

# Spatial Pattern of Health Care Facilities in District Leh, Ladakh

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## Abstract

The main aim of the paper is to examine and explain the spatial pattern of distribution of health facilities in Leh district and its different blocks. Data were sourced from the chief medical officer office Leh. The study showed a progressive trend of development of healthcare facilities from 2002 to 2011 in blocks as well as in main town Leh. Among the various health care service PHCs, family welfare centres and medical aid centres were found dominant in all blocks. The ratio of doctors were found very less as compared to compounders in all health centres of all blocks of Leh. In case of treatment major percentage were carried out in outdoors at district as well as block sub district health centres. While major operation facility was done in district hospital Leh (98%) and rest 2 % were operated in sub-district hospital Nubra block. The study concludes that the most striking feature of the distribution of health care facilities in the Leh is the marked concentration of state sector hospitals and key healthcare personnel in the main town Leh. More incentives must be created to enable health-care personnel to work in the rural and remote areas and to enable more private healthcare facilities locate in these areas for more efficient health services to the rural population.

## Keywords

Health, Medical Institutes, Treatment, Blocks, Leh

Received: May 13, 2015 / Accepted: May 22, 2015 / Published online: June 23, 2015

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## 1. Introduction

Health is a fundamental human right and a worldwide social goal. Health is necessary for the realization of basic human needs and to attain the status of a better quality of life (Callahan, 1973). In 1977, the 30th World Health Assembly decided that the main social target of governments and World Health Organization (WHO) in the coming decades should be "the attainment by all the citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life" (WHO 1979). The term Primary care is thought to date back to about 1920, when the Davison report was released in the United Kingdom. The "white Paper" mentioned primary care centres intended to become the hub of regionalized services in that country

(Babara *et al.*, 2005). Health care as a research topic has attracted increasing interest from both the public and academic communities. Recently, health inequality has been frequently debated in both developed and developing countries. China's economic reform since 1978 has dramatically accelerated economic growth as well as living standards. However, the reform has also generated negative impacts on social inequality (e.g., Zhao, 2006). Primary Health care as provision of integrated accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs developing a sustained partnership with patients and practicing context of family and community (Donaldson, 1996). The ultimate goal of Primary Health Care (PHC) is better health for all. In general, any location where health care is provided. Health facilities range from small clinics and doctor's offices to

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urgent centres and large hospitals with elaborate emergency rooms and trauma centres. The number and quality of health facilities in a country or region is one common measure of that area's prosperity and quality of life. In many countries, health facilities are regulated to some extent by law; licensing by a regulatory agency is often required before a facility may open for business. Health facilities may be owned and operated by for-profit businesses, non-profit organizations, governments, and in some cases by individuals, with proportions varying by country.

Since 1940, when the first Medical centre with indoor facility was established at Leh, achievements in respect of providing comprehensive health care facilities in all the three major

health component viz Preventive, Primitive and Curative through a network of 189 institutions with minimum required basic infrastructure facilities, 90 % of which are located in government building are tremendous. The department is working with the main program to reduce morbidity of different diseases prevailing in the district, to provide better treatment facilities, control and prevention of communicable diseases, imparting health education etc. The health care facility in Leh district is very poor as compared to other division of Jammu and Kashmir. The goal of the present study was to study the spatial pattern of health care facility in Leh district and to document the availability of health services in different blocks of Leh.

