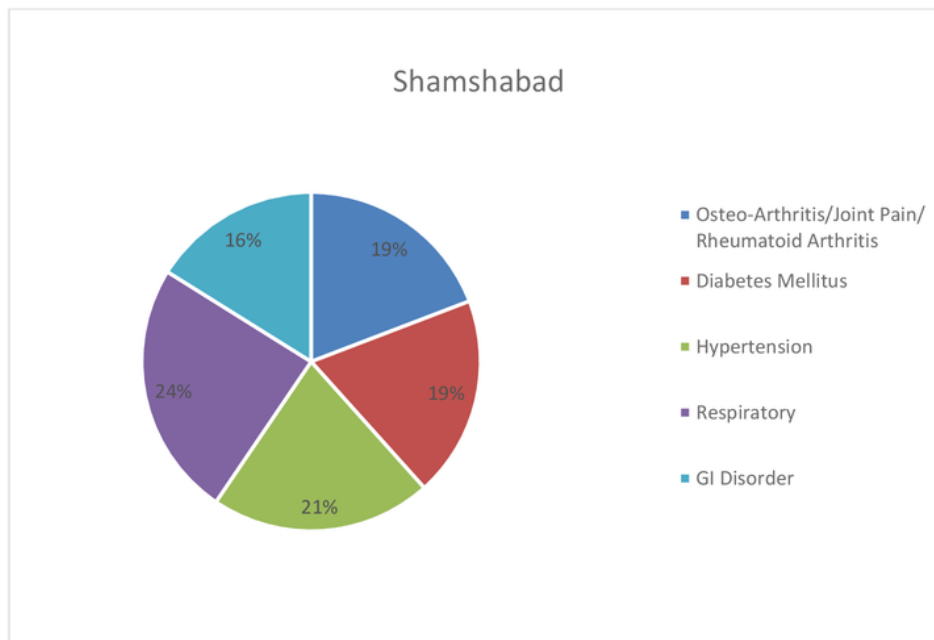
Leh

Leh is one of the two districts located in Ladakh, According to census, Leh district has a population of 27,513 almost as that of Saint Lucia. Leh has a sex ratio of 583/1000Males , literacy rate of around 80%. People of Leh lead a very hard life their life governed by traditional values and deep rooted cultural prohibitions. Thus the topography, poverty, and extreme climatic condition may be imposed on health of people in one way or other.

There were total 9704 patients were reported at Leh MHU out of which 45% people were suffering from Hypertension and 22% people were suffering from Osteo-Arthritis/joint pain/Rheumatoid Arthritis. Whereas, 16%, 11%, and 7% cases of gastro-intestinal disorders, Respiratory disorders, and Diabetes Mellitus respectively were reported.
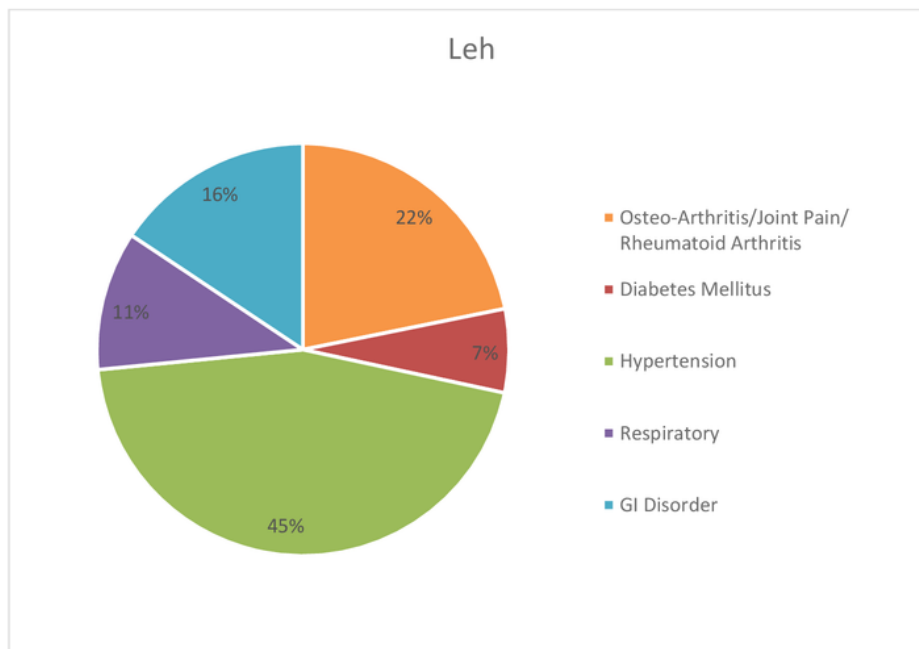
Rohtak

Heart of Haryana Rohtak district is on the top of the 22 districts of the state. According to the census Rohtak had a population of of approx 1,000,000.

Here, out of 18831 total patients, 40% were suffering from Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis. Due to the alarming increase in pollution and degradation of the air quality in Haryana, 31% cases of Respiratory disorders were reported. Then 10% and 7% of Gastro-Intestinal diseases and Diabetes Mellitus were recorded. There were patients reported with hypertension which is 11% out of all other health issues.

Rohtak

- Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis
- Diabetes Mellitus
- Hypertension
- Respiratory
- GI Disorder

40%
7%
11%
31%
10%
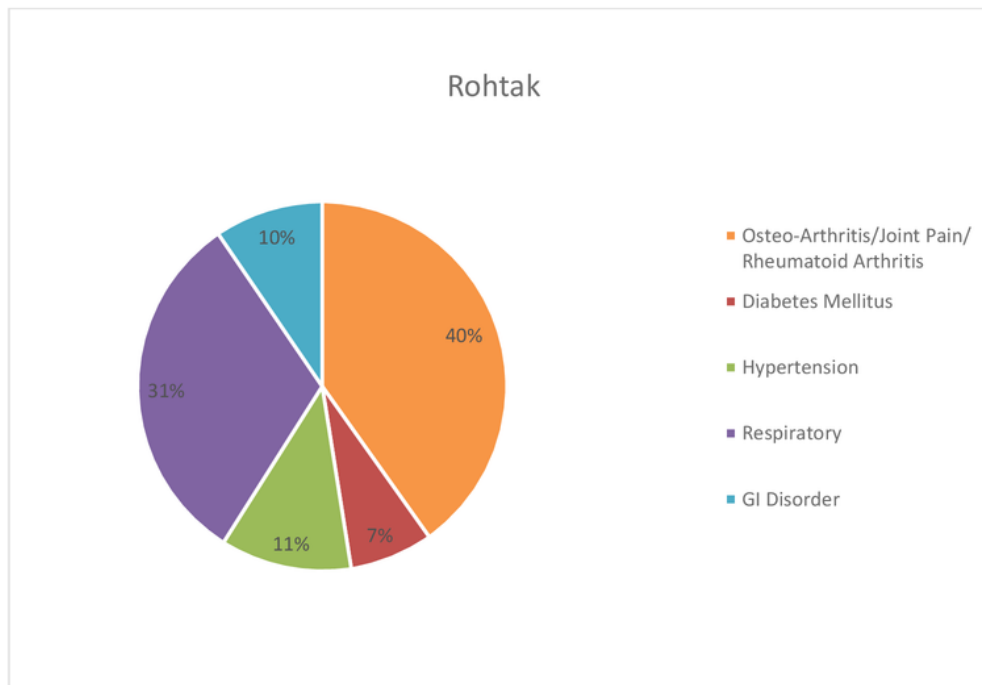
Vizhinjam

Vizhinjam is an area situated in the state of Kerala.

