Internship Training

at

AAROHI, NAINITAL
(Feb 1 – 30 Apr 2019)

on

An Assessment of Functioning of Mobile Health Units in Ramgarh block of Uttarakhand

By

Col Yogesh Dungrakoti
PG/17/076

Under the guidance of

Dr. Vinay Tripathi

Post Graduate Diploma in Hospital and Health Management

2017-19

International Institute of Health Management Research, New Delhi

ABSTRACT

An Assessment of Functioning of Mobile Health Units in Ramgarh Block of Uttarakhand

By

Col. Yogesh Dungrakoti

Health Stream

Ramgarh Block of Nainital district is characterised by geographically hostile terrain having sparse and scattered population. Various NGOs working in Uttarakhand have taken several initiatives to improve access to healthcare. One such initiative is to provide healthcare services through the 'Mobile Medical Units' (MMU). 'Aarohi' a not-for-profit grassroots organization organises Mobile Health Camps through Mobile Medical Units on a continuous basis. The Objectives of the study were to study the rationale and implementation structure of the MMU, to identify and analyse factors which hinder or enable the better implementation of MMU and to assess the patient satisfaction. The study was questionnaire-based Cross-sectional Descriptive study, community- based patient survey, conducted by means of oral & assisted interviews, conducted personally by the investigator in Ramgarh block. The study population consisted of Block Program Manager, CHC Medical Officer, Functionaries of NGO and beneficiary or service seekers of MMU for a duration of 01 Feb - 30 April 19. The inclusion criteria was patients visiting MMU of Aarohi and the exclusion criteria was patients who could speak or listen, patients who refused to give willing informed consent, Patients who were in severe pain and patients suffering from mental disorders.. All patients were interviewed by using a semi-structured questionnaire at the end of their O.P.D. visits. A semi-structured questionnaire was used for interviewing Block Program Manager, CHC MO, NGO functionaries. The study provided an insight about the rationale for introducing MMU services, details about its implementation structure and services provided. Analysis of the data of the survey revealed that there is a great degree of satisfaction towards the various health care services being provided by the MMU of Aarohi, which is doing a yeoman's job in a very remote and mountainous region.

Keywords: Mobile Medical Units, Patient Satisfaction, Healthcare, Maternal Health

Aarohi

To Whom It May Concern

This is to certify that Col Yogesh Dungrakoti has successfully completed his internship with Aarohi, an organization working towards sustainable mountain development.

His project titled ***"An Assessment of Functioning of Mobile Health Units in Ramgarh block of Uttarakhand",*** is well researched and received.

During his course of internship, he came across as a committed, sincere & diligent person with a strong drive & zeal for learning.

We wish him all the best for future endeavors.

Jyoti Patil
Secretary, Aarohi

April 30, 2019

Aarohi is an organisation for rural development founded in 1992.
Registered under Societies Registration Act 1860, u/s 80 G and 12 A of IT Act, and FCRA.

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Col Yogesh Dungrakoti** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at **Aarohi, Pyura, Nainital** from **07 Feb 2019 to 30 Apr 2019**.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

PK Panda

Dr. Pradeep K Panda
Dean, Academics and Student Affairs
IIHMR, New Delhi IIHMR, New Delhi

Dr. Vinay Tripathi
Mentor

Certificate of Approval

The following dissertation titled **"An Assessment of Functioning of Mobile Health Units in Ramgarh block of Uttarakhand"** at **"Aarohi, Pyura, Nainital"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted.

It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name	Signature
Prof. A. K. Sood	
Dr Preetha GS	
Dr VINAY TRIPATHI	

Certificate from Dissertation Advisory Committee

This is to certify that **Col Yogesh Dungrakoti**, a graduate student of the Post-Graduate Diploma in Health and Hospital Management has worked under our guidance and supervision.

He is submitting this dissertation titled "**An Assessment of Functioning of Mobile Health Units in Ramgarh block of Uttarakhand**" at "AAROHI, Nainital" in partial fulfillment of the requirements for the award of the Post- Graduate Diploma in Health and Hospital Management.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr Vinay Tripathi,
IIHMR, Delhi

Jyoti Patil
Secretory (Executive Head)
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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **"An Assessment of Functioning of Mobile Health Units in Ramgarh block of Uttarakhand"** and submitted **by Col Yogesh Dungrakoti** Enrollment No. PG/ 17/ 076 under the supervision of **Dr Vinay Tripathi** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from **01 Feb 2019 to 30 Apr 2019** embodies my original work and has not formed the basis for the award of any degree, diploma associateship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

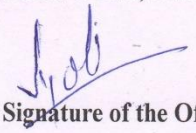
Signature

FEEDBACK FORM

Name of the Student:	**Col Yogesh Dungrakoti**
Dissertation Organisation:	**Aarohi**
Area of Dissertation:	**Public health**
Attendance:	**As per schedule**
Objectives achieved:	**Fully**
Deliverables:	**An Assessment of Functioning of Mobile Health Units in Ramgarh block of Uttarakhand**
Strengths:	**Committed and sincere**
Suggestions for Improvement:	**Not applicable**
Suggestions for Institute: (course curriculum, industry interaction, placement, alumni)	**Not applicable**

Date: April 30 , 2019

Place: Peora, Nainital



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Course Specialization (Choose one)	Hospital Management	Health Management ✓	Healthcare IT
Name of Guide/Supervisor	Dr./ Prof.: Vinay Tripathi		
Title of the Dissertation/Summer Assignment	An assessment of functioning of Mobile Health units in Ramgarh block of Uttarakhand.		
Plagiarism detect software used	"TURNITIN"		
Similar contents acceptable (%)	Up to **20** Percent as per policy		
Total words and % of similar contents Identified	15%		
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ACKNOWLEDGEMENT

Words can never be enough to express my sincere thanks to all faculty of IIHMR and Ms. Jyoti Patil, Secy, Aarohi, Nainital for providing me an opportunity to do Internship cum Dissertation at Aarohi, Nainital.

I also express my thanks to my mentor Dr. Vinay Tripathi for extending his support. Above all, I thank the almighty without whose blessings; I would not have been able to add a new dimension to my life. Last but not the least; I am thankful to my family and all colleagues for their help and support.

Abbreviations

Abbreviation	Meaning
ARI	Acute Respiratory Infection
SAM	Severe Acute Malnutrition
RCH	Reproductive and Child Health
APL	Above Poverty Line
BPL	Below Poverty Line
ECG	Electro Cardio Gram
NGO	Non-Governmental Organisation
MMU	Mobile Medical Unit
ANC	Ante Natal Checkup
PGIMER	Post Graduate Institute of Medical Education & Research, Chandigarh
NRHM	National Rural Health Mission
MHC	Mobile Health Clinic
OPD	Out Patient Department
HLFPPT	Hindustan Latex Family Planning Promotion Trust
PHC	Primary Health Centre
CHC	Community Health Centre
SC	Sub Centre
MMR	Maternal Mortality Rate
IMR	Infant Mortality Rate
CHIRAG	Central Himalayan Rural Action Group

RDT	Rapid Diagnostic Test
HIV	Human Immunodeficiency Virus
TB	Tuberculosis
MCH	Maternal and Child Health
UTI	Urinary Tract Infections
ICE	Information, Communication, and Education
Distt	District
Govt	Government
Regn	Registration
AAK	Aarohi Arogya Kendra
VHSC	Village Health and Sanitation Committee
ASHA	Accredited Social Health Activist

CHP	Community Healthcare Programme
TT	Tetanus Toxoid
IFA	Iron Folic Acid
HRP	High Risk Pregnancy
MHC	Mobile Health Clinics
RMP	Registered Medical Practitioner

1. Section 1: Internship Report

1.1 Introduction. Uttarakhand is one of the poorest but also one of the fastest growing states in India. Almost three-quarters of Uttarakhand's population is totally dependent on subsistence farming for livelihood and only a few commercial and industrial enterprises exist to support large scale employment in this mountainous region. Due to lack of alternate livelihood options, subsistence farming is supplemented with some cash crops and wage labour is common. The males of the family often migrate to the plains in search of menial labour work, leaving the women behind to not only look after the family but the farms as well. As a result women are often overworked and undernourished and suffer from poor health. In particular, social taboos, ignorance and superstitions, low sanitation awareness, low standard of education and lack of social security increase the already woeful living conditions for children and women. Dwindling pasture land and forest cover; lessening natural resources and acute seasonal water scarcity are also growing concerns in the region.

1.1.1. Ramgarh Block of Nainital district (Uttarakhand) is characterised by mountainous and geographically hostile terrain having sparse and scattered population. Communities living in these remote and disadvantaged areas, especially the BPL population and women are generally unable to access reliable and cost effective healthcare services. This is mainly due to the secondary costs associated with seeking healthcare services at block/district headquarter towns, such as cost of commuting, wage loss, etc. Various NGOs working in Uttarakhand have taken several initiatives to improve access to healthcare services for the disadvantaged communities. One such initiative is to provide healthcare services through the 'Mobile Medical Units' (MMU).

1.1.2. 'Aarohi' is a not-for-profit grassroots organization, involved in integrated rural development in the Central Himalayan region of Uttarakhand. Their mission is creating

development opportunities for rural Himalayan communities through quality healthcare and education, enterprise promotion, sustainable natural resource use, and the revival of traditional culture. Aarohi organises Mobile Health Camps through Mobile Medical Units on a continuous basis, catering to the health needs of its project villages and those of other NGO partners in the region, some of which are located in very remote areas. Access to medical care is difficult for villages that can only be reached on foot

1.2. Organisational profile. Aarohi works in the temperate and sub-tropical mountain region, between 1000-3000 meters above mean sea level in Kumaon, Uttarakhand. In August 1992, Aarohi was founded by Oona Sharma, a rural manager and Dr Sushil Sharma. Having done extensive social work in the area, the founders knew that life in the mountains was treacherous. Terrain induced hardships ensured that health suffered and income options were limited. This was their inner call and motivation to start Aarohi and support development of self-sustaining and independent mountain communities. The name 'Aarohi' derives from classical Hindustani music, signifying ascendance or growth…the growth of thought, creativity and harmony. Reaching out and building a more equitable mountain society, Aarohi wants to empower the ordinary mountain family in as many ways as possible.

Figure 1.1

1.2.1 Aarohi's two-decade journey has been one of trials and tribulations but full of excitement and growth. Satoli, it's headquarter, has transformed into a buzzing node of positive grassroots action. The organization work cuts across through Nainital, Almora and Bageshwar districts and its activities relate primarily to health care, education, livelihoods and energy and forest management. By consistent engagement, Aarohi has touched the lives of over 50, 000 people till date. Today, the organization employs 68 full-time staff, and is supported by 295 members from all over the world. It operates actively in 57 villages, containing a population of some 35,000.

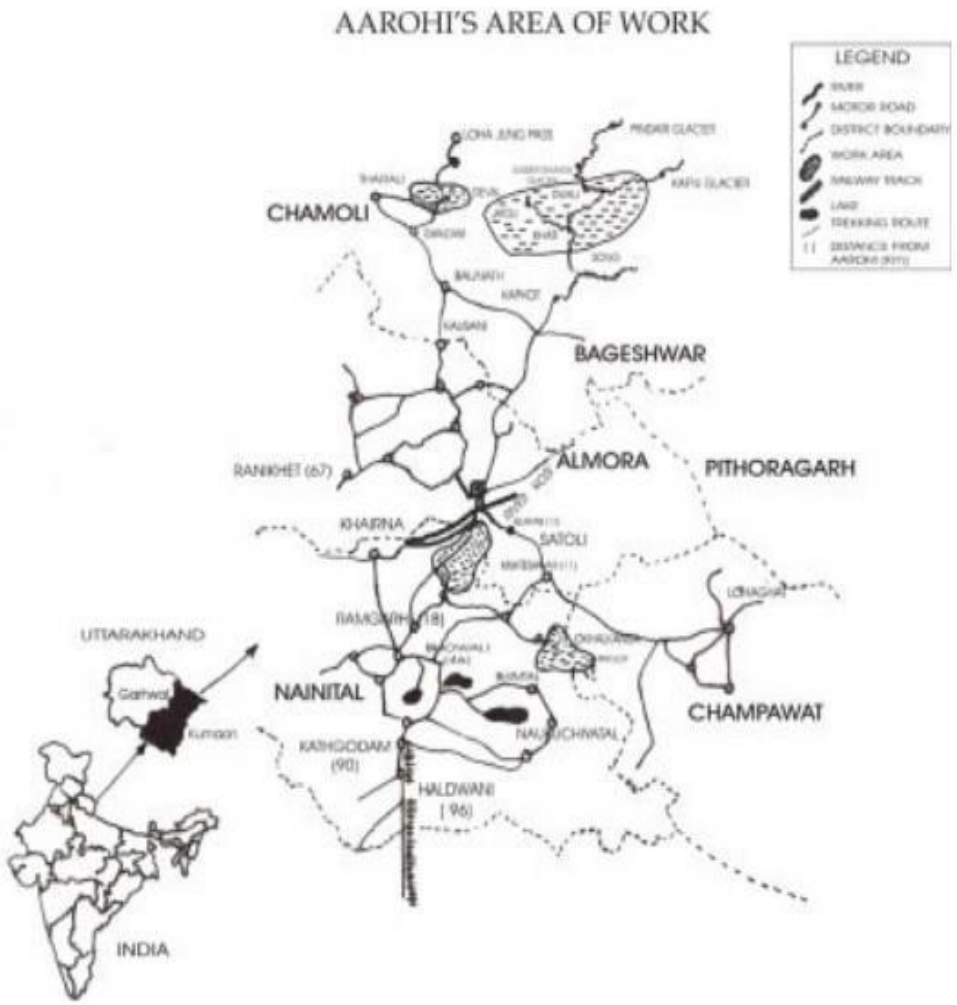


Figure 1.2

1.3. Services provided by Aarohi. The clinical service of Aarohi comprises of a cottage hospital Aarohi Arogya Kendra (AAK), the Mobile Medical Unit (MMU) and outreach camps. The health programme of Aarohi focuses mainly on rural Uttarakhand's women and children. Women have a tough schedule, and work at home, in the fields, and tend to animals. With poor control over family size, early marriage, frequent childbirth and superstitious dietary restrictions during lactation, they are extremely vulnerable to ill health.