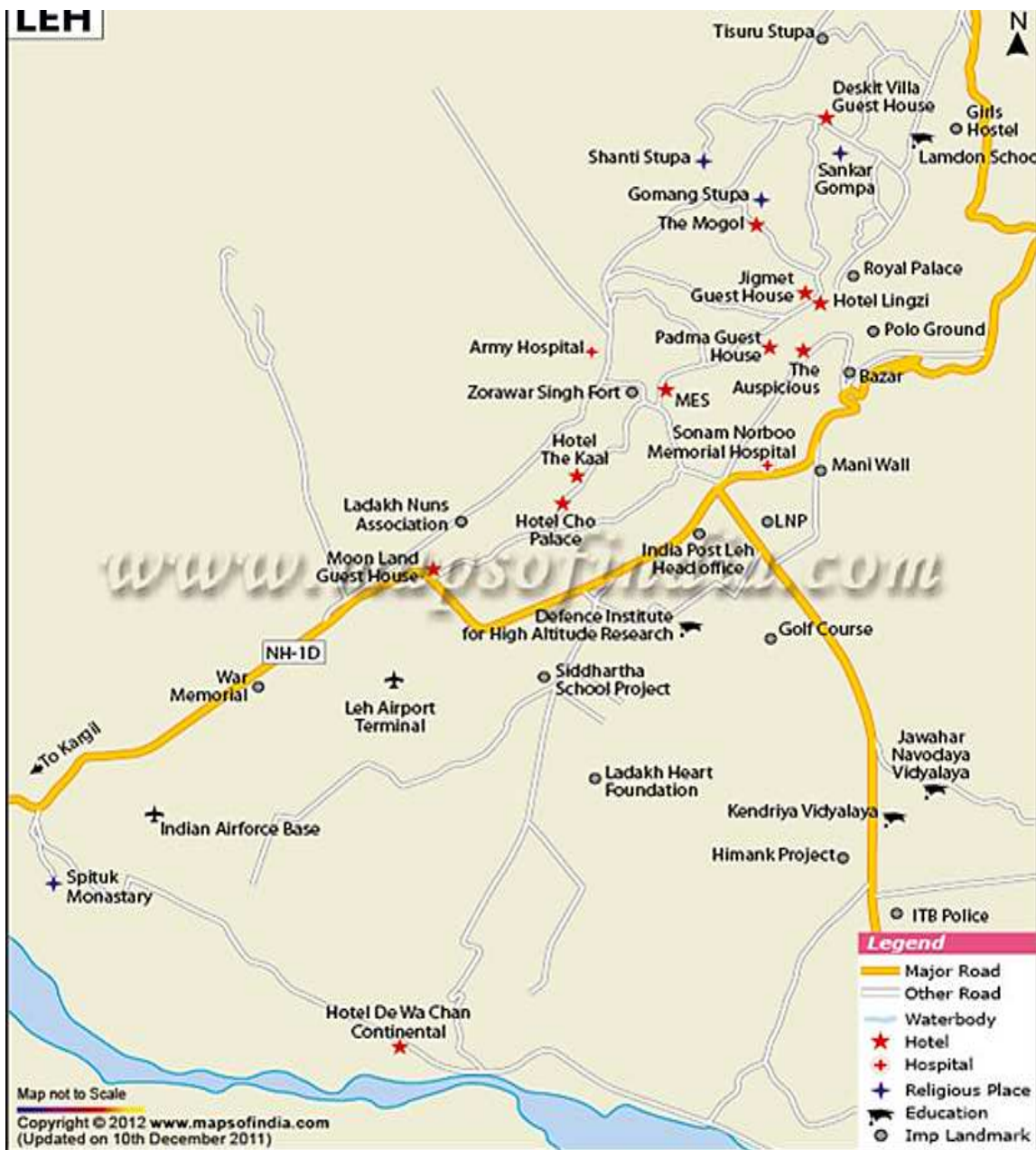


Fig. 1. Map of Leh district.

## 2. Material and Methods

### 2.1. Study Area

District Leh is situated roughly between 32 to 36 degree north latitude and 75 to 80 degree East longitude and altitude ranging from 2300 mtrs to 5000 mtrs above sea level. District Leh with an area of 45100 Km<sup>2</sup> makes it second largest district in the country after Kutch (Gujrat) with an area 45652 Km<sup>2</sup> in terms of area. The district is bounded by Pakistan occupied Kashmir in the west and china in the north and eastern part and Lahul Spiti of Himachal Pradesh in the south east. According to the provisional geographical area figures supplied by Surveyor General of India, the total area of Leh district is 82,665sq. Kms (Cunningham, 1854). Out of the total area of 37,555 sq.kms is under the illegal occupation of China leaving 45110 sq. kms with India. As per the village Papers, the area under the occupation of India is 44,000 Km<sup>2</sup> only The district is divided into 9 CD Blocks namely Leh, Khaltsi, Nyoma, Durbuk, Kharu, Nubra, Saspol, Panamic and Chuchot and divided into 03 tehsil namely Leh, Sumoor and Khaltsi. Leh is the district headquarter and the only township in the district. There are 93 panchayat halqa in the district. Whole district has been declared as a tribal district (Cunningham, 1854 and Francke , 1977). Leh with an area of 45110 Km<sup>2</sup>; which probably makes it largest district in the country in terms of area is one of the coldest and most elevated inhabited region of the world having 112 inhabited and 1 uninhabited villages. The main occupation engaging the working force is cultivation (37.92%), agriculture labor (4.28%), household industry (1.24%) and other works (56.56%).

### 2.2. Database and Methodology

A comprehensive socioeconomic, land use and demographic field survey was conducted during 2014. The survey was conducted at the household and village level and generally remained confined to these villages (Choglasar, Salsoo, Hemis, Hundru (Nubra), Stoke, and Thiksy). The survey was carried out to the gauge the perception of the people regarding the various parameters like availability of health care facilities, their infra-structure, availability of modern facility in health centres, availability of medical and paramedical staff, and treatment and operation facilities etc. The inferences and findings of this study are based on the primary and secondary data collected by surveying in different villages and secondary data from CMO office Leh.