In this area of Thiruvananthapuram, in 29628 total treatment were provided, Hypertension have the maximum share among all others i.e., 25%. 22% cases of Diabetes Mellitus were identified. There were 21% people were suffering from Respiratory disorders. 20% and 13% cases of Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis and Gastro-intestinal diseases respectively were recorded.
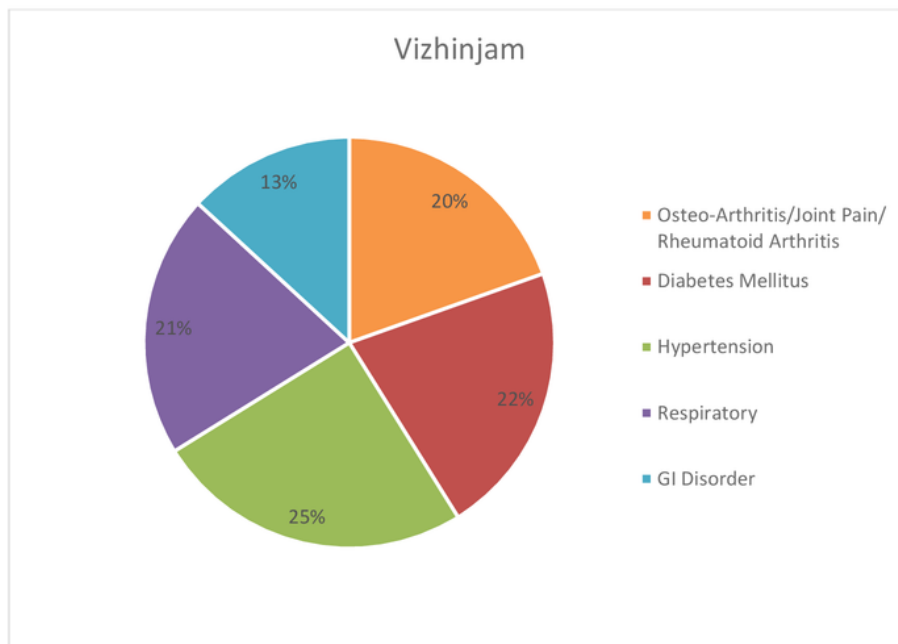
Borholla

Borholla is a Village in Titabor Tehsil in Jorhat District of Assam. It is located 39 KM towards South from District headquarters Jorhat.

There were 31% cases of gastro-intestinal disorders recorded out of 15759 total patients. 29% people were suffering from hypertension. Then there were 17% cases of respiratory disorders were reported and 14% people were suffering from Osteo-arthritis/joint pain/rheumatoid arthritis. Diabetic patients were only 2%.

Borholla

14%	
31%	
8%	
29%	
17%	

- Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis
- Diabetes Mellitus
- Hypertension
- Respiratory
- GI Disorder
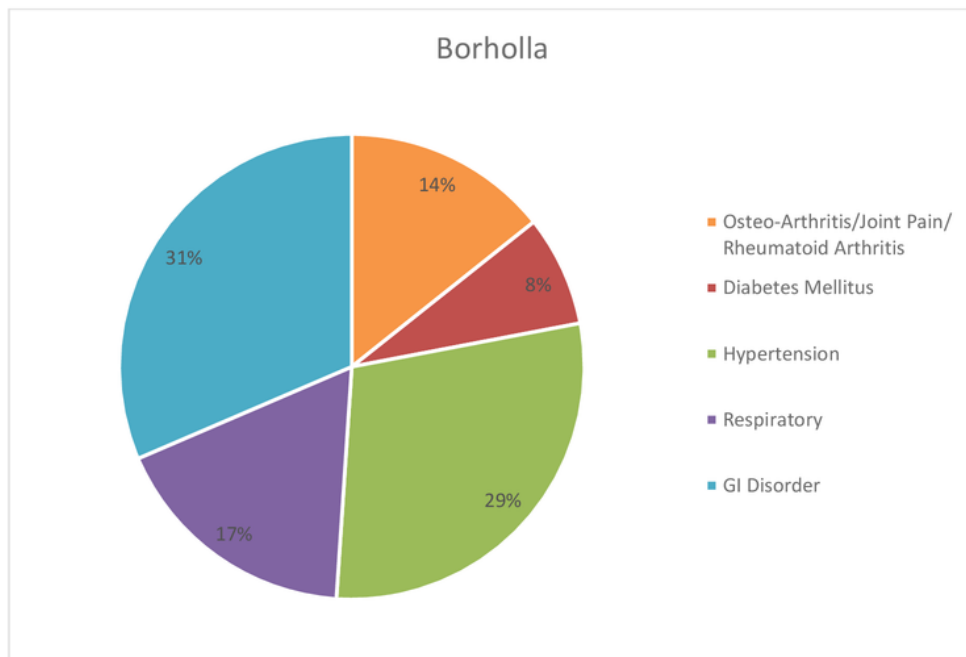
Agra

Famous for its Taj mahal city has a population of 1,585,704. With male Males nearly 53%. Agra has shown tremendously growth in health sector. Agra has Community health centre which provides health services to rural and poor communities around and within the city. Agra has a sizeable urban poor population, its burgeoning slums. The population living in slums is nearly 8Lakh which is more that that of many cities of India

There were total 33779 patients reported at Agra site, out of which 29% are the patients of respiratory disorders. 26% cases of gastro-intestinal disorders and 4% cases of diabetes mellitus were also recorded. 9% people suffering from hypertension and 32% cases are of Osteo-arthritis/joint pain/rheumatoid arthritis which are the maximum share.
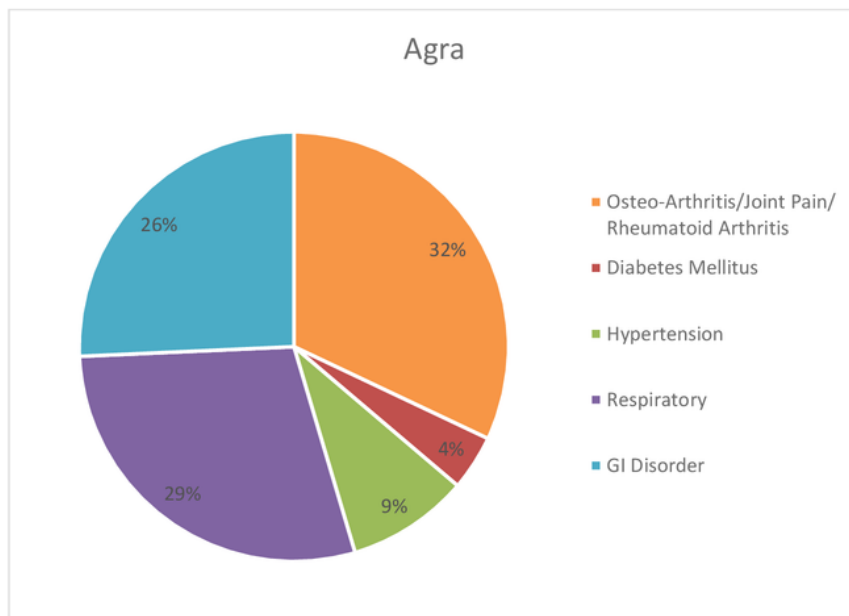
Jorhat

Situated in the central part of the Brahmaputra Valley, Jorhat is a district of Assam. According to the census Jorhat district has a population of approximately 1,000,000.