1.3.1 Community based health care. Women are more malnourished than men, girls more than boys in these parts. Maternal deaths (162 mothers die for every 100,000 live births according to a survey in Uttarakhand & U.P., 2013) and many other related problems are abound. Against this backdrop, Aarohi provides community-based health-care and access to highly-trained medical professionals through their hospital and also through mobile medical camps.

Figure 1.3

1.3.2 Maternal and Child Health. To improve maternal and child health, Aarohi works at increasing local know-how about safe delivery, disease prevention and management of common illnesses. Involved in 30 villages mainly in the remote Okhalkanda Block, Nainital District, the organization stresses upon community health. This is promoted by Aarohi through capacity building.

1.3.3 Midwives. In most villages of Ramgarh Block, institutional deliveries are still extremely low. Untrained midwives usually deliver the babies at home. Aarohi has trained health workers and midwives providing antenatal care and monitoring the mothers at their village homes. Aarohi trained midwives also upgrade the traditional village midwives' knowledge of safe delivery and other healthy postnatal practices. This has had an extremely positive effect on the IMR and MMR in the area.

1.3.4 Village Health and Sanitation Committees. Village Health and Sanitation Committees (VHSC) have been created by Aarohi which comprise both the village health workers (ASHAs) and Swasthya Karmis (appointed by Aarohi). Aarohi trains them in maternal and child care, basic first aid and treatment of common diseases.

1.3.5 Children Power. Aarohi aims to create awareness on common health problems among the school children. In a path breaking move, the children of a remote village of Khansyu, along with their elders, rallied the villagers to organise waste management.

1.3.6 Aarohi Arogya Kendra (Hospital). Aarohi's state of the art hospital, Aarohi Arogya Kendra (AAK) at Satoli supports the efforts of community health program. It provides outpatient, inpatient, diagnostic, surgical care and

outreach services. The hospital has a modern operation theatre, performing gynecological, general and reconstructive surgeries on a camp basis. The Aarohi Arogya Kendra, provides outpatient care to some 4,000 villagers per year. A resident doctor is generally available and the hospital provides a 24-hour emergency service. Aarohi also conducts monthly surgical camps, bringing the volunteer services of surgeons and physicians from some of India's finest hospitals to remote village communities. Apart from curative and preventive services, the hospital and health program also present invaluable local employment and capacity-development opportunities, increasing self-reliance, self-esteem and dignity, especially amongst women.

1.3.7 Mobile Health Camps. Aarohi organizes mobile health camps on a continuous basis, catering to the health needs of its project villages and those of other NGO partners in the region, some of which are located in very remote areas. Access to medical care is difficult for villages that can only be reached on foot. Remote mobile camps are now fixed annual events in Aarohi's calendar. Initiated in 2014, in collaboration with the State and District government, the **Mobile Medical Unit (MMU)** is taking quality health services to communities in distant villages. Manned by a team of doctors and para-medical staff, the MMU covers a distance of 400-450 kms from the 1st to 8th of every month. On an average, 600 to 700 patients are examined during these camps each month. The camps are especially beneficial in routine ANC checkups of pregnant women. This helps in identifying high risk pregnancies and their regular monitoring leading to safe institutional deliveries

1.4. Problems and issues:

1.4.1 Limited support from Government. Aarohi receives very little or practically no help from the local state public health system and the administration. For even very mundane issues like booking of rest houses, their personnel have to run around to District headquarters every month.

1.4.2 Tough Terrain. Being a mountainous and remote area poor living conditions makes it difficult to send dedicated volunteers to these areas especially the women workers. Even if Aarohi has all the money, finding motivated volunteers for such places is very difficult.

1.4.3 Lack of Funds Like most of the NGOs in India, Aarohi too suffers from paucity of funds. Government support in terms of funding is non existent. Days of charity are long over and it's difficult to find donors.

1.4.4 Apathy towards Volunteerism/ Social work among Youth. The basic characteristic of any not for profit organisation is volunteerism. The extent of volunteerism is declining day by day and turning it into professionalism. The young graduates of social work are nowadays more keen in making their career than in public service. This leads to lack of efficient volunteers in Aarohi.

1.4.5 **Inadequate Trained Personnel** The area being very remote with poor infrastructure, it is very difficult for Aarohi to find trained people who are willing to work with a sense of dedication, commitment and interest in the social services. Today's generation is more keen to work in urban areas where better infrastructure and facilities are available than to come to do public service in a remote mountainous region. Moreover, these professionally trained persons have high expectations in terms of salaries, status, opportunities for their growth

in the career of their choice. Thus, Aarohi with its limited budget is not able to spend as much as these professionally trained people expect.

1.5. **Observations/ Learning:** Aarohi, is a not for profit organisation, working with a vision of creating an equitable society, following an integrated approach to development, for past 26 years in the central Himalayan region of Uttarakhand state. From a small rented place in village Satoli of Nainital District, they began their work in 1992, infusing enthusiasm in the community. Like the mountain mist, Aarohi has slowly touched every aspect of mountain life. Today they are a dynamic team of 112 who are working towards the empowerment and betterment of the poor people of this very remote and backward area. Their Mobile Medical Unit has completed its fourth year in the region and is taking quality health services to the distant mountainous region to serve the hitherto under served. From the 1st to the 8th of each month, it covers more than 100 villages of Nainital District, serving a population of approximately 50,000. On an average, 600-700 patients are examined each month. The table given below shows the volume of work which is handled by Aarohi:-

Table 1.1

Activities at a glance

PARTICULARS	2015-2016	2016-2017	2017-2018
Number of villages Aarohi works in	141	144	144
Population covered	65,606	65,606	65,606
Community meetings held	1,164	1,051	1,277
Combined attendance at the community meetings	14,760	13,599	15,382
Women representation at community meetings	12,965	9,865	14,101
Male representation at community meetings	1,795	3,734	1,281
Women to men ratio at community meetings	7.2:1	2.6:1	11:1
Number of patients seen (hospital+camps)	10,680	12,454	12,807

Table 1.2

Summary of Clinical Services

PARTICULARS	2015-16	2016-17	2017-18
TOTAL PATIENTS BENEFITED	10,680	12,454	12,807
OPD patients treated in Aarohi Arogya Kendra	1,910	1,871	2,574
Female	801	828	1,106
Male	1,056	1,009	1,419
Children	53	34	49
In – patients treated	60	90	105
Home visits/emergencies	2	1	1
Laboratory tests	8,566	8,459	8,239
X Ray	195	203	176
Ultrasounds	1,745	1,584	1,765
Total villages covered	50	50	50
School children screened for health problems	654	1,070	745
No. of Dental camps	11	14	24
Dental screening for school children	160	176	745
Total dental screening	592	557	673
Total Dental extractions	172	276	391
Total Dental fillings	111	95	73
Other Specialist camps	9	12	13
Total patients treated in Specialist camps	510	1741	787
Total surgeries done in the camps	47*	85	105
Mobile Medical Unit (MMU) camps	131	87	94
No. of patients treated in MMU camps	6,799	6,222	6,557
Outreach camps	17	12	9
Patients treated in outreach camps	215	839	728

1.6. Highlights of Aarohi's work

1.6.1. Early Registration. Of a total of 444 pregnant women, 96% pregnancies were registered with Aarohi. Of these 84% were registered within 16 weeks of gestational age.

1.6.2. Antenatal coverage. 91% pregnant women received at least one antenatal checkup by a skilled care provider against a baseline of 49% in 2010. 34% women received all 4 antenatal checkups during pregnancy.

1.6.3. TT immunisation during pregnancy. 96% women received Tetanus Toxin immunisation during pregnancy.

1.6.4. IFA supplementation. 95% pregnant women got IFA tablets from different sources like MMU, government hospitals and sub centres. However, only 13% pregnant women consumed all 100 tablets during pregnancy.

1.6.5. Tracking of High Risk Pregnancy (HRP). Mapping was done to track every HRP and continuous counselling was done to refer them for institutional delivery. Most HRPs are now being delivered in hospitals.

1.6.6. Postnatal Coverage. Out of a total of 271 deliveries, 77 % women received postnatal checkup after delivery, of which 60% women were given postnatal care within 48 hours of delivery.

1.6.7. Institutional Delivery. Rate of institutional delivery has increased from 35% in 2016-17 to 41% in 2017-18. Similarly rate of clean delivery at home has increased from 52% in the year 2016-17 to 64% in the year 2017-18.

1.7. Conclusion. Aarohi, a not for profit organisation is doing a yeoman's service in Ramgarh Block of Nainital district,Uttarakhand. Delivering quality healthcare in such a remote area is extremely complex and Aarohi with its team of dedicated volunteers is performing this task extremely well. It is to the credit of its staff and volunteers that secure, accessible and quality maternal and child healthcare is being delivered to marginalised communities. They are working towards identifying the root causes of healthcare issues and provide innovative solutions.

1.8. Any projects undertaken other than the dissertation: Nil

2. Section 2: Dissertation

An Assessment of Functioning of Mobile Health Units in Ramgarh Block of Uttarakhand

By

Col. Yogesh Dungrakoti

2.1 Introduction

2.1.1 The aim of healthcare services is to improve the health status of the population. Health services should be comprehensive, accessible, acceptable, provide scope for community participation and available at a cost which the community and country can afford. Patient satisfaction is considered to be one of the significant factors which decide the success of health care facility. It is easier to assess the patient's satisfaction towards the services provided than to evaluate the quality of medical services that they receive. Therefore, research on patient satisfaction is an important tool not only to improve but also to evaluate the quality of services being provided from the health facility.

2.1.2 Ramgarh Block of Nainital District (Uttarakhand) is characterised by mountainous and geographically hostile terrain having sparse and scattered population. Communities living in this remote and disadvantaged area, especially the Below Poverty Line (BPL) population and women are generally unable to access reliable and cost effective healthcare services. This is mainly due to the secondary costs associated with seeking healthcare services at block/district headquarter towns, such as cost of commuting, wage loss, etc. Various NGOs working in Uttarakhand have taken several initiatives to improve

access to healthcare services for the disadvantaged communities. One of such initiative is to provide health care services through the 'Mobile Medical Units' (MMUs).

2.1.3 'Aarohi', a not-for-profit grass root organisation, is involved in integrated development in the Himalayan region of Uttarakhand. They are creating opportunities of development for rural communities through quality education and healthcare, use of sustainable natural resource and cultural traditional revival. Aarohi organises Mobile Health Camps through Mobile Medical Units on a regular basis and caters to the healthcare needs of its target villages and of other regional NGO partners.

Fig 2.1

2.1.4 Mobile Medical Unit (MMU) was initiated in 2014, in collaboration with the State and District government and is taking quality health services to communities in distant villages. Manned by a team of doctors and para-medical staff, the MMU covers a distance of 400-450 kms from the 1st to 8th of every month. On an average, 600 to 700 patients are examined during

these camps each month. The camps are especially beneficial in routine ANC checkups of pregnant women. This has helped identify high risk pregnancies and their regular monitoring leading to safe institutional deliveries.