## 3. Result

In present survey spatial pattern of health care facilities of

Leh district was studied in different blocks of this district. During this survey different health care facilities on yearly as well as block wise has been assessed on the basis of secondary data which include:

- Number of medical institutes in different blocks of Leh district
- Bed capacity available in health centres
- Staff strength ( medical and paramedical)
- Patients treated and operated

### 3.1. Number of Medical Institutions in Different Blocks of Leh District

During the present survey the year wise data of different health care facility were significantly varied between different years from 2002 to 2011. The present data depicts that in Leh district there is maximum availability of medical aid centres followed by family welfare centres /sub centres and PHC's while the minimum number of big hospitals such as district or sub district hospitals (Fig 2a). The block wise scenario of availability of health care facility of Leh district depicts wide variation between different blocks. There is only one district hospital in this high altitude district which is located in main town Leh and one sub-district hospital in Nubra block. Likewise yearly statistics of health care facilities in Leh, medical aid centres was also found in all blocks of Leh with maximum number of 16 in Khalsi and minimum 6 each in Panamic and Saspol blocks. PHC's and family welfare centres was available in all blocks of Leh district (Fig. 2b). However, dispensaries (allopathic and aurvadic) were limited to only few blocks. There is only 3 Allopathic dispensaries 2 in Khalsi block and 1 in Nyoma in comparison Aurvadic dispensaries were 40 in number in only five blocks.

### 3.2. Bed Capacity Available in Health Centres

The highest bed capacity was found in district hospital followed by sub-centres. It was observed that in hospitals the minimum bed capacity was 150 beds in 2008 -2010 in contrast maximum bed capacity 255 beds was available in 2006-2008. Similarly in Sub health centres the bed capacity ranged from 60 beds to 180 beds from 2002 to 2011. Limited bed capacity was recorded in dispensaries and other health institutes which was varied from 15 to 40 (Fig. 3a). The block wise availability of bed capacity in various health institutes of Leh district showed great variation between health care facilities and blocks (Fig. 3b). Presently the maximum bed capacity of 255 beds was found in district hospital of Leh which is situated in Leh town. The sub health

care centres were found in all nine blocks of Leh among them maximum bed capacity was recorded in Nubra block having 60 beds followed by Khatsi (30 beds) and 20 beds each in Durbuk and Chushot respectively. While other blocks contain similar bed capacity of 10 beds.

### 3.3. Staff Strength (Medical and Paramedical)

The data collected during present survey depicted that the statics of doctors were available maximum number of doctors (92) during 2001-2003. The number of doctors were found decrease almost 50% from 2003 to 2009 and during 2009-2011 the number of doctors were again found increasing (Fig. 4a). Further it was also evident from data that among other medical staff (vaids, Nurses, compounders etc) compounders and auxiliary midwives were found in increasing in number as compared to other staff. Among the technical staff laboratory technician were found maximum almost in all the years from 2001-2011 as compared to other staff. In various health centres of Leh district the availability of X-ray technician and BCG technician was found from 2007 onwards (Fig. 4b). The block wise data of medical staff showed that there is availability of doctors, compounder and nurse in every block of Leh district. While paramedical and technical staff is not available in all blocks (Fig 4c). Sanitary and ophthalmic assistants were restricted to few blocks only. In case of BCG technician it was only found in Leh Town and lacking in all blocks.

### 3.4. Patients Treated and Operated

The data collected from the presented survey did not depict any marked fluctuation in treatment of different of patient in indoor and outdoor. On an annual basis (2001-2011) the highest percentage (13%) of patients were treated indoor during 2004-05 and lowest treatment percentage (7%) were recorded from 2001-2003 (Fig. 5a). Similarly treatment of patients in outdoor also showed insignificant variation in percentage of patients treated on yearly basis. As per the data available on treatment of patients in various outdoors health centres showed similar percentage 11% from 2006 to 2011 and minimum 8% during 2002-03 (Fig. 5b). However, it was also evident from data that various patients were operated (minor as well as major operations) in various health centres of Leh district. The percentage of major operations varied from 5% to 14% and in case of minor operations the percentage varied from 4-20% from 2001-2011 (Fig. 5c and Fig. 5d).

The block wise data showed significant variation between SNM hospital and other health centres located in various blocks of Leh district. The percentage of treatment and operations performed were found maximum in SNM hospital as compeered to other health centres. The treatment was done mostly in outdoor in every block and indoor facility was found only in few blocks (Fig. 5e & 5f). A perusal of the data depicted that major operations facility were only found in district hospital leh and Nubra block (Fig. 5g & 5h). While minor operation facilities were almost found in each block.