In Jorhat district total 13479 patients were reported, out of which 45% people were suffering from hypertension and 19% people were suffering from Osteo-arthritis/joint pain/rheumatoid arthritis. Gastro-intestinal disorder shares almost 17% among all of them and 9% patients were suffering from respiratory disorders.

Jorhat

- 19% Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis
- 10% Diabetes Mellitus
- 45% Hypertension
- 9% Respiratory
- 17% GI Disorder
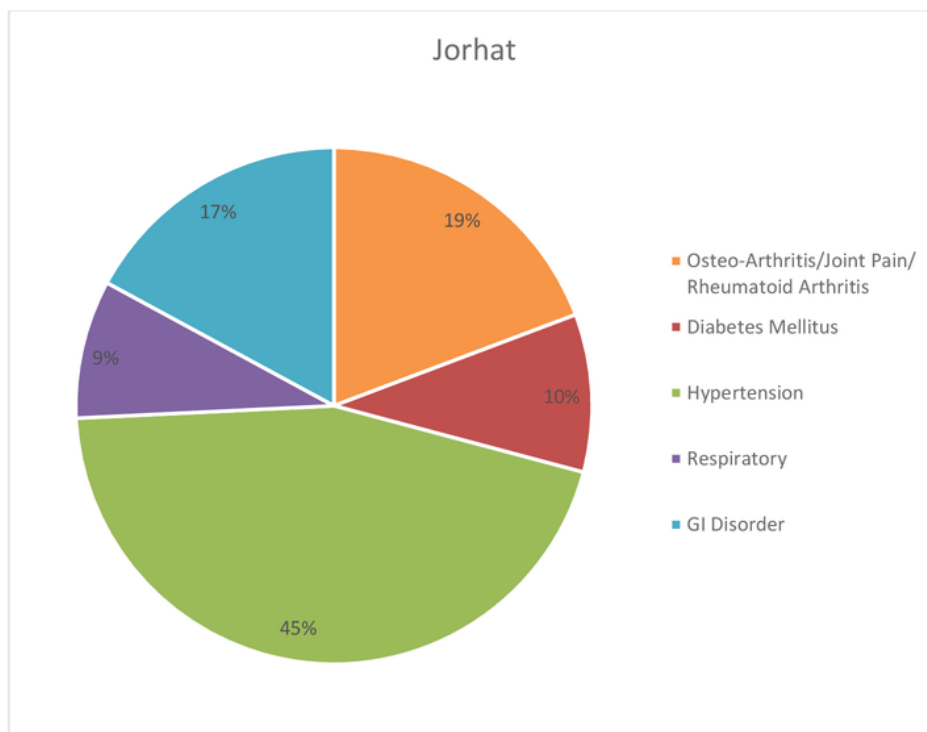
Muzaffarpur

Muzaffarpur District is one of the 38 districts of Bihar, India. According to the India census, Muzaffarpur had a population of 393,724.

According to the fig., 42% people were suffering from GI disorders out of 19778 total patients. There were 21% cases reported were of Osteo-arthritis/joint pain/rheumatoid arthritis and 18% people were found with hypertension at Muzaffarpur site. Then there were 4% people suffering from diabetes mellitus and 15% were having respiratory disorders.
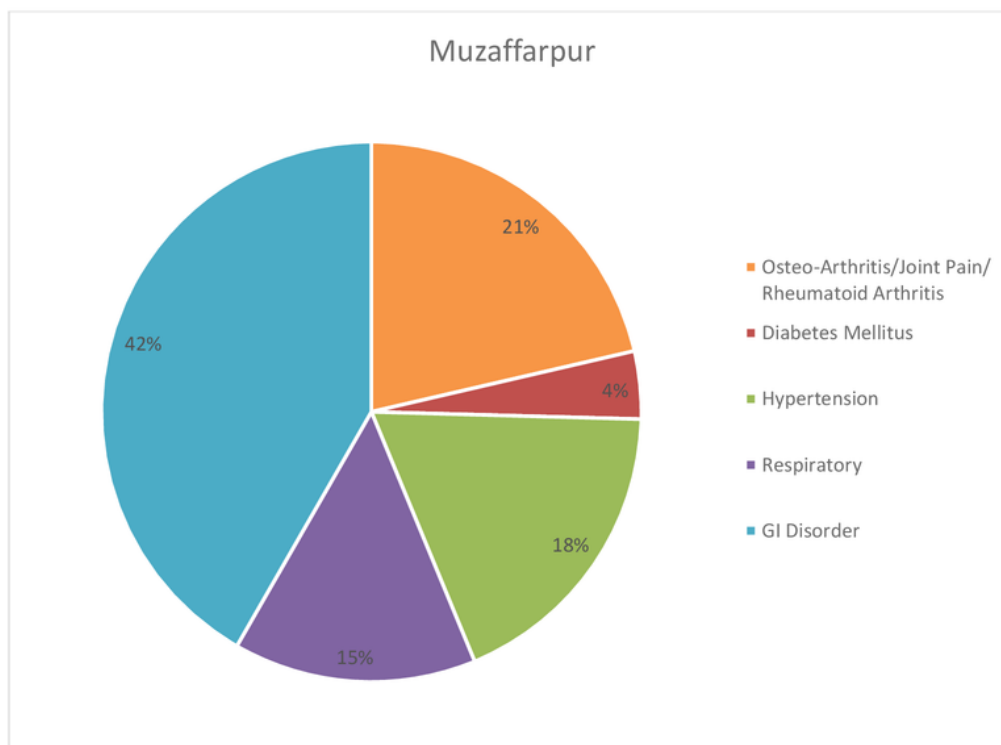
Radhanpur

Radhanpur located in the Patan district of Gujarat. As of 2011 India census, the population is estimated to be 50000.