Fig 2.2

Fig 2.3

2.1.5 The Mobile Medical Unit of Aarohi consists of a fully equipped medical bus and has the facility of basic laboratory test, X ray, ECG and an Ultrasound unit. Besides lab technicians, the MMU also has a physician,

Gynecologist and a Sonographer. The reports are immediately given to the patients. All tests and medicines are free of cost for the BPL patients and a very nominal sum is charged from the others.

2.2 Review of Literature

2.2.1 Sivalenka Srilata (2000) stated that "a patient satisfaction survey can help to show patients that a healthcare organization is interested in quality and in making improvements. It demonstrates an organization's commitment to its patients".

2.2.2 In a study conducted by the PGIMER (2011), it was found that "average time spent by respondents for registration was 33.20 minutes. The satisfaction level was more than 80 per cent at almost all the levels of health care facilities regarding the doctor--patient behavioral and professional communication. In total, 55 per cent of respondents opined that doctors have shown little interest to listen to their problem while 2/3 opined that doctors used medical and technical terms to explain their illness and its consequences".

2.2.3 Joshi (2013) stated that "patient satisfaction is deemed to be one of the important factors which determine the success of health care facility". He said that "there is a need to assess the health care systems regarding patient satisfaction as often as possible".

2.2.4 Venkatashiva Reddy B, et al.(2018) carried out a study and found that "poor patient satisfaction causes poor compliance to treatment which ultimately leads to poor health outcomes. It thus concluded that patient satisfaction has, thus, become a noteworthy health care outcome".

2.2.5 Prof. A.K. Sood (2013) et al. carried out an assessment of 17 Mobile Medical Units (MMUs) run under NRHM in Uttarakhand. The study established that "majority of the users of the services were satisfied with the behaviour of MMU staff".

2.2.6 Prof. Deoki Nandan (2009) et al. carried out an evaluation of Mobile Health Units in Jharkhand. The study concluded that, "as per the beneficiaries, the MMU is very beneficial because the services are being provided to those people who are not able to avail of any services due to inaccessibility".

2.2.7 Achla Behl Khanna and Sapna Arora Narula (2017) stated that "MMUs are still an emerging strategy to deliver health care. The data that is available regarding effect of MMUs on quality of health care are very varying and scanty. Superior strategies are required for improving efficacy and sustainability of Mobile Medical Units during the implementation period both during pre- and post-launch".

2.2.8 In a study titled "Needs Assessment for the Mobile Health Clinic of the Sukhdev Raj Soin Hospital" (2012) by Luke Rothermel Wright State University - Main Campus, stated that the "aims of the MMU are to create trust and inspire the use of hospital facilities for healthcare, achieve progressive interface with villagers, provide referrals, triage, and basic health care services to patients of MMU, and to differentiate the care provided by the hospital from the RMPs and other such providers in the rural areas".

2.2.9 An Assessment of mobile medical units functioning in Jharkhand, India was done by Mithilesh Kumar, Asha Kiran and Manisha Kujur (2016) wherein it was found that "easy accessibility and free of cost services were the focal factors that influenced the utilisation of the MMU".

2.2.10 In a literature review titled "The impact of mobile health clinics in US: by Stephanie W. Y. Yu, Caterina Hill et al: (2017)" stated that "MMUs also improve population's health. MHCs provide target-specific interventions which spread beyond the doctor's office and target entire populations of a

geographic region. MHCs are uniquely placed to affect health outcome of a community by being the intermediary between the clinic and the population".

2.3 **<u>Objectives</u>.** The study had the following objectives:-

2.3.1. To study the rationale and implementation structure of the MMU.

2.3.2. To assess the type of services provided and the availability of infrastructure, manpower, drugs, equipment to provide these services.

2.33. To identify and analyze factors which hinder or enable the better implementation of MMU.

2.3.4. To assess the patient/client satisfaction seeking the services of MMU

2.4 Methodology

2.4.1 A cross sectional descriptive study was carried out among patients attending the Mobile Medical Unit of Aarohi, Ramgarh.

2.4.2 **Study Design**. Cross-sectional Descriptive study

2.4.3 **Study Area**. Ramgarh Block

2.4.4 **Study Population** – Block Program Manager, Functionaries of NGO and all beneficiary or service seekers of Mobile Medical Unit of Aarohi

2.4.5 **Study Duration**. 01 Feb - 30 April 19

2.4.6 **Inclusion Criteria**. Patients visiting MMU of Aarohi and the staff of Aarohi.

2.4.7 **Exclusion Criteria**. Patient who are deaf and dumb, Patients/ staff who refuse to give willing informed consent, Patients who will be in severe pain and patients suffering from mental disorders.

2.4.8 **Study Tool**. Patients were interviewed using a semi-structured questionnaire at the end of their OPD visit, which included demographic data, availability of services, clinical care, cost of services, patient suggestions and waiting time. A semi-structured questionnaire was also developed for interviewing Block Program Manager and NGO functionaries.

2.4.9 **Survey Dates.** The survey was conducted for 16 days from 01 March to 08 March 19 and again from 01 April to 08 April 19.

2.4.10 **Sampling and Sample Size.** All patients who came during the eight day trip of the mobile medical unit. Informed consent was taken from all adults and also from the parents/ relatives accompanying the patients who were minors. Eight staff members dealing with MMU were also interviewed using a semi structured questionnaire.

2.4.11 The current study is an analytical questionnaire and community based patient survey which was conducted by means of oral and assisted

interview personally by the investigator. The study provided an understanding about various concerns faced by patients, regarding aspects of Mobile Medical Units.

2.5 Results

2.5.1 Rationale and Implementation structure of the MMU. Uttarakhand is characterised by mountainous and geographically hostile terrain having sparse and dispersed population. People living in the disadvantaged and remote areas, especially the BPL population and women are generally unable to access cost effective and reliable healthcare. This is primarily due to the secondary costs associated with seeking healthcare services at block/ district, such as cost of travelling, loss of wages, etc. The Government has taken many measures to increase access to healthcare for the underprivileged communities. One such measure is to deliver healthcare through the 'Mobile Medical Units' (MMUs). The provision of these Mobile Medical Units has enhanced the outreach of healthcare to the hitherto underserved and unserved regions of the State. The concept of healthcare service delivery through Mobile Health Clinics has been implemented in these areas using three MMU models: Mobile Medical Unit – Arogya Rath-As of now 13 Mobile Medical Units are being managed by NGOs. These mobile medical units are running in various areas of 13 districts. "Sehat Ki Savari – MMU in Chamoli and Tehri Garhwal -These two Mobile Medical Units are being managed by HLFPPT. Two Diagnostic MMUs in Nainital District which are in the form of two buses that are being run by Birla Institute of Scientific Research and Aarohi NGO Nainital".

2.5.2 Ramgarh Block of Nainital district is one of the remotest and poorest region. Public health care facilities are either nonexistent or in shambles. The PHC at Ramgarh is grossly understaffed and is unable to cater to the needs of the local population. The local populace, therefore, have no other

option but to move to the nearest towns like, Nainital, Almora or Haldwani to seek treatment even for minor ailments. Certain NGOs in the area have opened up small clinics/ hospitals notable among those are the CHIRAG Hospital run by Chirag Foundation and Aarohi Arogya Kendra run by a Non for Profit organisation called 'Aarohi'. In Spite of these medical set up people still have to trek up many kilometers in treacherous mountainous terrain to reach the nearest medical facility. Most of these places are located in hard to reach areas and lack of transportation further adds to the woes of the people. This is where Aarohi stepped up to fill the void and decided to launch a Mobile Medical Unit so that basic preventive and curative healthcare can be delivered at a close points to these far flung areas. Mr Jagdish of Aarohi stated that people especially the pregnant women and the newborn had a very hard time reaching the nearest health facility due to which they were not very keen to seek proper treatment. This was one of the main reasons for the very high MMR and IMR in the area. The launch of the MMU provided them the treatment at their doorstep and thus there has been a significant drop in the MMR and IMR of the area.

Fig 2.5.1

2.5.3 Manned by a team of doctors and para-medical staff, the MMU covers a distance of 400-450 kms from the 1st to 8th of every month. On an

average, 600 to 700 patients are examined during these camps each month. The camps are especially beneficial in routine ANC checkups of pregnant women. This has helped identify high risk pregnancies and their regular monitoring leading to safe institutional deliveries.

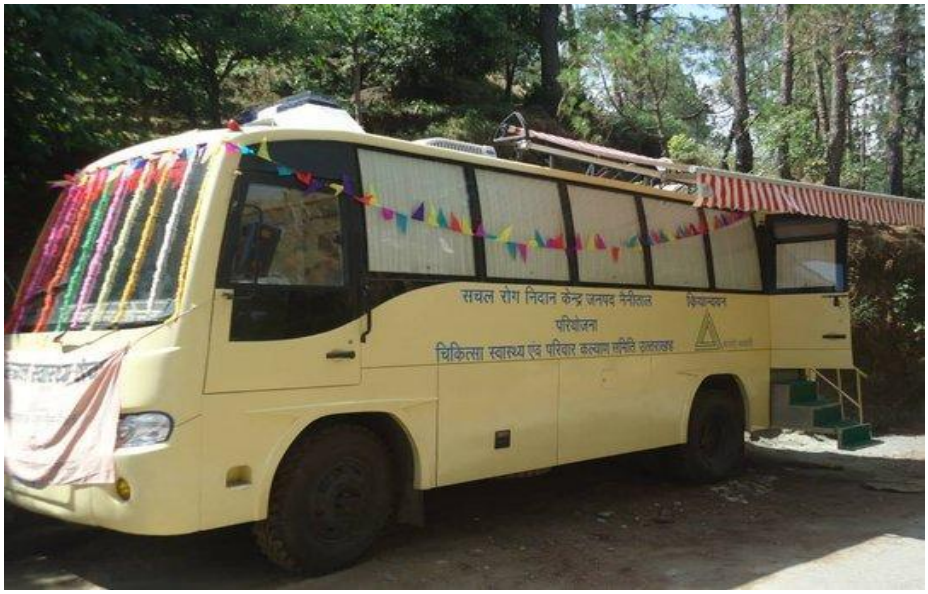


Fig 2.5.2

2.5.4 Type of services provided and the availability of infrastructure, manpower, drugs, equipment to provide these services. The Mobile Medical Unit of Aarohi consists of a fully equipped medical bus and has the facility of basic laboratory test, X ray, ECG and an Ultrasound unit. Besides lab technicians, the MMU also has a physician, Gynecologist and a Sonographer. The MMU also has a backup generator to provide it with power backup in case electricity is not available. The reports are immediately given to the patients. All tests and medicines are free of cost for the BPL patients and a very nominal sum is charged from the others.

2.5.5 The MMU travels on a fixed route from the 01st to the 8th of each month. Since the days of arrival each month are fixed, hence the villagers are aware of the arrival of MMU. The MMU provides the following services:-

2.5.5.1 Maternal Health. "Early diagnosis of pregnancy, MCH Cards, early registration, birth planning, regular antenatal check-ups, calcium supplementation & iron-folic acid, identification and referral of high risk pregnancy, and motivation and support for institutional delivery".

2.5.5.2 Neonatal and Infant Health (0 to 1 year old). includes "examining low birth weight/ preterm newborn/ high risk newborn and referral or management as required), early breast feeding, improved practices of weaning, congenital anomalies identification, various other disabilities and referral, complete immunisation, Supplementation of Vitamin A and care of common illnesses".

2.5.5.3 Child and Adolescent health. "monitoring of growth, immunisation, deworming, appropriate and prompt treatment of diarrhoea/ ARI, where needed referral, finding of Severe Acute malnutrition (SAM), Prevention of anaemia, usage of iodised salt; diarrhoea prevention, detection & treatment of anaemia, deworming, early detection of growth abnormalities, delays in development and disability, adolescent health services, personal hygiene, and other deficiencies in children and adolescents".

2.5.5.4 Reproductive health and Contraceptive Services include "identifying eligible couples, and motivating for family planning/ delaying first child, spacing between two children, and access to spacing methods".

2.5.5.5 Chronic communicable diseases management include “Tuberculosis; HIV, leprosy, Malaria, Kala-Azar, Filariasis, Other vector borne disease- identification, use of RDT/prompt treatment initiation, vector control measures, Sputum collection for TB, Lab testing and treatment for all vector borne disease examination and follow up medication compliance”.