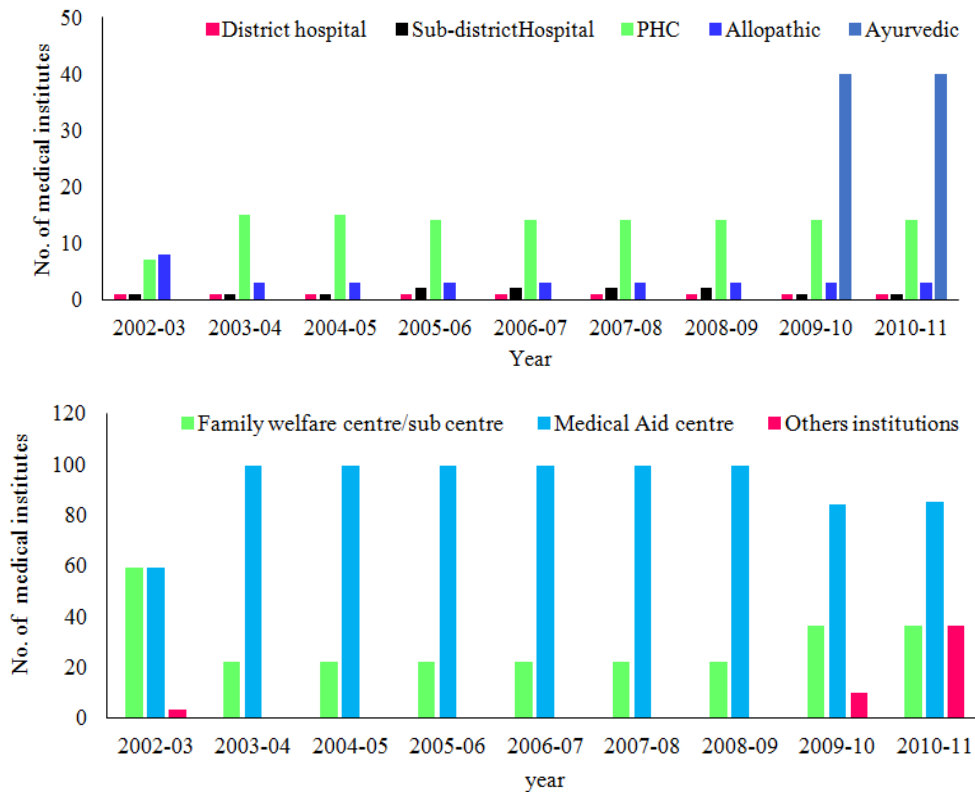


Fig. 2a. Year wise availability of different health centres in Leh district from 2001 to 2011.

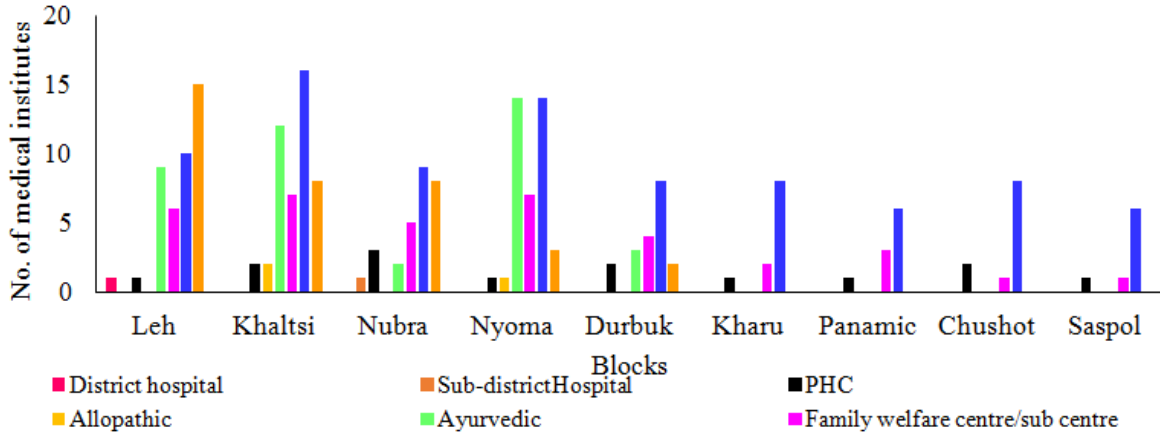


Fig. 2b. Block wise availability of different health centres in Leh district.

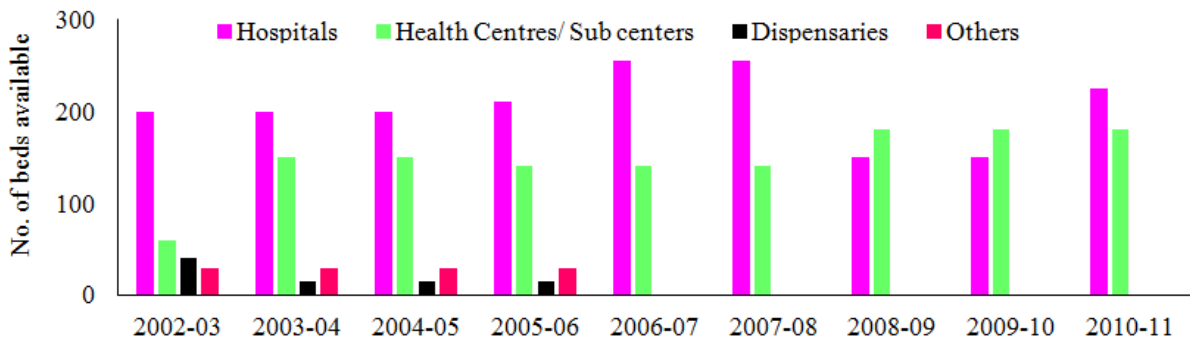


Fig. 3a. Year wise availability of bed capacity in different health centres in Leh district from 2001 to 2011.