According to the data recived in fig., 43% cases of gastro-intestinal diseases were reported at Radhanpur MHU out of 13718 total beneficiaries. Then there were 27% people were suffering from respiratory disorders and 4% people were suffering from hypertension. 2% of diabetes mellitus patients and 24% of Osteo-arthritis/joint pain/rheumatoid arthritis were also reported.
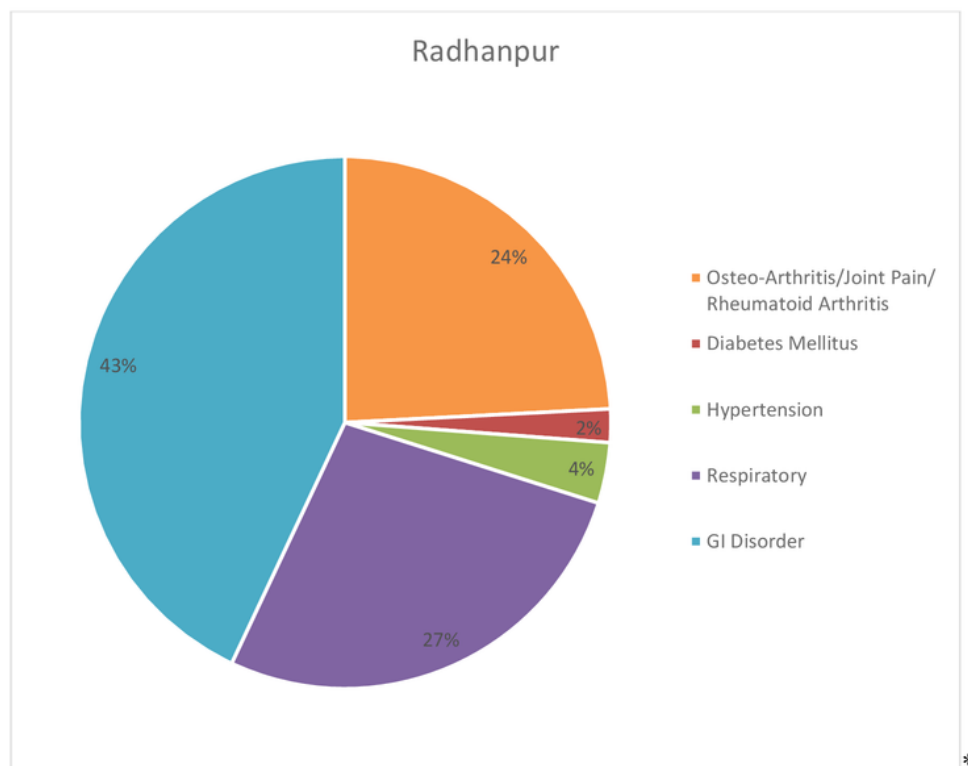
Silchar

Silchar is located in southern part of Assam according to the census of 2011 in India, Silchar had a population of 2,28,324. In rural areas or slums of Silchar, sanitary conditions in slums of the Silchar in Assam are intolerable, the people are very ignorant about Hygine, lack of water supply & active toilets, there is open drain system & Sewage system which cause many health issues among the people of the area.

In Silchar, there were total 6956 patients were reported and it has been seen that the GI diseases shares the maximum portion i.e. 43% among all, while Osteo-arthritis/joint pain/rheumatoid arthritis shares the minimum i.e., 5%. 14% cases of respiratory diseases were also reported where as 8% people were suffering from diabetes mellitus and 30% were of hypertension patients.

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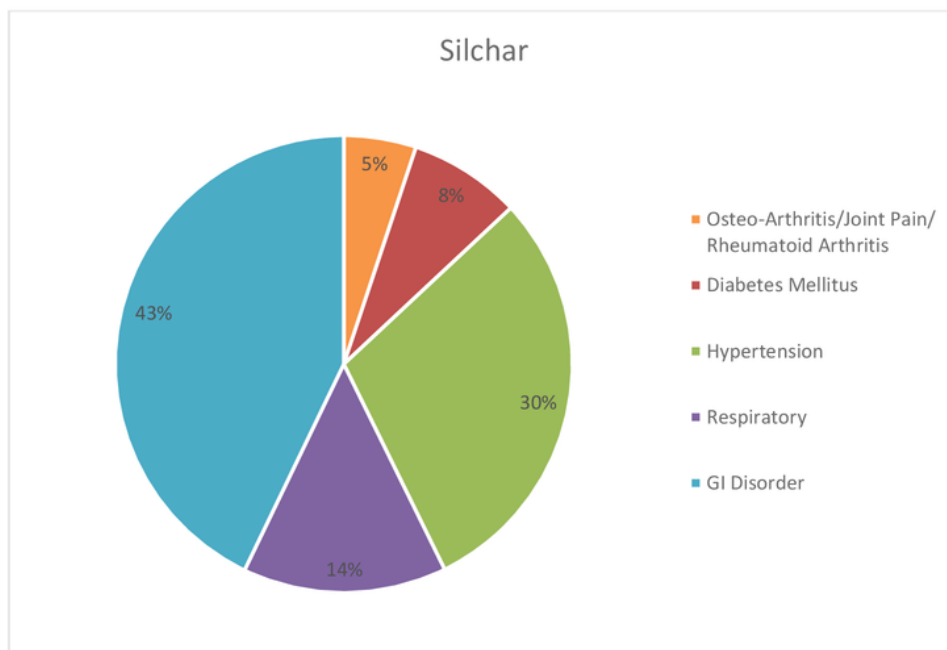
Udaipur

The district is part of the Mewar region of Rajasthan. According to census [1] Udaipur district has a population of 3,068,420, which provides [1] it a ranking of 118th in India (out of a total of 640).The district has a population density of 242 inhabitants per square kilometre (630/sq. mi). The population growth rate over the decade 2001-2011 was above 23%.

Udaipur reported about 32% cases of respiratory disorders out of 14562 total beneficiaries which is highest among all other diseases. 23% people were suffering from diabetes mellitus. There were 13% and 11% cases of gastro-intestinal disorders and Osteo-arthritis/joint pain/rheumatoid arthritis respectively was recorded. 21% patients were of hypertension.

North to South

Leh — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 22%, Diabetes Mellitus 7%, Hypertension 45%, Respiratory Disorder 11%, GI Disorder 16%

Gurdaspur — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 32%, Diabetes Mellitus 7%, Hypertension 10%, Respiratory Disorder 16%, GI Disorder 34%, 40%

Rohtak — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 32%, Diabetes Mellitus 7%, Hypertension 11%, Respiratory Disorder 31%, GI Disorder 10%

Kawai — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 42%, Diabetes Mellitus 5%, Hypertension 10%, Respiratory Disorder 42%, GI Disorder 10%

Dewas — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 42%, Diabetes Mellitus 3%, Hypertension 12%, Respiratory Disorder 14%, GI Disorder 29%

Shamshabad — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 19%, Diabetes Mellitus 19%, Hypertension 21%, Respiratory Disorder 24%, GI Disorder 16%

Bangalore — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 16%, Diabetes Mellitus 18%, Hypertension 18%, Respiratory Disorder 26%, GI Disorder 22%

Vizhinjam — Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis 20%, Diabetes Mellitus 22%, Hypertension 25%, Respiratory Disorder 21%, GI Disorder 13%

Legend: Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis, Diabetes Mellitus, Hypertension, Respiratory Disorder, GI Disorder

East to West

Chart legend:
- Osteo-Arthritis/Joint Pain/Rheumatoid Arthritis
- Diabetes Mellitus
- Hypertension
- Respiratory Disorder
- GI Disorder

Borholla: GI Disorder 31%, Respiratory Disorder 17%, Hypertension 29%, Diabetes Mellitus 8%, Osteo-Arthritis 14%

Jorhat: GI Disorder 17%, Respiratory Disorder 9%, Hypertension 45%, Diabetes Mellitus 10%, Osteo-Arthritis 19%

Silchar: GI Disorder 43%, Respiratory Disorder 14%, Hypertension 30%, Diabetes Mellitus 8%, Osteo-Arthritis 5%

Muzaffarpur: GI Disorder 42%, Respiratory Disorder 15%, Hypertension 18%, Diabetes Mellitus 4%, Osteo-Arthritis 21%

Agra: GI Disorder 26%, Respiratory Disorder 29%, Hypertension 9%, Diabetes Mellitus 4%, Osteo-Arthritis 32%

Kawai: GI Disorder 10%, Respiratory Disorder 42%, Hypertension 10%, Diabetes Mellitus 5%, Osteo-Arthritis 32%

Udaipur: GI Disorder 13%, Respiratory Disorder 32%, Hypertension 21%, Diabetes Mellitus 23%, Osteo-Arthritis 11%