Fig 2.5.1

2.5.5.6 Basic OPD and Common Communicable Diseases Management - (acute simple illness) “includes diagnosis and management of common fevers, ARIs and diarrhoeas, UTI (Urinary Tract infections), skin infections. (scabies, abscess), indigestion, acute gastritis and symptomatic care for aches and pains”.

2.5.5.7 Diagnostic: Investigative facilities like “haemoglobin, urine examination for sugar and albumin; Smear for malaria and vaginal smear for trichomonas; Clinical detection

of leprosy, tuberculosis and locally endemic diseases; Screening of breast cancer, cervical cancer etc".

Fig 2.5.2

2.5.5.8 Specialised facilities and services like Ultrasound test, X-ray and ECG

2.5.6 The study found that the MMU was well equipped with all necessary diagnostic and curative equipment to provide all of the above mentioned services.

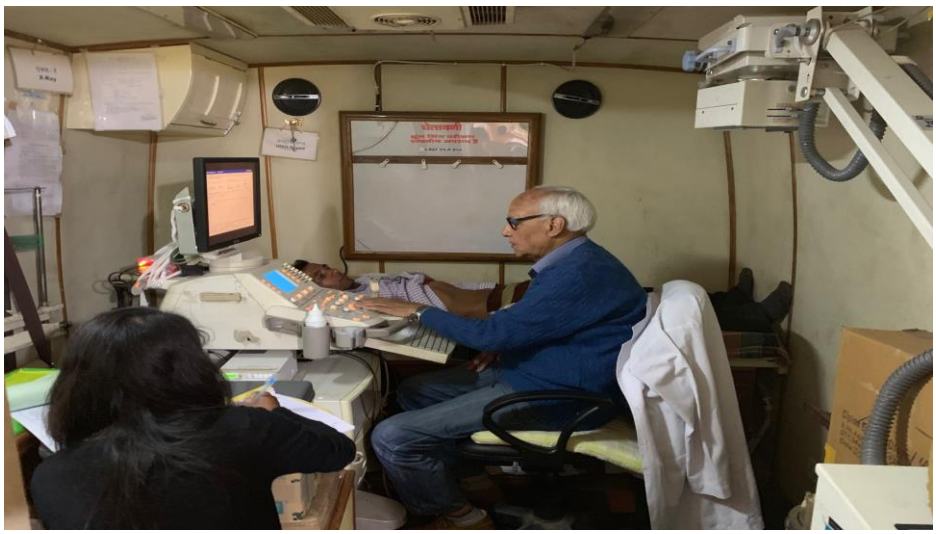


Fig 2.5.3

2.5.7 Patient Satisfaction with MMU. A survey was conducted among 132 patients who attended the MMU of Aarohi to assess the satisfaction among patients towards various services provided by the MMU. Details of the survey are as follows:-

2.5.7.1 Demographic Data. A total of 132 patients who came to Mobile Medical Unit at Village Pyura and Village Sargakhet were interviewed. Out of total patients, 19% were males and 81% females (Fig 2.5.7.1). Predominantly female patients were visiting the MMU as the focus of services of this MMU was towards providing maternal and child care services.

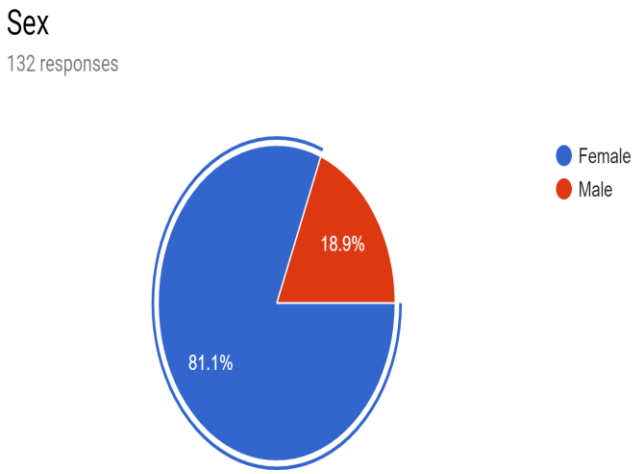


Fig 2.5.7.1

2.5.7.2 Approximately, 87% patients were in the age group 18-50 and only 9% of the patients were over 50 which show that the elderly were finding it difficult to access the Mobile Medical Unit (Fig 2.5.7.2).

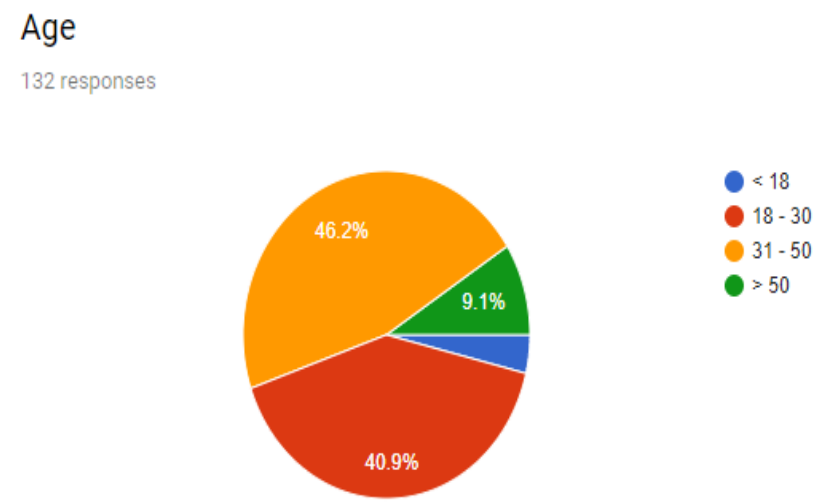


Fig 2.5.7.2

2.5.7.3 Almost half of the patients visiting the MMU were illiterate whereas the rest had little formal education. Only 3 % of the patients had graduation degree or above (Fig 2.5.7.3).

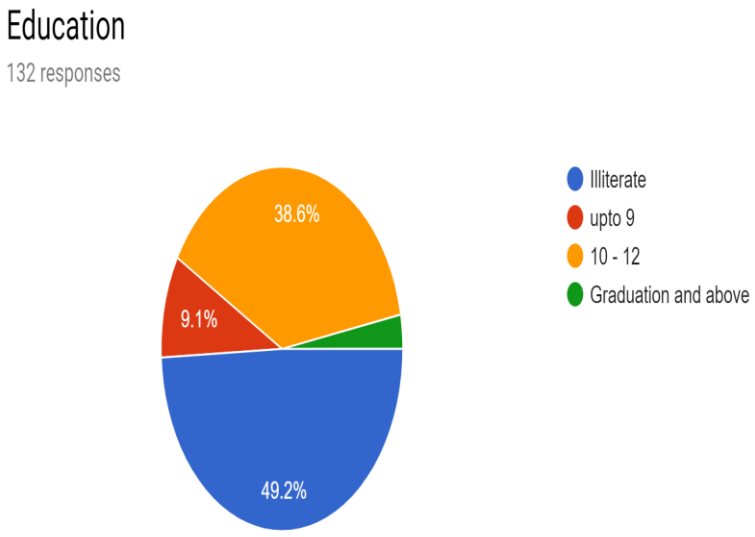


Fig 2.5.7.3

2.5.7.4 On categorising the patients by their occupation, it was seen that, 57% of the patients were housewives with little or no earning for themselves (out of 102 female respondents) (fig 2.6.4).

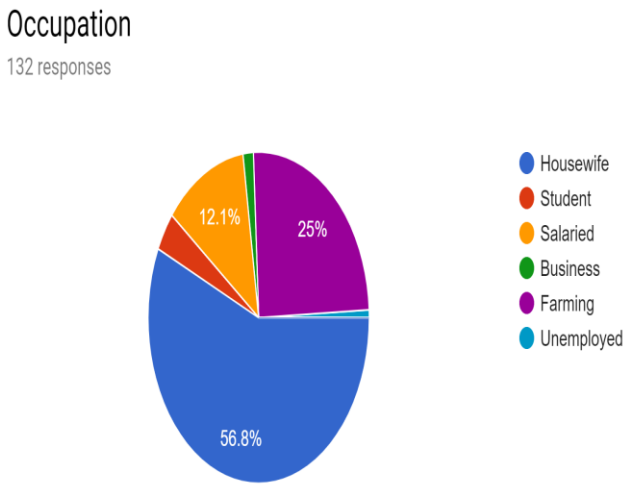


Fig 2.5.7.4

2.5.7.5 Majority of the patients (85%) had monthly income of Rs 10,000 or less indicating high level of poverty in the area (Fig 2.5.7.5). With this meagre income 90% of the patients had six or more dependents in their family (Fig 2.5.7.6).

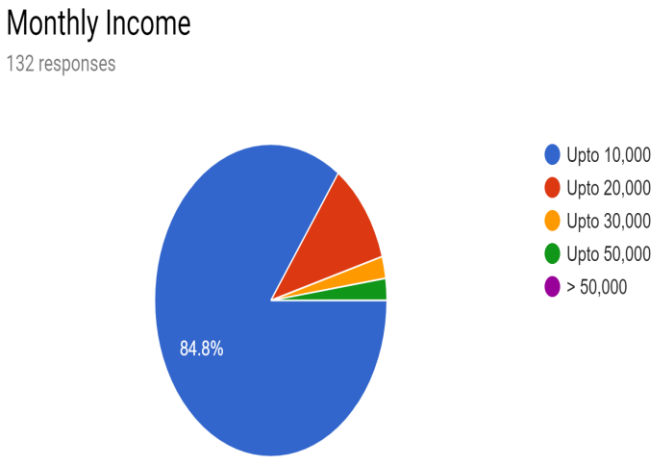


Fig 2.5.7.5

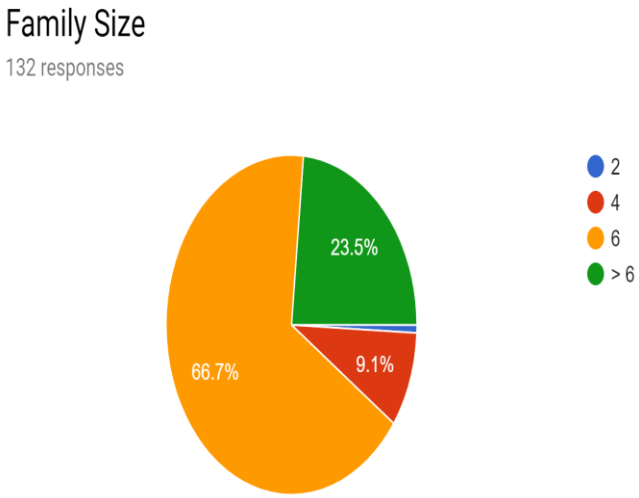


Fig 2.5.7.6

2.5.7.6 Availability of Services.

2.5.7.6.1 Seating arrangements in MMU. Data shows that the satisfaction level of patients for availability of services in MMU was

very good. Around 95 % of the patients expressed satisfaction for seating arrangements in OPD (Fig 2.5.7.7).

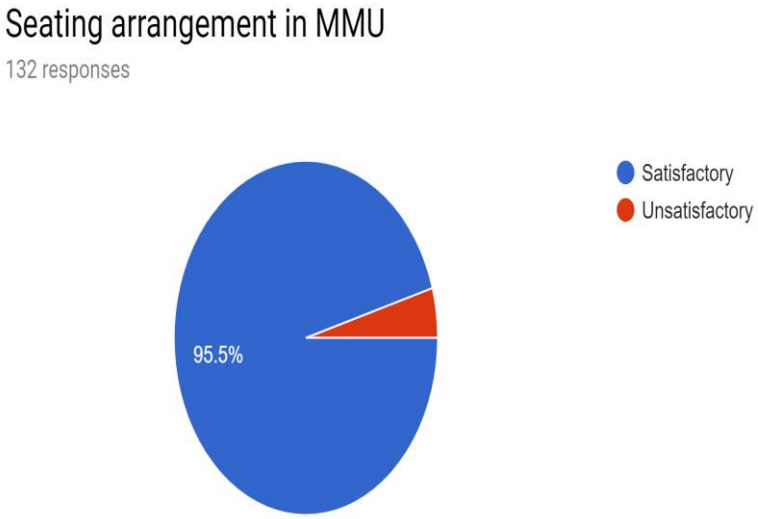


Fig 2.5.7.7

2.5.7.6.2 Cleanliness in MMU. 98 % of the exit beneficiaries had all praises for the cleanliness and hygiene state of the MMU (Fig 2.5.7.8).