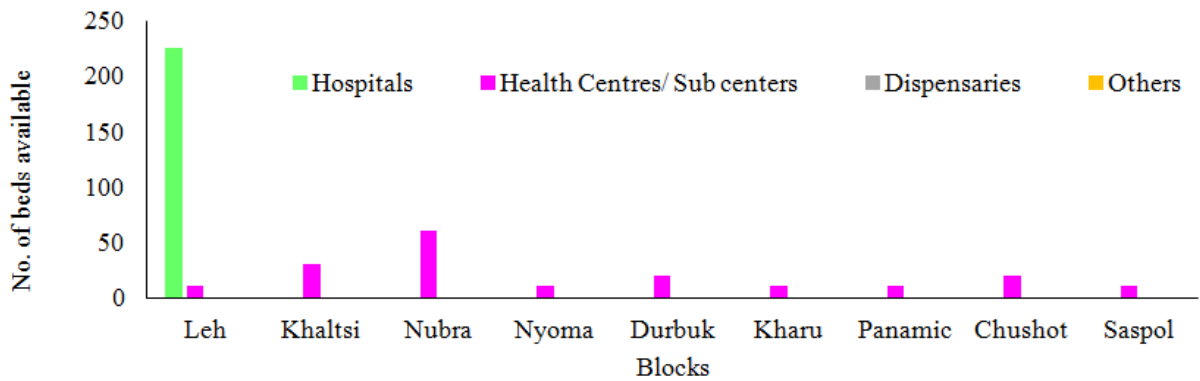


Fig. 3b. Block wise availability of bed capacity in different health centres in Leh district.

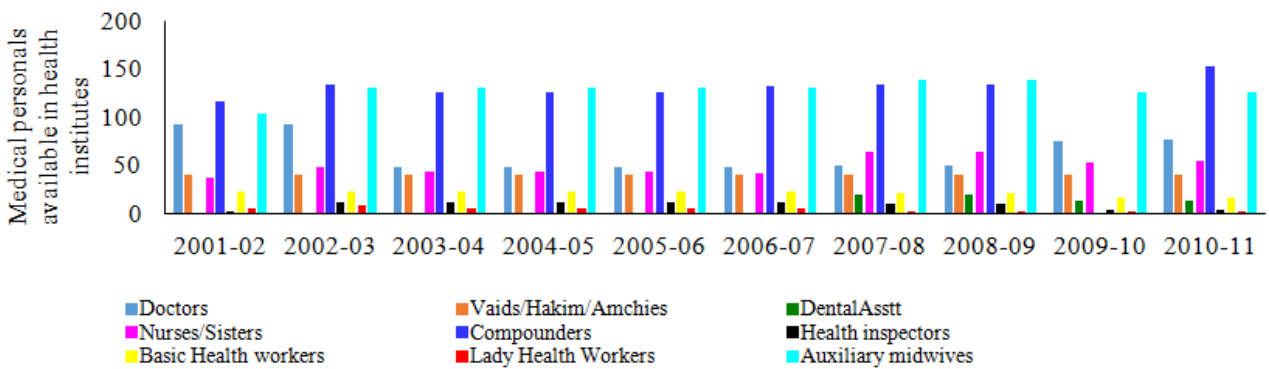


Fig. 4a. Year wise availability of medical staff in different health centres in Leh district from 2001 to 2011.

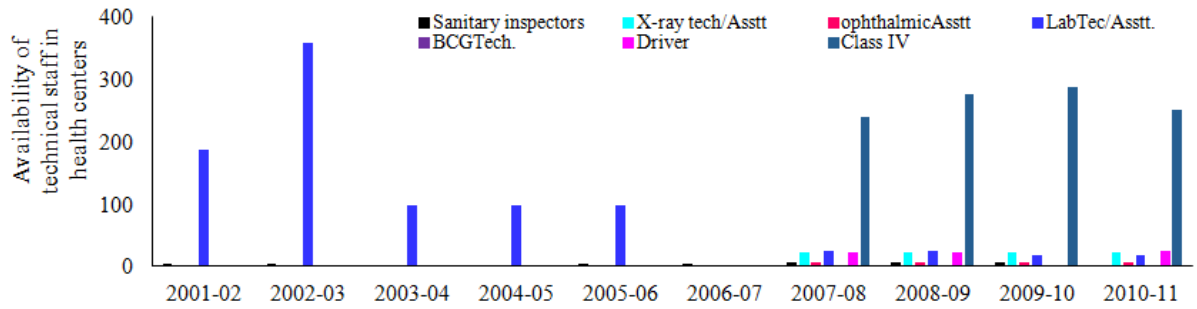


Fig. 4b. Year wise availability of paramedical staff in different health centres in Leh district from 2001 to 2011.