Radhanpur: GI Disorder 43%, Respiratory Disorder 27%, Hypertension 4%, Diabetes Mellitus 2%, Osteo-Arthritis 24%
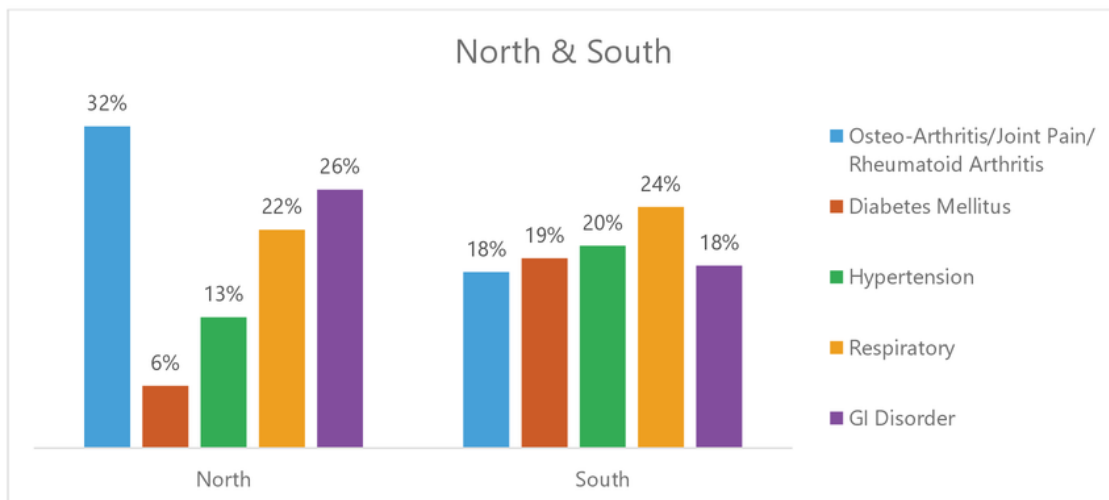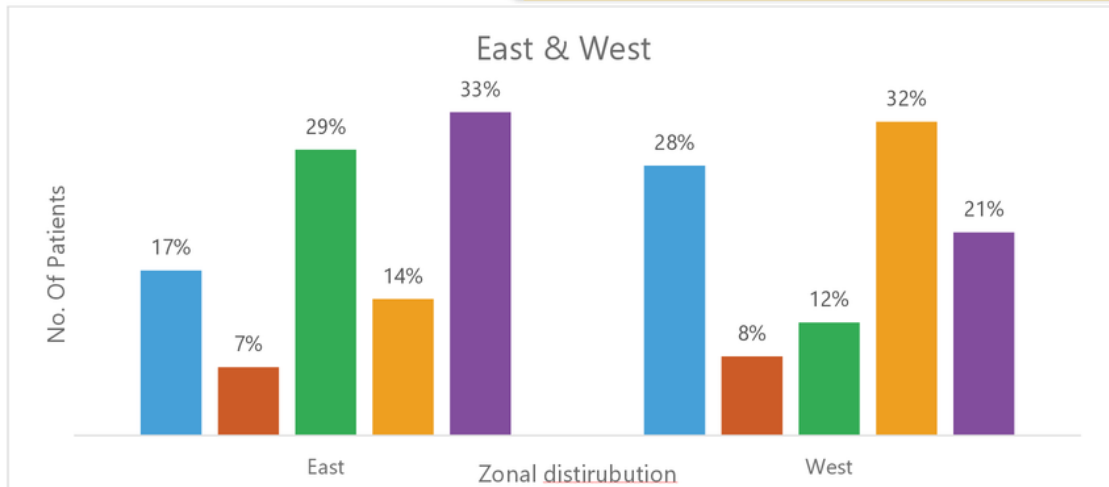
For easy comparison a bar graph is presented to understand the change in the pattern,

The bar chart is created as per the position of MHU on the longitudinal & latitudinal Axis of India,
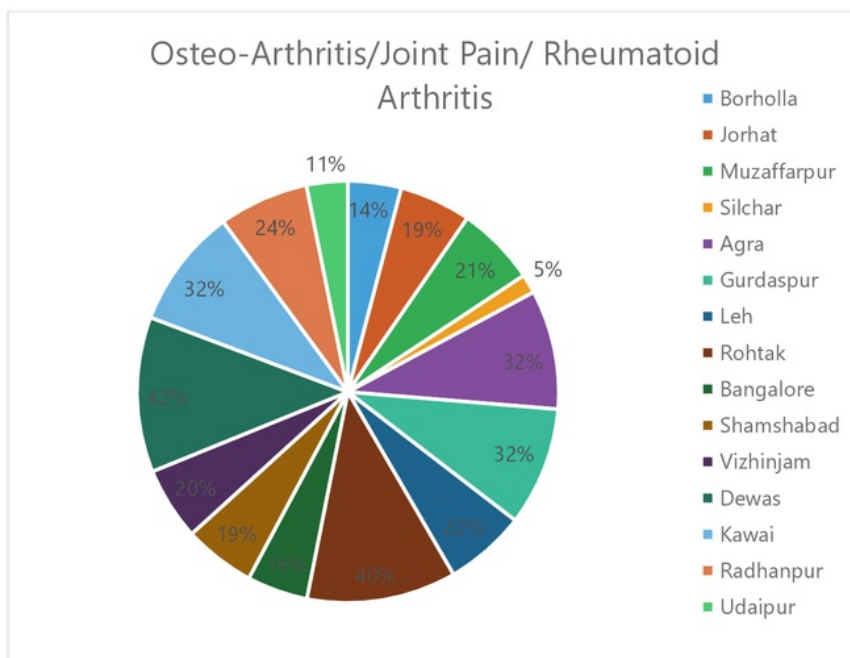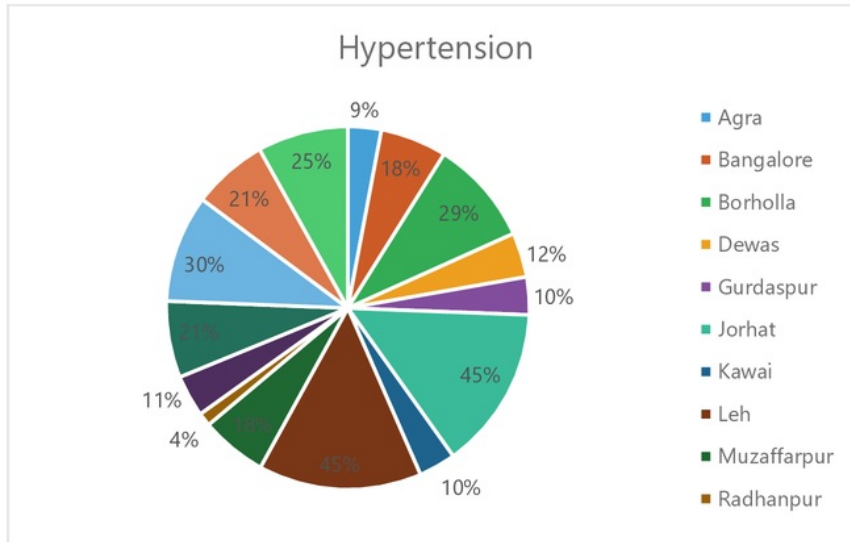
Further the strata wise bar graph is used to compare the health issues,
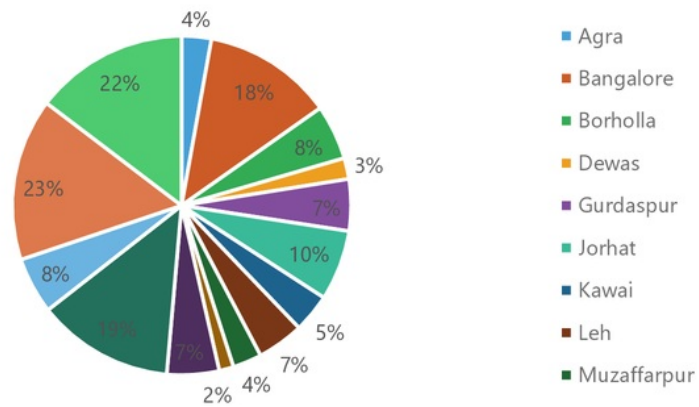
& results are as below:-