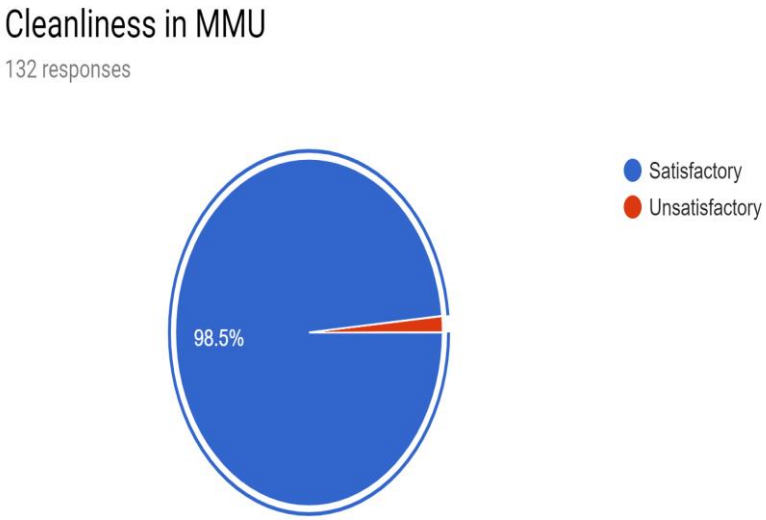


Fig 2.5.7.8

2.5.7.6.3 MMU Timings. A vast majority of patients were satisfied with timings of the MMU. However, around 17% of the patients wanted the timings to be increased till 4 PM (Fig 2.5.7.9).

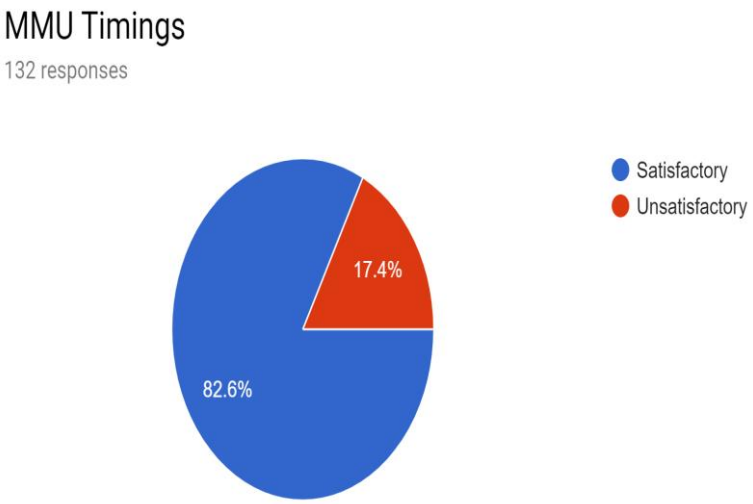


Fig 2.5.7.9

2.5.7.6.4 MMU Dates. As far as the dates of the visit of the MMU were concerned, 65% of the patients were happy with the fixed dates, duration and frequency of visit of the MMU. However, 35% felt that the frequency of visit should be at least fortnightly rather than monthly at present (Fig 2.5.7.10).

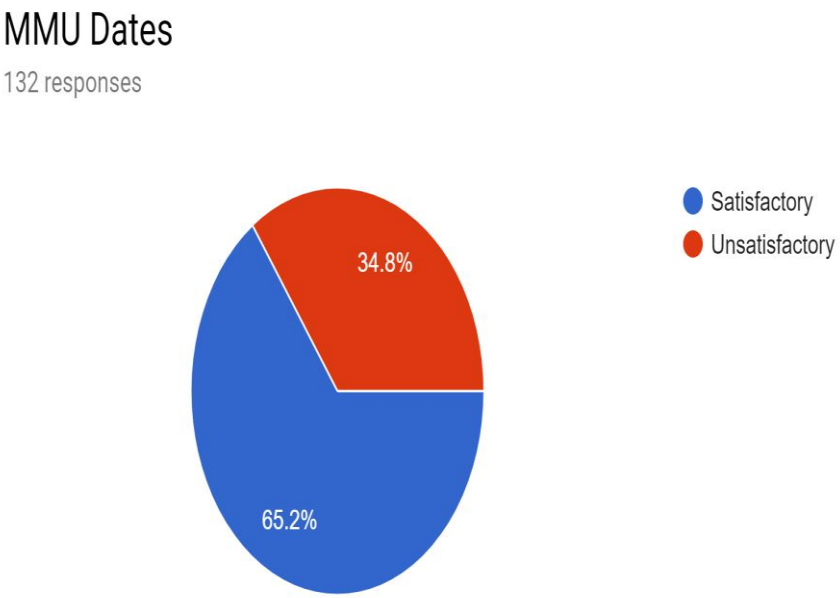


Fig 2.5.7.10

2.5.7.6.5 Availability of Doctors / Medicines in MMU. 96% of the patients expressed satisfaction with the number and availability of doctors and para medical staff in the MMU. An equivalent percentage was also happy with the availability of medicines (Fig 2.5.7.11 & 2.5.7.12).

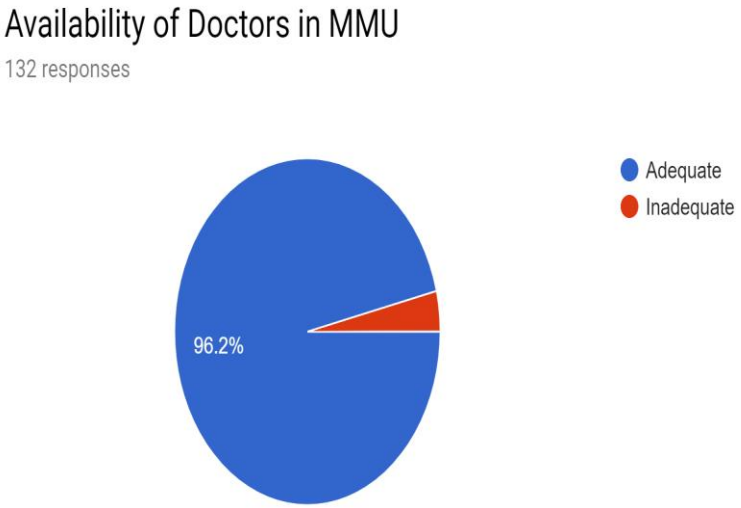


Fig 2.5.7.11

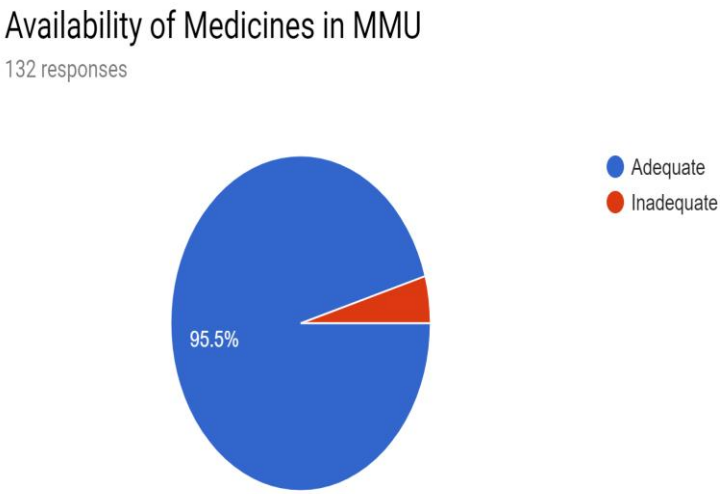


Fig 2.5.7.12

2.5.7.6.6 Availability of Services. 91% of the patients were happy with the type of preventive and curative services that were being provided by the MMU run by Aarohi (Fig 2.5.7.13).

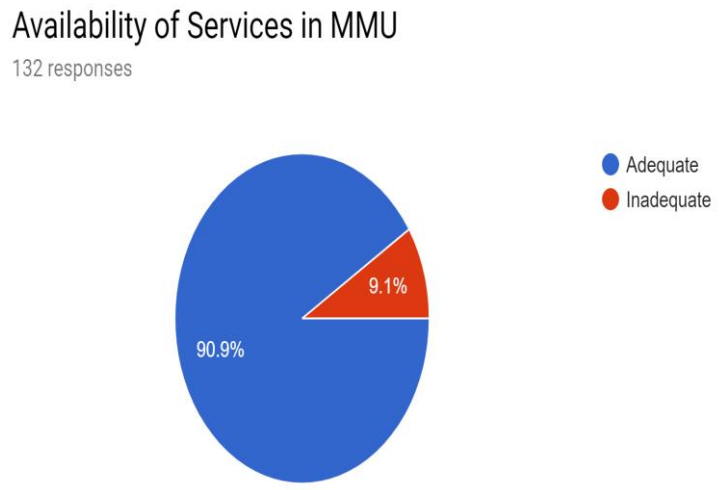


Fig 2.5.7.13

2.5.7.6.7 Time Taken to reach the MMU. The study revealed that almost 71% of the patients had to travel for more than an

hour to reach the MMU. Some of the patients revealed that they had to trek as much as 3 hours to reach the MMU site (Fig 2.5.7.14).

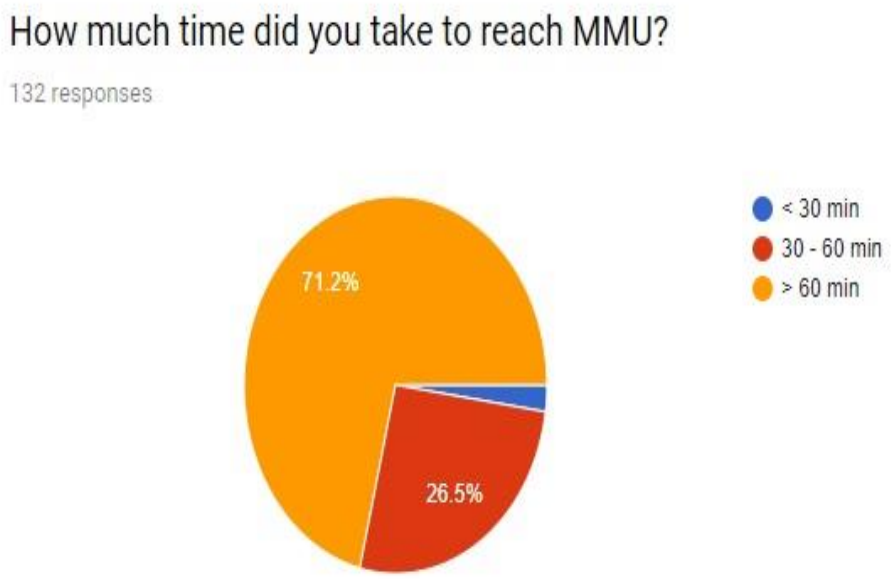


Fig 2.5.7.14

2.5.7.6.8 Mode of Travel. Almost 50 % of the patients had to travel on foot to reach the MMU site while another 36 % had to use both bus and foot travel to reach. This shows the poor infrastructure, inaccessibility and remoteness of the region (Fig 2.5.7.15).

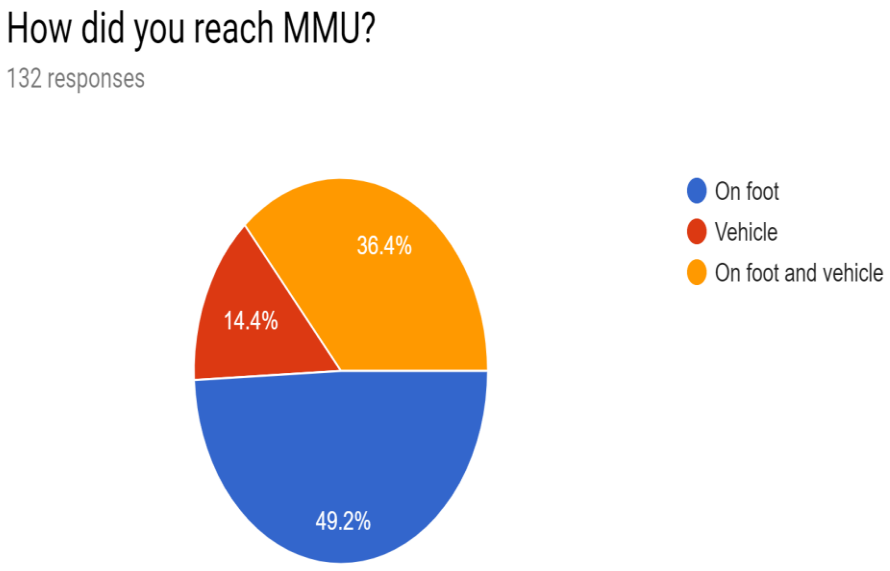


Fig 2.5.7.15

2.5.7.6.9 Clinical Care. Patient satisfaction in respect to clinical care was very good. 95% of those surveyed felt that the doctor communication was very good (Fig 2.5.7.16), 4% rated it as moderate while only 2 patients rated the same as poor. Disease explanation by the doctor was satisfactory in 98% of patients (Fig 2.5.7.17). 93% of the patients stated that the nature of prescription was easy and simple (Fig 2.6.18). 97% patients were satisfied with the medication instruction given by the pharmacist (Fig 2.5.7.19). 95% patients expressed satisfaction with the soft skills of the hospital staff (Fig 2.5.7.20).