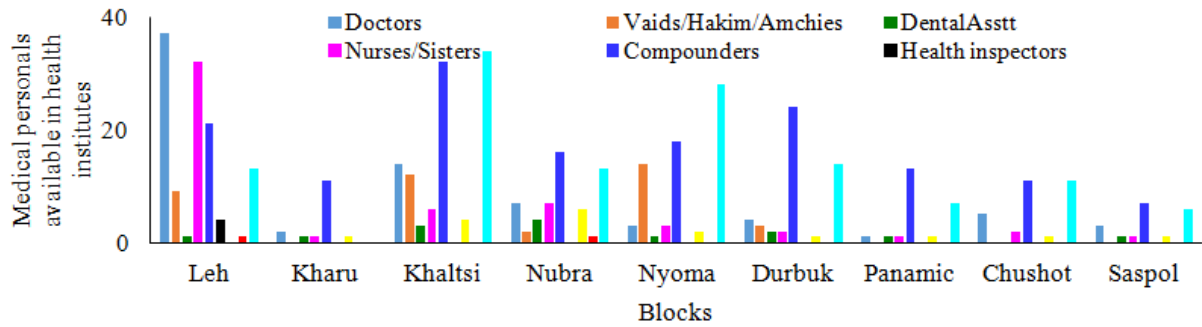


Fig. 4c. Block wise availability of medical staff in different health centres in Leh district from 2001 to 2011.

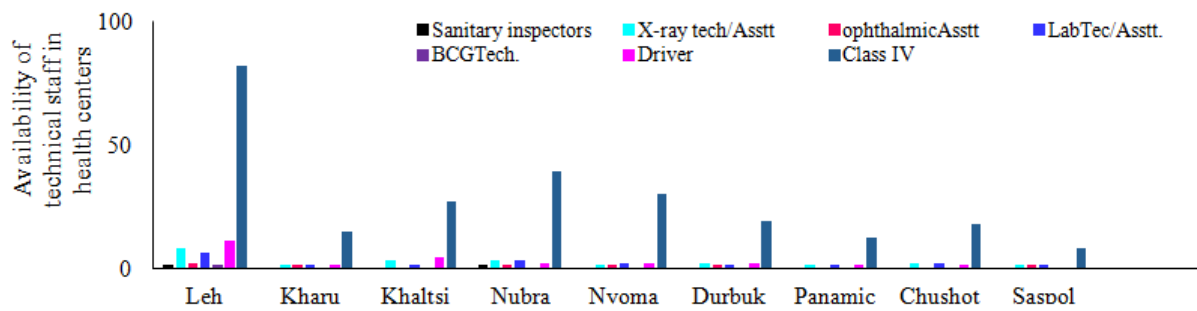


Fig. 4d. Block wise availability of paramedical staff in different health centres in Leh district from 2001-2011.

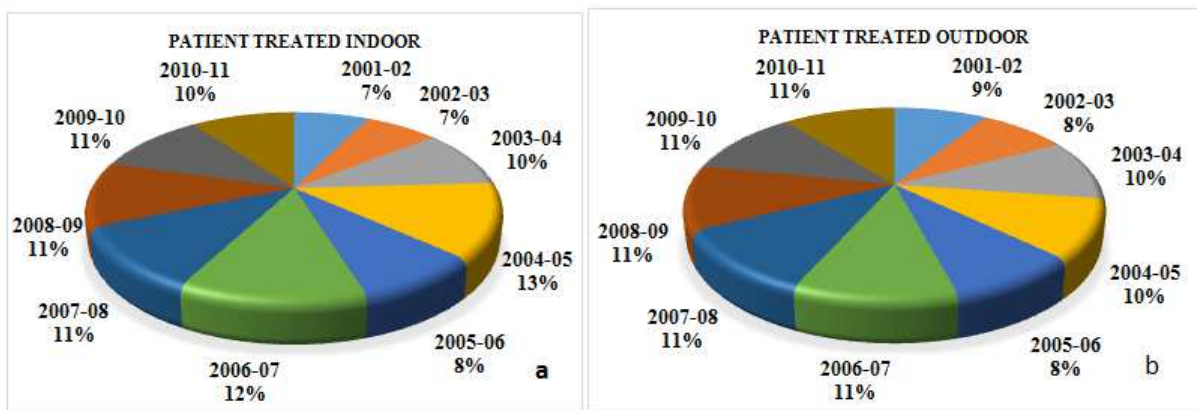


Fig. 5a & 5b. Percentage of patients treated indoors and outdoors in different health centres from 2001-2011 in Leh district.