A drastic change can be seen while referring or comparing the graphs, east-west & north-south. From the below given graph, it is evident, that the most prominent diseases in the north and south zones are, diabetes mellitus & Osteo-arthritis/joint pain/rheumatoid arthritis and can be seen in all parts of India. In which diabetes is prominent in south. In east – west zone, maximum cases were of gastro-intestinal diseases, from 42% in Radhanpur to 31% in Borholla. For hypertension, Leh in north and Jorhat in west have the maximum cases, which is the highest as compared to that of other 13 locations. Kawai experienced the highest share and Jorhat have the minimum share of respiratory disorders in east region/zone, this indicates that respiratory disorders are high in east and it gets low in west region of India. In north-south region, In north-south region, The problem of Osteo-arthritis/joint pain/rheumatoid arthritis was consistently high from north to south.

East & West

No. Of Patients

East — 17%, 7%, 29%, 14%, 33%

West — 28%, 8%, 12%, 32%, 21%

Zonal distirubution

North & South

North — 32%, 6%, 13%, 22%, 26%

South — 18%, 19%, 20%, 24%, 18%

- Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis
- Diabetes Mellitus
- Hypertension
- Respiratory
- GI Disorder

Disease-Wise

Hypertension

Legend: Agra, Bangalore, Borholla, Dewas, Gurdaspur, Jorhat, Kawai, Leh, Muzaffarpur, Radhanpur

Values shown: 9%, 18%, 29%, 12%, 10%, 45%, 10%, 45%, 4%, 11%, 21%, 30%, 21%, 25%

Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis

Legend: Borholla, Jorhat, Muzaffarpur, Silchar, Agra, Gurdaspur, Leh, Rohtak, Bangalore, Shamshabad, Vizhinjam, Dewas, Kawai, Radhanpur, Udaipur

Values shown: 11%, 14%, 19%, 21%, 5%, 32%, 32%, 40%, 19%, 20%, 42%, 32%, 24%

Diabetes Mellitus

Agra 4%
Bangalore 18%
Borholla 8%
Dewas 3%
Gurdaspur 7%
Jorhat 10%
Kawai 5%
Leh 7%
Muzaffarpur 4%
2%
7%
19%
8%
23%
22%

GI Disorder

Agra 26%
Bangalore 22%
Borholla 31%
Dewas 29%
Gurdaspur 34%
Jorhat 17%
Kawai 10%
Leh 16%
Muzaffarpur 42%
43%
10%
43%
13% 13%

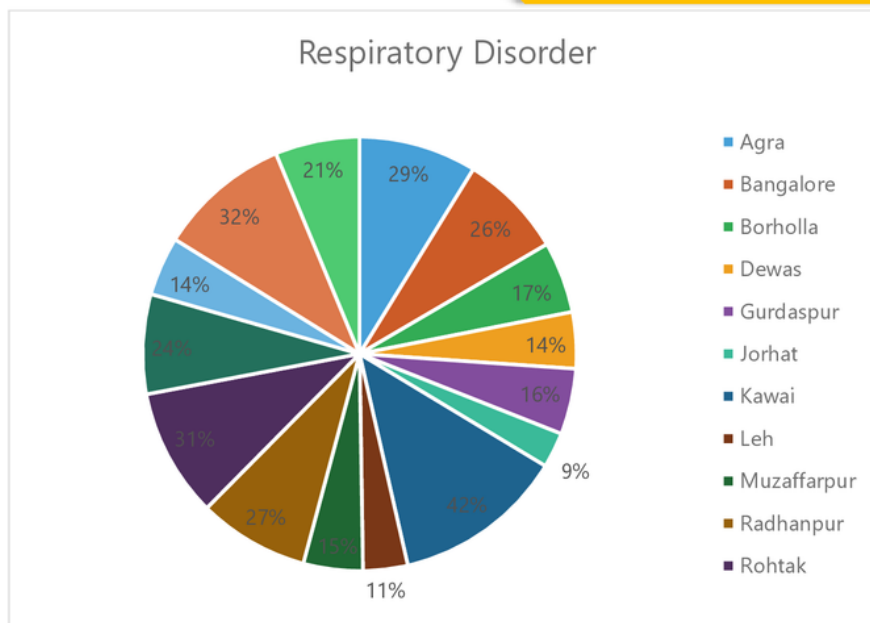Respiratory Disorder

From graph no. 1, Leh and Jorhat have the maximum share of disease, i.e. 45% and minimum amount was hold by Radhanpur i.e. 4%. Agra have the 30% patients of hypertension which is still the higher from all other locations, and slightly less share was held by Borholla which is 29%.

There were 42% patients suffering from Arthritis disease in Dewas and next to it, 40% were the patients of Rohtak. Kawai and Agra have the same share of Osteo-arthritis/joint-pain/rheumatoid arthritis which was 32%. The lowest percentage of this disease has been seen in Silchar which was 5%.

Udaipur shares the maximum share of Diabetes Mellitus among all other locations i.e. 23% and Vizhinjam have the 22% patients of diabetes. The lowest no. was in Dewas of diabetes mellitus which was 3% and 4% in Agra.

Gastro intestinal disorders shares almost equal proportion in all the locations, but is highest in Radhanpur – 42%, Muzaffarpur – 42% and in Silchar – 43%. And the lowest is 10% in Kawai and Rohtak respectively.

Respiratory disorders are the highest in Kawai (Rajasthan) which is 42%, in Rohtak the respiratory disorders are 31% and Udaipur, again in Rajasthan have the 32% of this disease among all other diseases which is still higher than other locations.