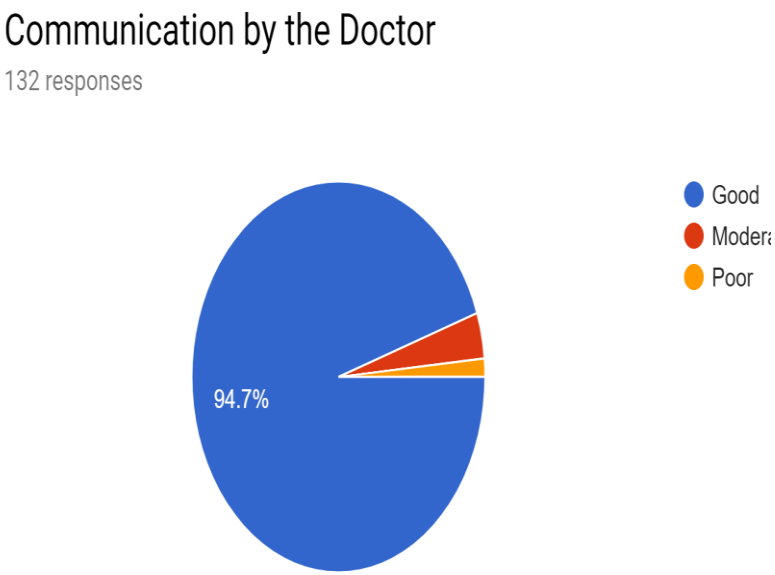


Fig 2.5.7.16

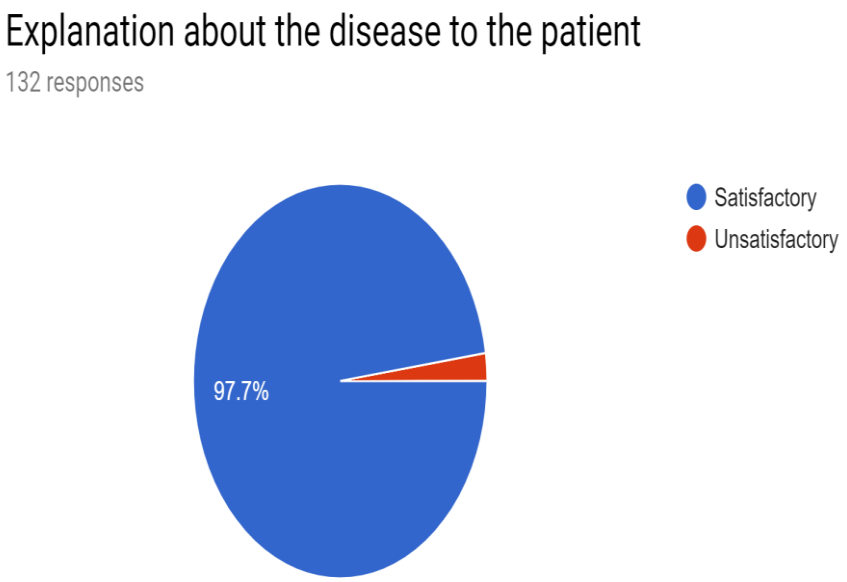
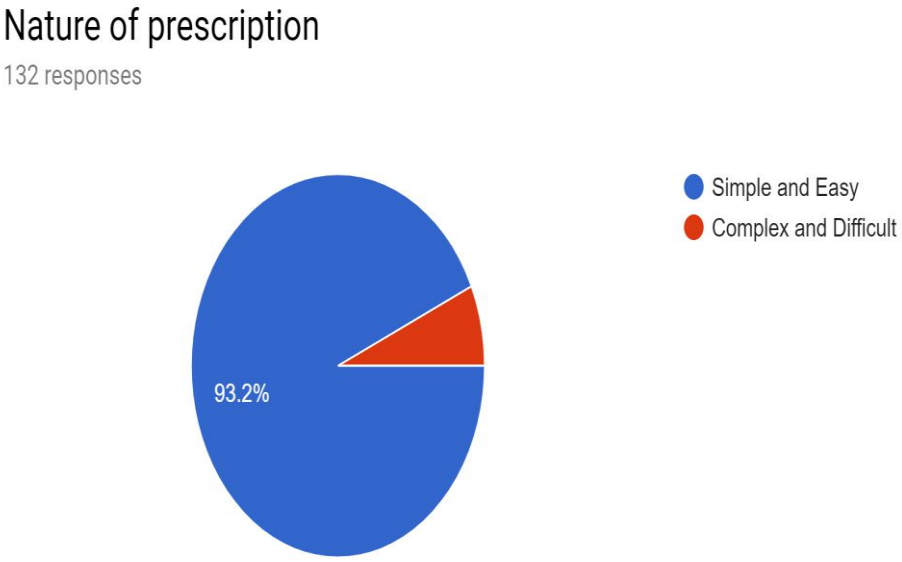


Fig 2.5.7.17



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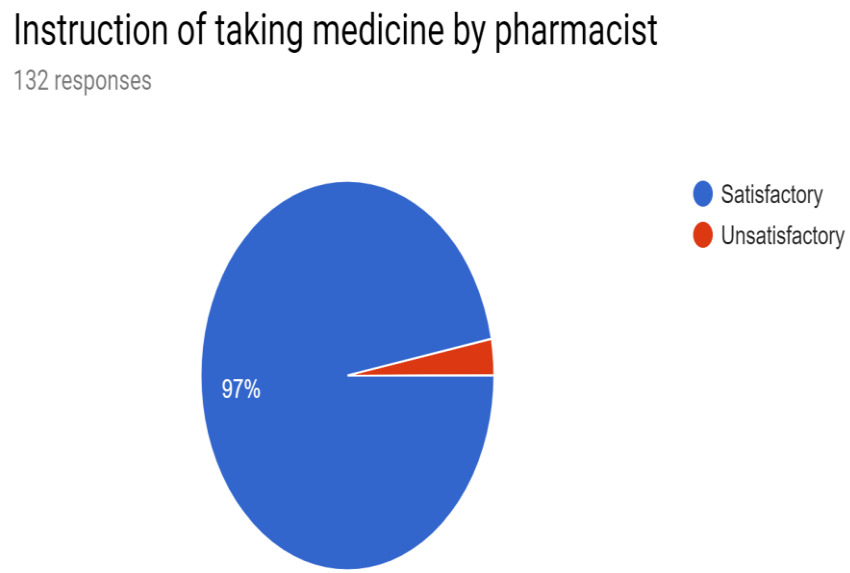


Fig 2.5.7.19

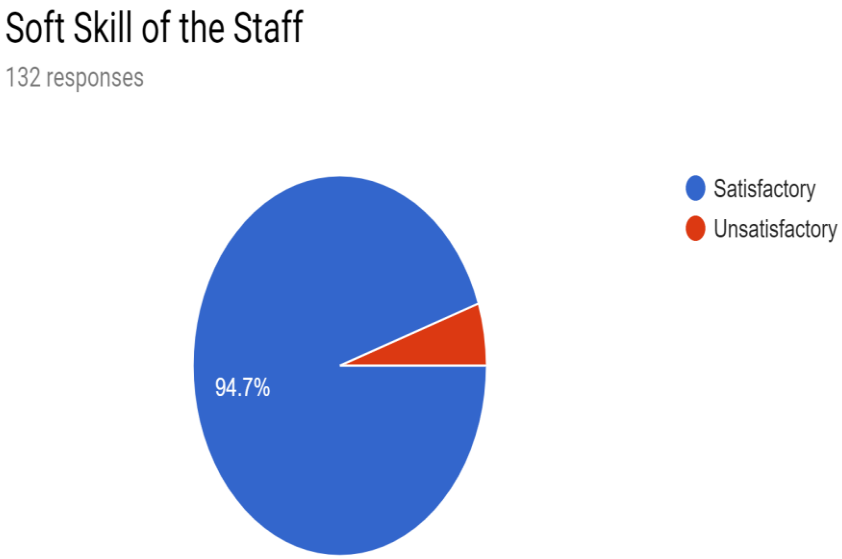


Fig 2.5.7.20

2.5.7.6.10 Privacy. 93% of the respondents felt that privacy was adequate whereas 7 % felt that the MMU was too crowded and privacy was inadequate (Fig 2.5.7.21)

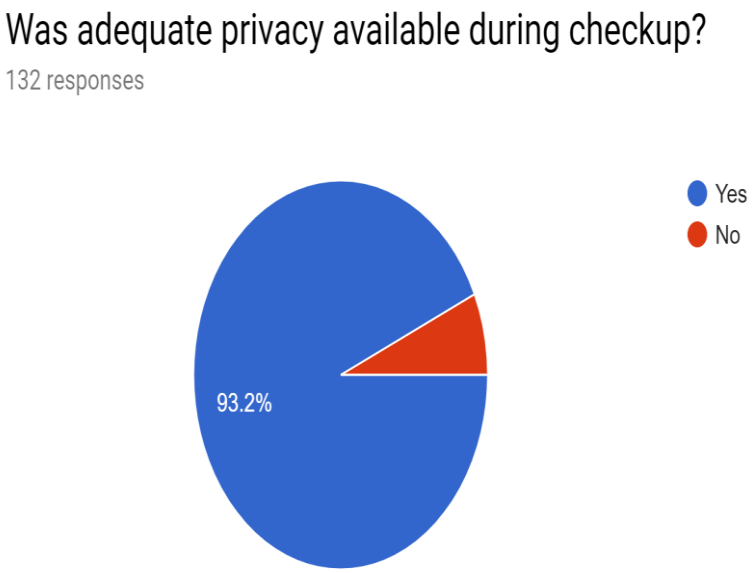


Fig 2.5.7.21

2.5.7.6.11 IEC. No IEC material was being distributed to the patients nor was any IEC painted on the MMU bus. This was also confirmed by the MMU staff that no IEC material was being distributed (Fig 2.5.7.22).

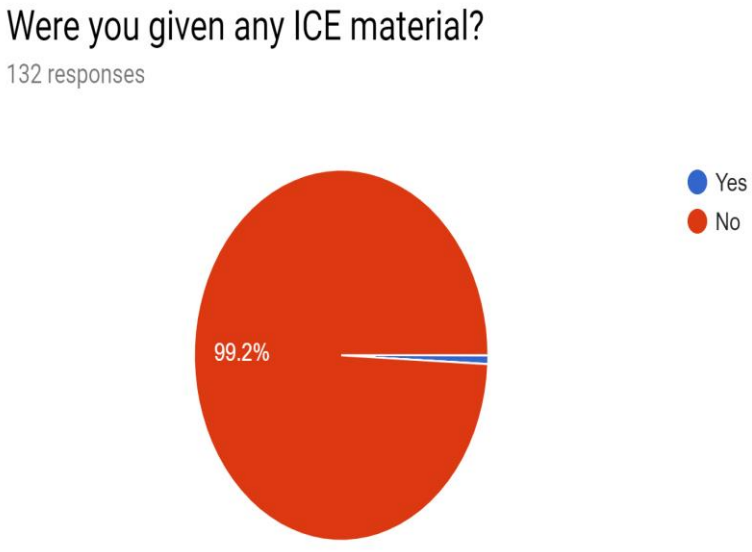


Fig 2.5.7.22

2.5.7.6.12 Cost of Services. In general, as the MMU was run by a non-profit organization, the registration cost, investigation cost and medicines were free of cost for BPL patients whereas it was very nominally priced for the APL patients. 99% patients expressed satisfaction with the registration cost (Fig 2.5.7.23). 93% and 96% of the patients also expressed satisfaction with the cost of investigations and medicines respectively (Fig 2.5.7.24 & Fig 2.5.7.25).