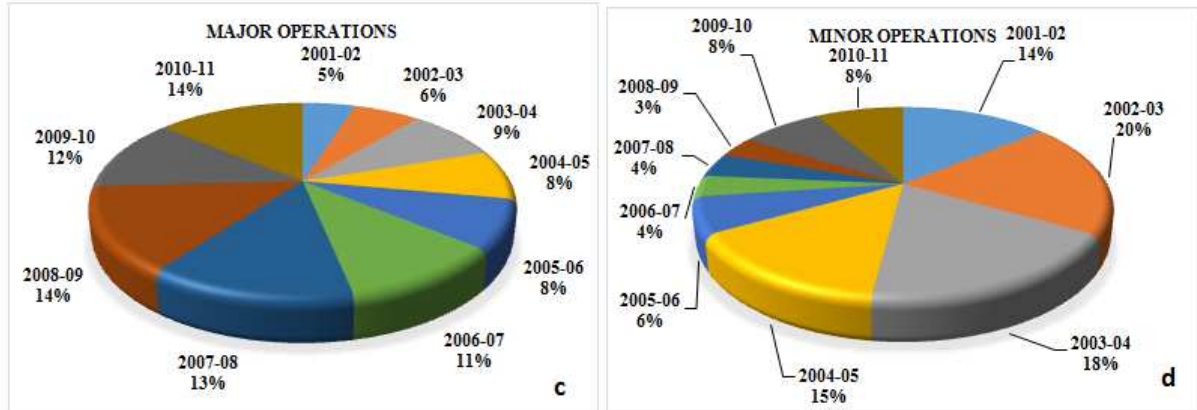


Fig. 5c & 5d. Percentage of operations (minor and major) in different health centres from 2001-2011 in Leh district.

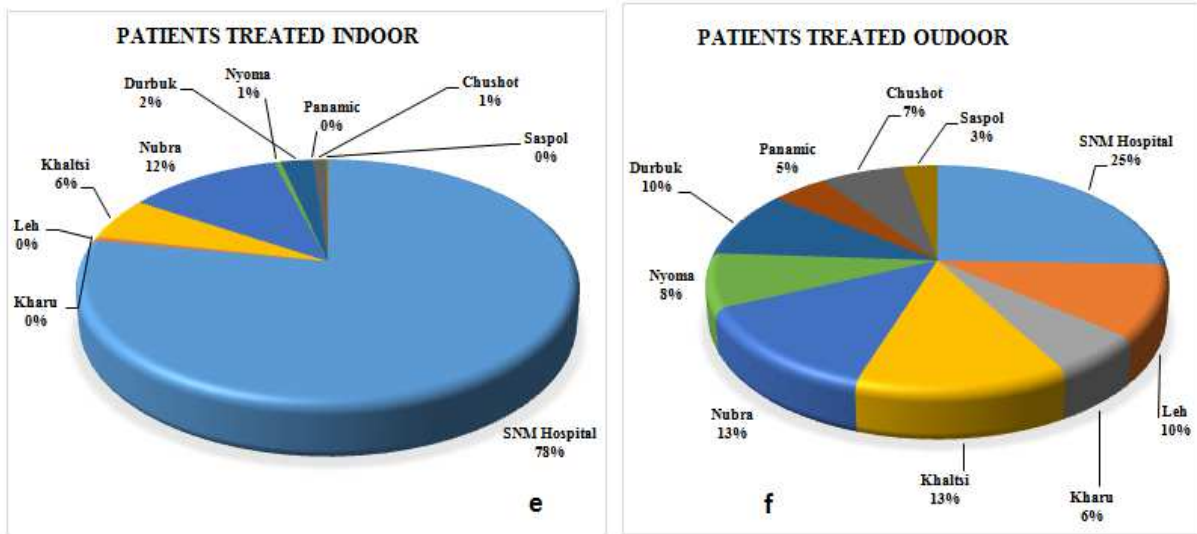


Fig. 5e & 5f. Percentage of patients treated indoor and outdoors in different block of Leh district.

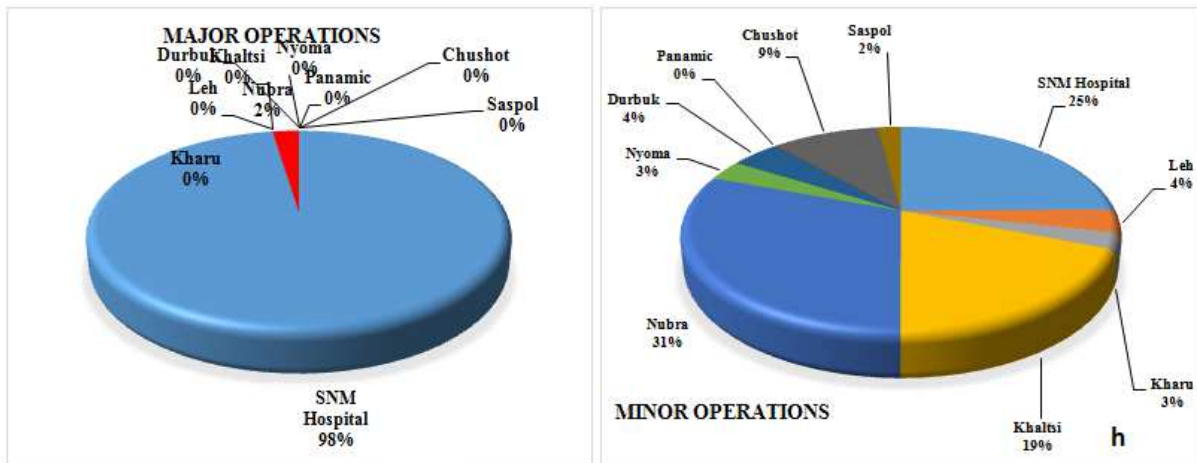


Fig. 5g & 5h. Percentage of operations (minor and major) in different blocks of Leh district.