Disease Wise comparison for FY 18-19

No. of Patients
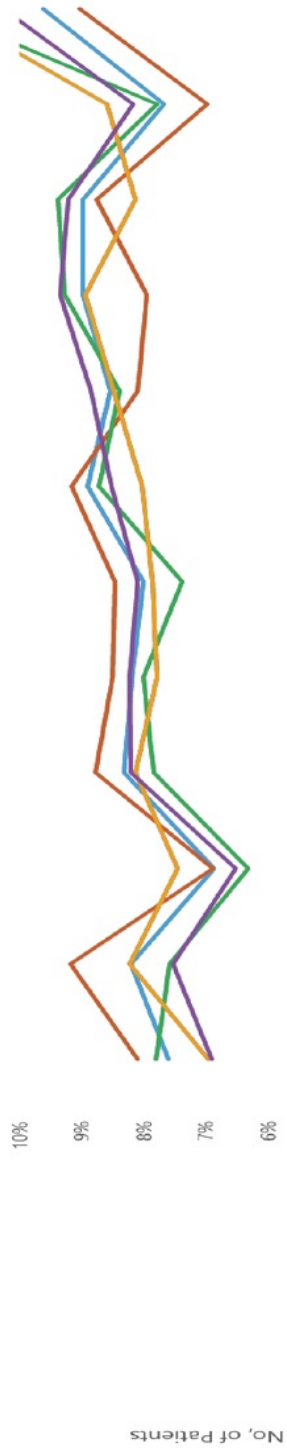
|	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Hypertention	8%	8%	7%	8%	8%	8%	9%	9%	9%	9%	8%	10%
GI Disorder	8%	9%	7%	9%	9%	8%	9%	8%	8%	9%	7%	9%
Respiratory Disorder	8%	8%	6%	8%	8%	7%	9%	8%	9%	9%	8%	11%
Diabetes Mellitus	7%	8%	7%	8%	8%	8%	8%	8%	9%	8%	9%	11%
Osteo-Arthritis/Joint Pain/ Rheumatoid Arthritis	7%	8%	7%	8%	8%	8%	9%	9%	9%	9%	8%	10%

Months

DISEASE WISE COMPARISON IN FY 18-19:

In year 201819, the share of patients of hypertension was almost same till September, but it started to increase from October onwards and gets hugest in March 2019 i.e., 10%. Not just one, all other diseases have shown the same pattern. Patients for Gastro-intestinal disease registered were 9%, 10% were of Osteo-arthritis/joint pain/rheumatoid arthritis and hypertension during the period, 11% patients were identified of having respiratory disorders and diabetes mellitus, which is the highest among all other diseases during that period of time.

Gastro-intestinal disorder is maximum in March where as it was minimum in February. Respiratory disorders were also maximum in March and it was minimum in June during the year. The highest disease output can be seen in March, and the reason for high disease output in March can be because of the high no. of patients OPD, addition of the rain shadow health camps.
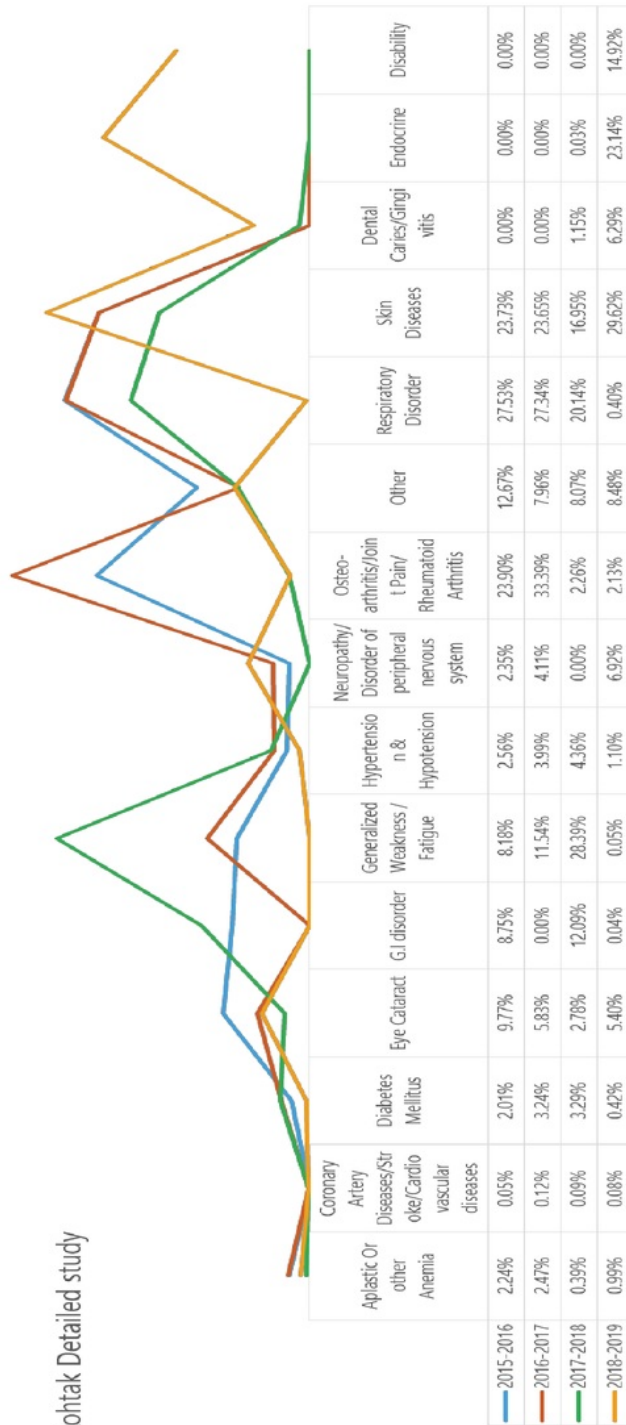
After the intervention of MHU almost all the diseases are controlled with in the limit. But still it was observed that due to change in weather the count of Health issues increases drastically.

Gender wise Disease
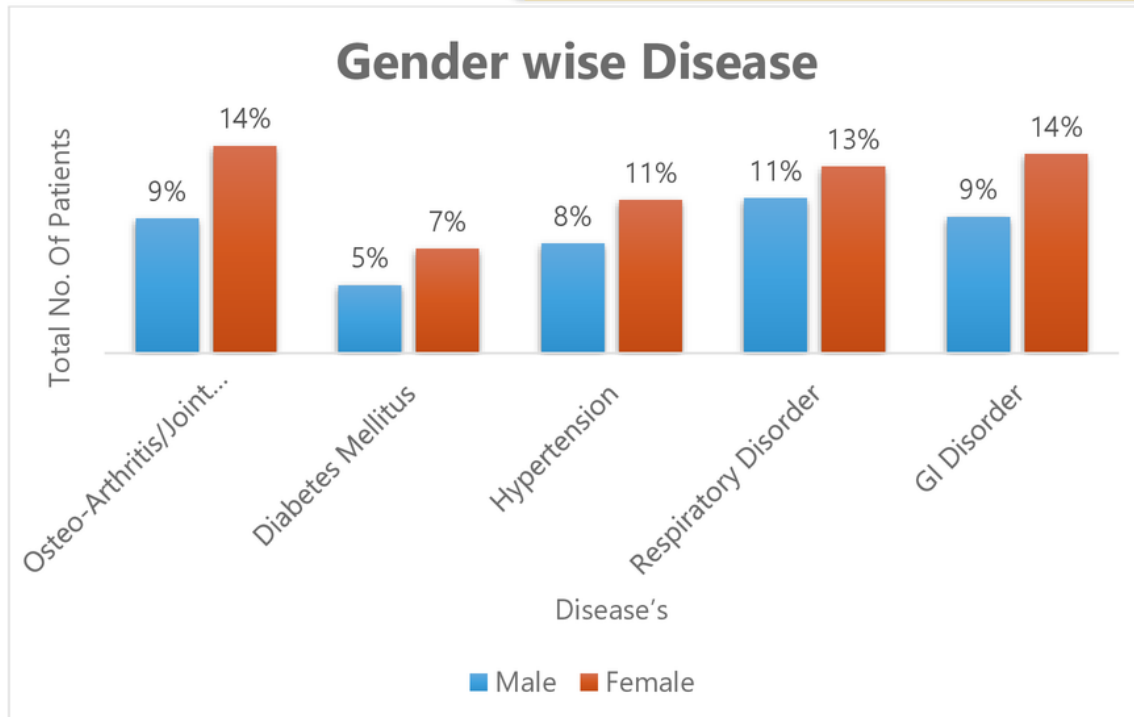
From the above given graph, female population is more exposed to diseases as compared to male population. For Osteo-arthritis/joint pain/rheumatoid arthritis and gastro-intestinal disorders, a high increase can be seen from 9% to 14% each. Same pattern goes with the hypertension i.e., it is 8% in male and 11% in female.