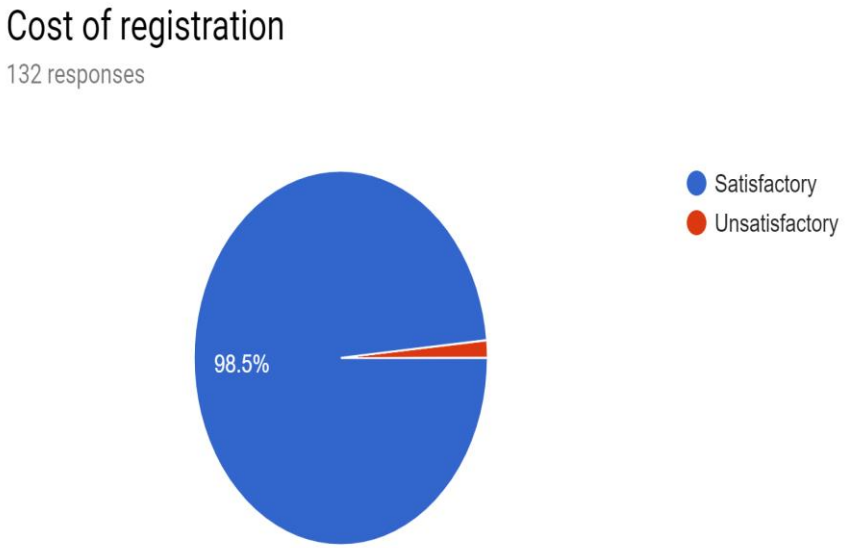
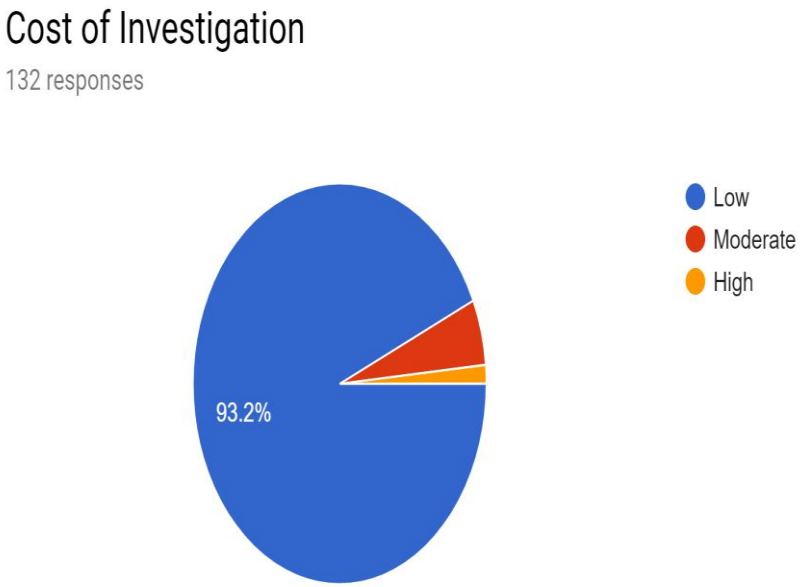


Fig 2.5.7.23



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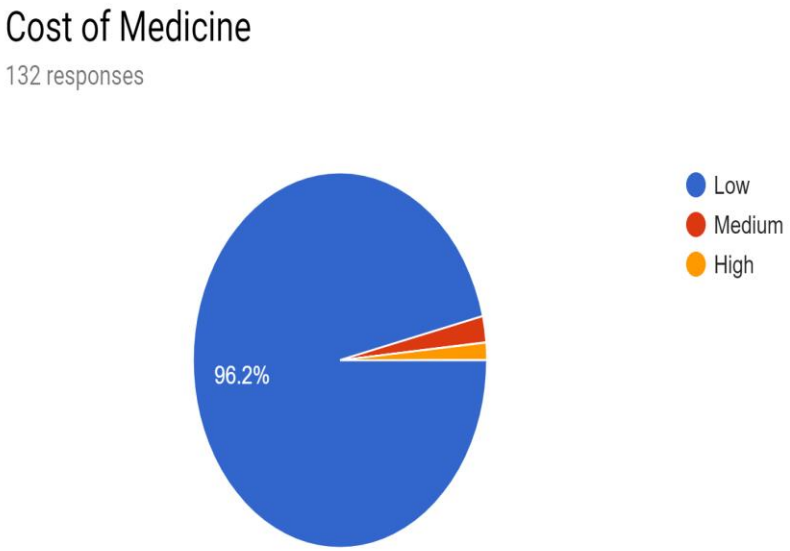

Fig 2.5.7.25

2.5.7.6.13 Waiting Time. Waiting time of patient in OPDs is one of the major reasons for patient's complaints. Therefore, satisfaction of patients with waiting time is crucial in the overall satisfaction with

healthcare experience. In the present study, about 66% of the patients were satisfied regarding ease of locating the hospital and registration process (Fig 2.5.7.26). They felt that the time was less than 10 minutes. 98% % patients expressed satisfaction with the time spent by the doctor on them and felt that adequate attention was being paid to them (Fig 2.5.7.27). 97% patients were satisfied with the time taken for investigation process (Fig 2.5.7.28). 97% patients were satisfied with the time required to locate the pharmacy and getting medicine (Fig 2.5.7.29).

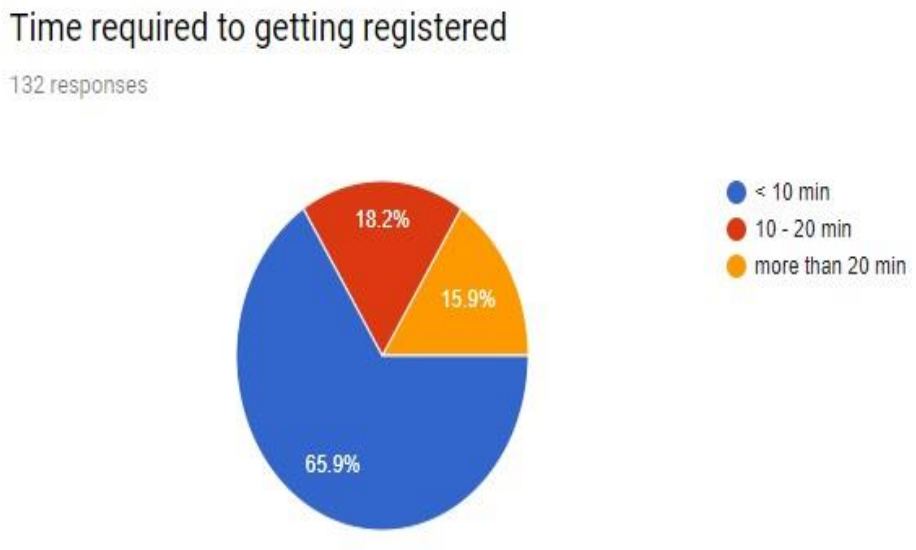

Fig 2.5.7.26

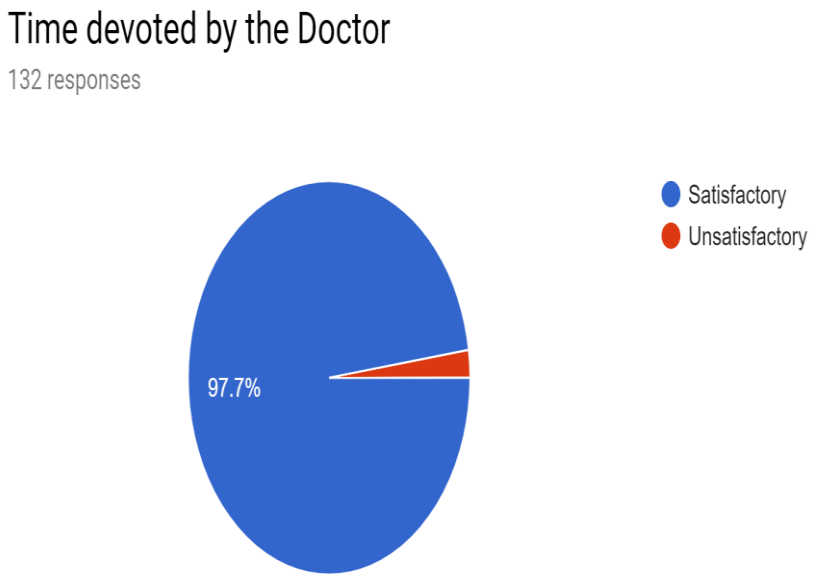

Fig 2.5.7.27

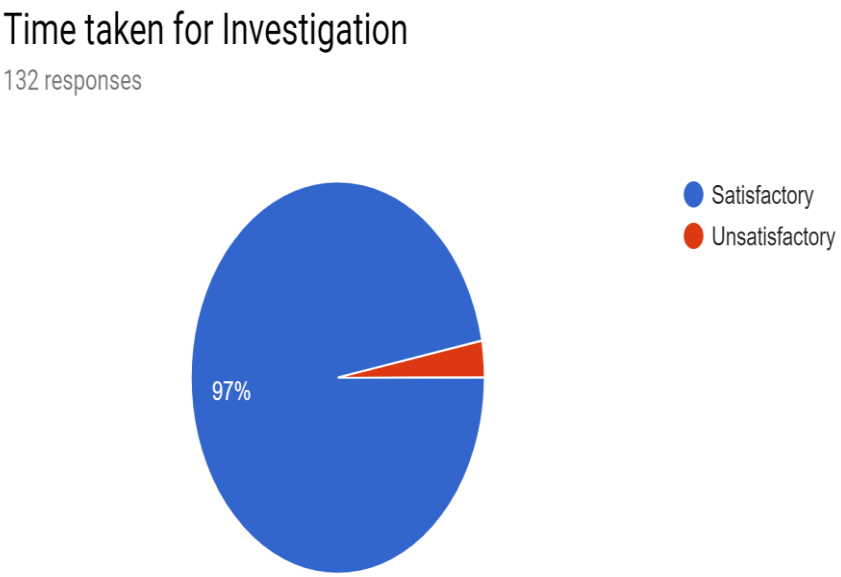

Fig 2.5.7.28

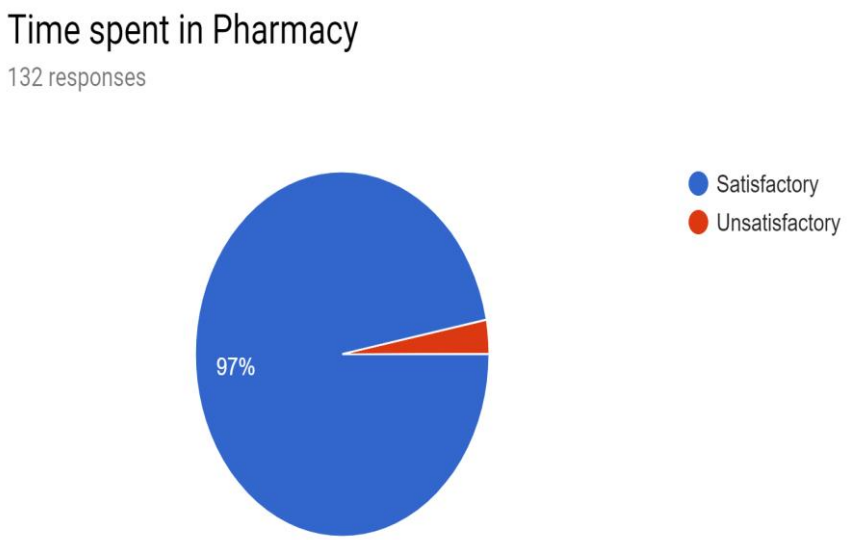

Fig 2.5.7.29

2.5.7.6.14 Patient Suggestions. Various suggestions were put forward by the patients, who though extremely satisfied with the services, wanted to suggest areas of improvement. The majority suggestion was that there should be an increase in the frequency of the visit of MMU. Most of the respondents wanted a frequency of fortnightly from monthly at present. Other suggestions ranged from provisioning of ambulance and availability of child delivery facility (Fig 2.5.7.30). 58 % of the patients felt that the MMU was the best health facility with ease of access in the region (Fig 2.5.7.31). 98.5% of the respondents said that they would continue to visit this health care facility in future too (Fig 2.5.7.32).