### 4. Discussion

The minimum number of health care facilities in Leh district is attributed to various factors like high altitude, lack constant transport facility round the year and remote location etc. It

was clearly depicted that the number of PHC's and other smaller health care facilities has been increased from 2002 to 2011 it may be due to the fact that the linkage facilities of Leh to other areas of state has been improved from last decade. It has been seen that when a remote areas has been

facilitate with modernization it will lead positive effects on that remote area by increasing and improving the facilities available in that area. The availability, choice and range of health services found within rural areas are often very different to those available in urban towns and cities. Under various sectors in the plan, only two approved Community Health Centres have been considered for allocations. They are SDH Nubra and CHC Skurbuchan/Khaltse. But one major region i.e. Nyoma has been left out. Nyoma which is located at an altitude of more than 14000 ft. above mean sea level and where winter temperature deep down to  $-30^{\circ}\text{C}$  to  $-35^{\circ}\text{C}$ , has one major infrastructure coming up which is nearing completion. It is currently designated as PHC but has all the infrastructure of Sub District Hospital including Operation Theatres, state of Art Central Heating System, spacious Wards, OPDs etc. The same is likely to get commissioned within next few months. Since it caters to one big Sub Division, which is geographically, and climatically most compromised, it is strongly recommended that PHC Nyoma with infrastructure of SDH should be included for provision of all the facilities being made available to the other to CHC's. This shall enable delivery of proper health care system to the distant and deprived population of Nyoma Sub Division. As such all the components of the remaining CHCs have been added in respect of PHC Nyoma also. District Health Society Leh strongly recommends the same (NRHM, 2007).

In Leh district there is only one district in Leh town and sub district in Nubra the availability of bed capacity was restrict to these two hospital in majority than other small health centres situated in various blocks. It could be attributed lack of transportation and scattered population in these blocks. Among the 9 blocks Khusi, darbuk and chushot have minimum bed capacity in sub health centres of respective blocks in comparison to other blocks. Limited bed capacity in small health care units was not possible because of their lack of space in those unites. The dispanceries and other smaller sub health care facilities was either situated in small house having one or two rooms for this facility were the space for beds was not possible. The limited space of smaller sub health unites in leh district was due to its terrain and remote rural areas.

It was observed from the present study that availability of doctors were found limited in different health sub centres in various blocks of Leh. While as the other medical staff was also found limited in different health care divisions and very rare availability of technicians. It could be due to lack of health care facility and modern amenity and remote location of Leh and other blocks. There are various factors which was found in Ladakh which could become a cause that a health official denies to perform duties in these remote areas/blocks.

There is contesting regime between traditional "amchi" practices with modern medical development. They may not have a doctors' surgery or pharmacy nearby but there is traditional "amchi" form treatment with localized use of herbs and natural treatment. Hospital treatment may involve long journeys and emergency care may take time. In many respects, the contrast between living and working in rural villages in Ladakh and central Leh and Kargil, as well as other major cities of country is striking. Do such sharp differences and inequalities in access to healthcare and other services, their relative availability and range of facilities, have a detrimental effect on the lifestyle, opportunities, and in particular the health of rural communities. Health research has tended to focus on urban environments, where higher levels of deprivation, poor health, social need and inequity may occur. However, rural communities often find the affluent and poor living close by each other. Rural poverty, social exclusion, and levels of ill health and need amongst particular groups (for example, the growing numbers of older people, families with young children and the younger unemployed) are often hidden.

The data collected during survey depicted that indoor facility were only restricted to district hospital Leh and sub-district health center Nubra. Similarly the percentage of major operations facilities were also found in these two hospitals. It is attributed to availability of maximum necessary health care facilities in these two hospitals. The treatment facilities of patients at outdoor were almost performed in every health center/ sub centres located in various blocks. The health facilities in Leh is not par to various other cities and towns of India due to various reasons which includes Leh is very far from mainland and secondly transportation facilities is not that good and it is cut off from rest of the countries for almost six month over the year, thirdly geographical terrain is so harsh and lack of well-trained doctors are not ready to serve in this part of region and lastly the disease from which people are suffering in this part of region is relatively different from rest of the India. Hence the policy regarding health issue should be according to the need of Ladakhi people.

## 5. Conclusion

It was concluded from the survey that basic health care was not adequate in different blocks of Leh. There is lack of essential modern health care facilities and proper treatment/operations of patients by latest methods. The poor facility of basic health care in various sub-centres of different blocks cannot meet the medical relief of patients. The present survey also conclude that people in remote block mostly prefer Amchi treatment due to lack of health care facility and



less exposure to latest medical treatment and diagnosis and limited availability of doctors and other paramedical staff.

## Acknowledgement

We are highly thankful to CMO Leh for his cooperation and help in present work. We are also grateful to Head department of Geography and Regional Development University of Kashmir for providing an opportunity to carry this work.

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