It has been observed that female population is more prone to these type of health issues.

Rohtak Detailed study

	Aplastic Or other Anemia	Coronary Artery Diseases/Stroke/Cardio vascular diseases	Diabetes Mellitus	Eye Cataract	G.I disorder	Generalized Weakness / Fatigue	Hypertension & Hypotension	Neuropathy/ Disorder of peripheral nervous system	Osteo-arthritis/Joint Pain/ Rheumatoid Arthritis	Other	Respiratory Disorder	Skin Diseases	Dental Caries/Gingivitis	Endocrine	Disability
2015-2016	2.24%	0.05%	2.01%	9.77%	8.75%	8.18%	2.56%	2.35%	23.90%	12.67%	27.53%	23.73%	0.00%	0.00%	0.00%
2016-2017	2.47%	0.12%	3.24%	5.83%	0.00%	11.54%	3.99%	4.11%	33.39%	7.96%	27.34%	23.65%	0.00%	0.00%	0.00%
2017-2018	0.39%	0.09%	3.29%	2.78%	12.09%	28.39%	4.36%	0.00%	2.26%	8.07%	20.14%	16.95%	1.15%	0.03%	0.00%
2018-2019	0.99%	0.08%	0.42%	5.40%	0.04%	0.05%	1.10%	6.92%	2.13%	8.48%	0.40%	29.62%	6.29%	23.14%	14.92%

Rohtak Detailed Study:-

The detailed study of Rohtak was done to study the Imact of MHU intervenyion on the community & a drastic change can be seen in the Health issues,

During the detailed study of Rohtak for the period of 4 years, for 15 separate diseases, in almost all the diseases the impact of MHU Curative case is visible. Percentage for Aplastic or anaemia disease goes down from 2.24% in 2015-16 to 0.99% in 2018-19. Hypertension shows the same. Respiratory disorders come down to 0.40% in 2018-19 from 27.53% in 2015-16. Diabetes mellitus comes down from 2.10% in 2015-16 to 0.42% in 2018-19.

This shows the MHU intervention has helped in controlling the disease under the selected MHU. But the health issues like disability, endocrine diseases and dental caries/gingivitis shows that the MHU has targeted a new set of patients in the last FY, i.e. 2018-19

More over the MHU is extending its reach towards the community & is trying to discover the untargeted beneficiaries & extended the reach of HelpAge India.

Case Study: -

Ms. Dharmo

Address: -Paksma village

She is a Widow living with her 2 married Son's.
She is getting benefit of Old Age Pension Scheme of State Government.
Her family is totally dependent on agriculture for livelihood. Their economic condition is very poor.
She is not in condition to do any work.
She is one of the oldest beneficiary on this particular site among all beneficiaries. As the time passed, her health was not with her and gradually, suffering from cough, asthmatic problem, joint pain and feel difficulty to move from one place to another. There is no medical facility in and around her village. The nearest hospital is approx. 30 km away from her village. Hospital going is a time-consuming activity and takes almost full day. It was impossible for her to go Hospital in city at this age. And Private Hospitals are expensive and medicines cost also higher than her earning. She came to know from her neighbor about the health services provided by Rohtak MHU in her village. She got 1st registered with MHU on 20 January 2017. When she visited MHU Van for the first time, she was having complaint of joint pain, constipation, severe cough and Asthmatic problem. She shared her health problem with Medical Consultant at Van. Then MHU Medical Consultant discussed her past history of Health and medication taken by her. She informed about her smoking habit. She told about the treatment from PHC. But the medicine provided by PHC was not the complete treatment. Medical consultant prescribed her **Tab Dyphylline 300mg, Tab Salbutamol 2mcg, cough Syrup, Diclofenac gel, Tab Ibuprofen, calcium and Bisacodyl**. Medical consultant also advised her to take **precautions, maintain gap from smoke, and to adopt healthy food habits**. It was mandatory to take medicines in continuation for regular relief. She took the medicines course regularly as per the prescription of Medical consultant. As her health is improving so now she is feeling relief in joint pain and asthmatic problem.

Present Health Status:-

Now she has relief in Asthmatic, joint pain and constipation problem after taking medicines prescribed by Medical consultant. Now she is able to move from one place to another to a certain distance. Earlier it was not possible for her to walk without support of another person. Now she can walk alone and comes to van alone. She is happy with the regular medication and treatment provided by MHU with positivity. She is very thankful for the services provided to her and other villagers. We also think that it was a great change in her life because of getting complete treatment for chronic disease and it was needed at this stage. MHU Rohtak also appreciates efforts of Ms. Dharmo to take regular course and precautions regarding her health.

She thanks to Donor's support to HelpAge India for the MHU services.

Conclusion

Few Health issues can't be resolved as they are due to the geographical & cultural conditions. But awareness sessions should be done more often keeping in view the Health issues.

These types of health issues cant be resolved, only awareness sessions can be conducted. More over rain shadow area's should also be on our priority

Rain shadow area's are not our primary sites are are the sites covered occasionally. Apart from the regular site schedule.

For curative care, the resource distribution can be improved keeping in view the pattern.

A proper process should be created as per the need of region wise MHU after the indepth study of the health issues, to prevent the stock out's & wastage of the resources

More over a depth study can be done for seasonal disease & health issues.

Recommendation:- Location Wise

Location	Recommendation
Borholla	East has a very high no. of Hypertention, MHU should be prapared for the medication, & more over provide awarness camps in rain shadow area's
Jorhat	
Muzaffarpur	
Silchar	
Agra	Awarness about Arthrits , Respiratory & GI Disorder should be done in Agra & rain shadow area, more over the Respiratory DIsease are seen more in North which could be due to the population,
Gurdaspur	
Leh	
Rohtak	
Bangalore	As we move towards South the % of diseace increase, that could be highly due to the cultural & geographic Factor , MHU need to be prepared for challenges like this.
Shamshabad	
Vizhinjam	
Dewas	North & west India has the maximun no. of Arthiritis patients & Respiratory Disorder, Possible reason could be the Pollution because of crop burning.
Kawai	
Radhanpur	
Udaipur	

- Generation of UBID

One UBID should be allotted to 1 patient.

Limitation

- UBID was not allotted to the patients So no individual Health status can be recorded.

If 1 patient is allotted 1 UBID it will be very easy for MHU to track the patient, moreover it will help in study the detail of impact & understand the flow of old & new beneficiaries.

More over it will help in study even more about the patient Disease pattern, with respect to age,

- This was a study from the secondary data, A more intense research can be carried with the primary data.

- Difference in sample size from each location each month.

- Lack of IT in MHU reporting.

Reference's

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