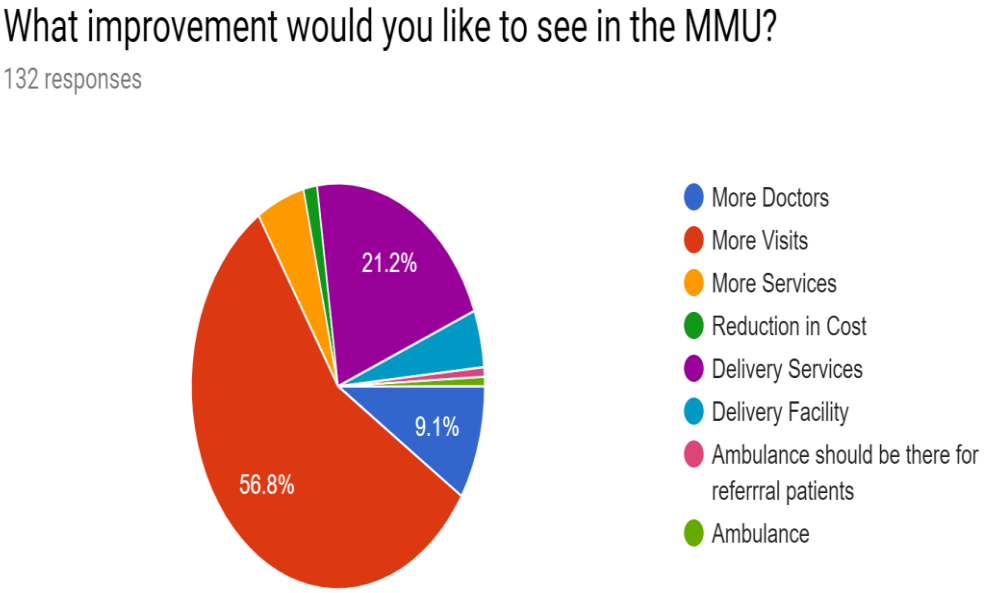

Fig 2.5.7.30

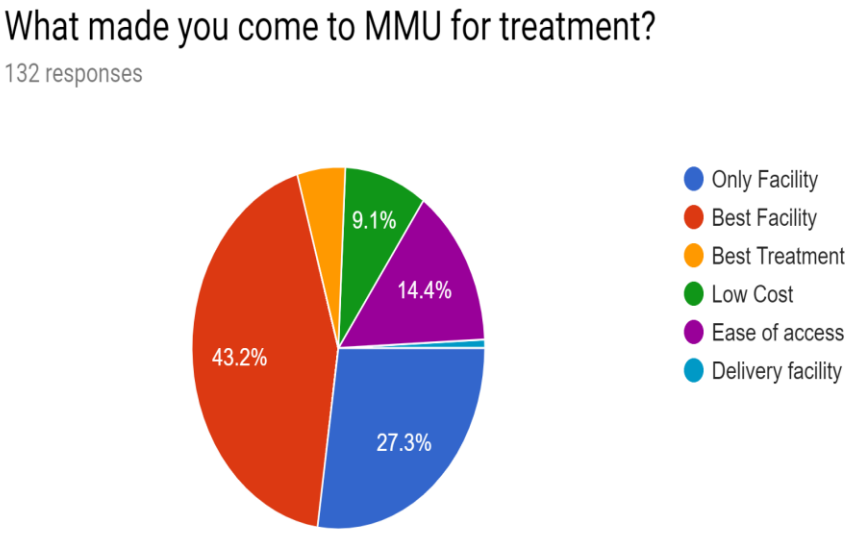

Fig 2.5.7.31

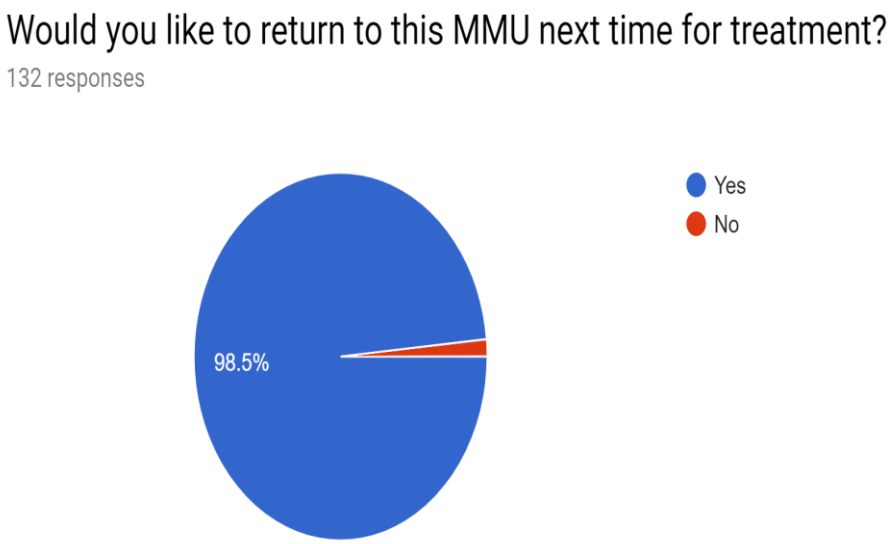

Fig 2.5.7.32

2.5.8. Factors which hinder or enable the better implementation of MMU

2.5.8.1 Limited support from Govt . Aarohi receives very little or practically no help from the local state public health system and the administration. For even very mundane issues like booking of rest houses, their personnel have to run around to Distt HQ every month. In various interactions with MMU staff of Aarohi it was evident that the support from government was very limited. Even the ASHA were not very proactive in the MMU. All the NGO functionaries interviewed said that ASHA don't play an active role in MMU.

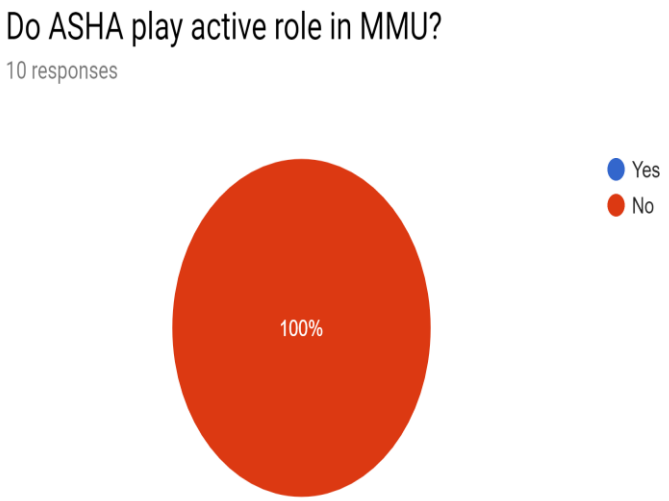

Fig 2.5.8.1

2.5.8.2 Tough Terrain. It is difficult for the volunteers, especially the women, to serve in this area as it is a mountainous remote area and has poor living conditions. Even if Aarohi has the money, finding volunteers who are motivated enough for such places is difficult.

2.5.8.3 Lack of Funds. Like most of the NGOs in India, Aarohi too suffers from funds scarcity. Government support in terms of funding is nonexistent. Days of charity are long over and it's difficult to find donors.

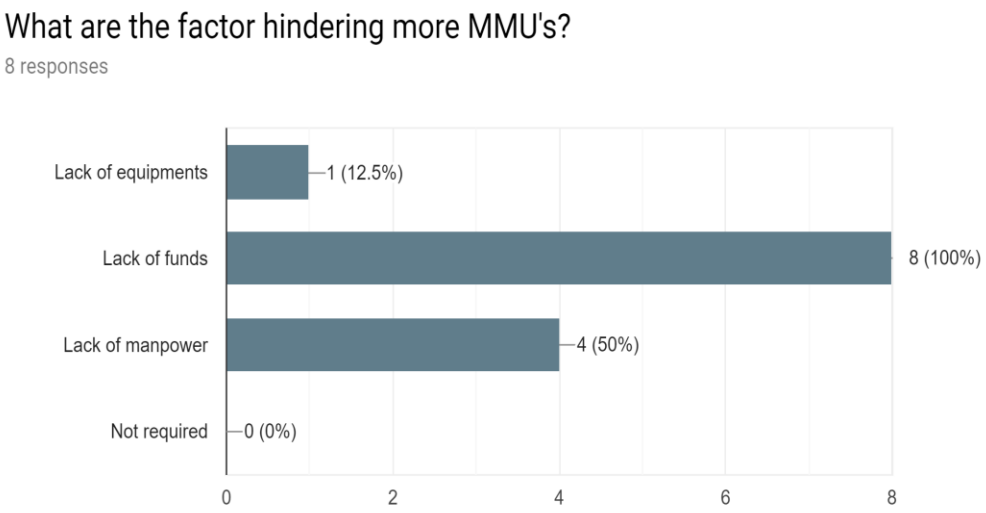

Fig 2.5.8.3

2.5.8.4 Apathy towards Volunteering/ Social work in Youth. The basic characteristic of any 'not for profit' organisation is volunteerism. The level of volunteerism is declining by the day and turning it into professionalism. The young graduates of social work are nowadays more keen in career making than in public service. This leads to lack of motivated volunteers for Aarohi.

2.5.8.5 Inadequate Trained Personnel. The area being very remote with poor infrastructure, it is very difficult for Aarohi to find trained people who are eager to work with a sense of dedication, commitment and interest in the social services. Today's generation is more keen to work in Urban areas where better infrastructure and facilities are available than to come to do public service in a remote mountainous region. Moreover, these professionally trained persons have huge expectations in terms of status, salaries and opportunities for growth in the

career of their choice. Thus, Aarohi with its limited budget is not able to spend as much as these professionally trained people expect.

2.5.8.5 Fragmentation of care. Continuity of care is very difficult to sustain in MMUs, because many clinics are still not fully incorporated in the healthcare system and require e connections with specialty clinics, hospitals, ancillary services, pharmacies and laboratories to ensure that the patients receive the right level of care. Many MMUs face problems in tracking successful patient referrals and others have found that a major proportion of patients do not attend referral appointments. Few MMUs like Aarohi are attempting strategies such as regularly calling patients to ensure follow up, but increasing fragmentation of care stands as a challenge which needs to be to be resolved by the MMU model.

2.6 Discussion

2.6.1 A growing body of literature supports that MMUs are a successful and cost-effective model of healthcare delivery uniquely positioned to assess and fulfill the needs of underserved populations nationwide. Through the act of driving directly into communities and opening their doors on the steps of their target clients, mobile clinics have been shown to be able to engage and gain the trust of vulnerable populations. The most vital disadvantage of mobile medical units is the lack of continuous care of patients. Therefore, it cannot replace the permanent structures. A suitable mix between the stationary and the mobile policy can fine-tune the healthcare system to the particular needs of a concrete country. It, thus, may be better to supplement the static hospitals by few mobile units providing care even at a rather low level instead of excluding large parts of the population totally from medical supply.

2.6.2 Patient satisfaction is considered one of the important quality indicator(s) at the health care institutes. Satisfaction is achieved when the patients' perception of the quality of care and services that they receive in healthcare setting has been positive, satisfying, and meets their expectations.

2.6.3 SK Jawahar (2007) ,) in his study on out patient satisfaction at a super specialty hospital in India, had reported that, as much as 50% of the patients were satisfied with regard to the cleanliness of the hospital. In another study by Prasanna K S. et al (2009), on consumer satisfaction about hospital services: A study from the outpatient department of a private medical college hospital at Mangalore, showed that the patients were fully content with respect to arrangements for seating, OPD cleanliness and OPD timing. All these findings are almost similar to our study.

2.6.4 It was seen that the satisfaction level of the patients with the delivery of services by the MMU was very good on most parameters.

2.7 Conclusion. MMUs have proven to advance population health, improve health outcomes, and reduce cost of healthcare as compared to traditional clinical settings. MMUs can address the medical and social determinants of health while serving as stepping stone between the community and the clinic. However, continuous research has to be carried out for capacity building of the MMUs and to address its limitations. To increase the cost effectiveness of MMUs services, both qualitative and quantitative data needs to be mined to ensure a greater integration of MMUs into various health structures in order to combat few of the greatest healthcare challenges of this era.

2.7.1 Patient satisfaction is increasingly becoming an important issue both in shaping and evaluation of health care and hence must be carried out routinely in all aspects of health care to better the quality of healthcare services. Analysis of data of the survey revealed that there is a fair degree of satisfaction towards the various health care services being provided by the MMU of Aarohi, which is doing a yeoman's job in a very remote and mountainous region.

2.8 Limitations. The study however suffered from the following inherent limitations:-

2.9.1 Being the only health care facility in the region the patients had very little to choose from.

2.9.2 Services of a local interpreter had to be requisitioned to make them understand in local language of Kumaoni, since some patients did not understand Hindi.

2.9 Ethical Clearance : Obtained from Students Review Board

2.10 Funding: Nil

2.11 Conflict of Interest: Nil

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