



## DISEASE BURDEN AND HEALTHCARE SERVICE UTILIZATION AT A RURAL HEALTH TRAINING CENTRE IN THE HIMALAYAN REGION: A RETROSPECTIVE DESCRIPTIVE STUDY

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### ABSTRACT

**Background:** Rural Health Training Centres (RHTCs) play a vital role in delivering primary healthcare services in underserved regions of India. Understanding demographic characteristics, morbidity patterns, and healthcare utilization is essential for effective planning and resource allocation. **Methods:** A retrospective descriptive study was conducted at RHTC Tauni Devi, District Hamirpur, Himachal Pradesh, from May 2024 to April 2025. Data were extracted from outpatient, inpatient, emergency, maternal and child health (MCH), adolescent health (RKS), ophthalmology, dental, pharmacy, and tuberculosis (TB) registers. The unit of analysis was patient visits, including repeat visits. Data were analyzed using Microsoft Excel and Epi Info version 7, and presented as frequencies and percentages. **Results:** A total of 78,830 patient visits were recorded during the study period, with an average daily attendance of approximately 250 patients. Females constituted 61% of attendees. The majority (35%) belonged to the 25–49 years age group. Non-communicable diseases (53%) predominated over communicable diseases (47%). Hypertension, diabetes mellitus, and musculoskeletal disorders were the leading NCDs. Seasonal peaks of diarrheal and vector-borne diseases were observed during monsoon, while respiratory illnesses increased during winter. A total of 5,160 inpatient admissions and 1,964 emergency cases were managed. Among 88 individuals screened for tuberculosis, 10 were sputum-positive. **Conclusion:** The findings reflect an ongoing epidemiological transition in rural Himalayan settings, characterized by a rising burden of non-communicable diseases alongside persistent communicable diseases. Strengthening chronic disease management, adolescent health services, tuberculosis screening, and seasonal preparedness strategies is essential to optimize rural primary healthcare delivery.

**KEYWORDS :** Rural Health Training Centre; Disease Burden; Healthcare Utilization; Non-Communicable Diseases; Primary Healthcare.

### INTRODUCTION

Rural Health Training Centres (RHTCs) serve as crucial primary care facilities while functioning as field practice areas for medical colleges in India. They deliver outpatient services, maternal and child healthcare, communicable disease control, immunization and specialty services, forming the backbone of rural healthcare delivery. India is currently undergoing an epidemiological transition, characterized by a gradual shift from communicable diseases to non-communicable diseases (NCDs) as major contributors to morbidity and mortality (Omran, 1971). This transition is evident across Indian states, including rural and hilly regions, with rising prevalence of hypertension, diabetes mellitus, cardiovascular diseases, and chronic respiratory illnesses. (India State-Level Disease Burden Initiative Collaborators, 2017)

Despite this shift, communicable diseases such as acute respiratory infections, diarrheal diseases, and vector-borne illnesses continue to pose a significant public health challenge, resulting in a dual burden of disease. Rural health facilities are therefore required to address both chronic disease management and seasonal infectious disease outbreaks. (Reddy & Prabhakaran, 2012)

RHTC Tauni Devi, located in District Hamirpur in the hilly Himalayan region of Himachal Pradesh, caters to approximately 97,807 people across 304 villages. The centre provides an array of services including OPD, IPD, emergency care, TB microscopy under NTEP, MCH services, RKS adolescent clinics, dental services and ophthalmology care. Despite its importance, limited published evidence exists on disease burden and service utilization from this region.

This study aims to bridge this gap by comprehensively documenting the demographic profile, morbidity patterns, and healthcare utilization at RHTC Tauni Devi over one year.

### Objectives

To describe the demographic profile and morbidity patterns of patients attending RHTC Tauni Devi.

To assess the utilization of various healthcare services provided at RHTC Tauni Devi.

### Methodology

The present study was conducted in Rural Health Training Centre, Tauni Devi, affiliated with Dr. Radhakrishnan Government Medical College, Hamirpur from May 2024 to April 2025.

**Data Sources:** Data were extracted from following registers and

department records OPD and daily attendance registers, IPD admission registers, Emergency register, Pharmacy dispensing registers, DOTS register, MCH registers, Dental and ophthalmology OPD registers, RBSK adolescent health clinic register.

**Inclusion:** All complete patient and service utilization records during the study period.

**Exclusion:** Incomplete, duplicate, or out-of-period records.

**Data Analysis:** Data collected were entered into Microsoft Excel spreadsheet and analyzed using Epi Info version 7 categorical variables were presented in terms of frequency and proportions.

### Ethical Considerations

This study was based on retrospective analysis of routinely maintained hospital records without direct patient interaction. All data were anonymized prior to analysis to ensure confidentiality. As no identifiable patient information was used and the study involved secondary data analysis, the study was granted exemption from full ethical review by the Institutional Ethics Committee of Dr. Radhakrishnan Government Medical College, Hamirpur. The study was conducted in accordance with institutional research guidelines.

### RESULTS

A total of 78,830 patient visits were recorded during the study period.

	New OPD	OLD OPD	ELDERLY
May	5950	720	857
June	5780	680	667
July	6120	810	822
August	5840	750	582
September	6210	790	628
October	5560	840	700
November	5420	730	530
December	5350	750	737
January	5680	620	730
February	5720	780	669
March	6085	835	172
April 2025	5910	900	523

Total IPD admissions: 5160

Emergency cases Handled: 1964

### Gender Distribution

Females constituted 61% of patients and males 39%.

**Age Distribution**

Age Group	Percentage	Patients
0-9yrs	12%	9,460
10-19yrs	15%	11,825
20-24yrs	10%	7,883
25-49yrs	35%	27,591
50-64yrs	13%	10,248
>65yrs	15%	11,825
Total		78,830

The majority of patients belonged to the economically productive age group (25–49 years).

**Disease Burden**

Distribution of Disease Categories at RHTC Tauni Devi	Number of Cases	Percentage
Communicable diseases	37,050	47%
Non-Communicable diseases	41,780	53%
Total	78,830	100%

The leading non-communicable diseases included hypertension, diabetes mellitus, chronic respiratory diseases, and musculoskeletal disorders. Communicable diseases comprised acute respiratory infections, diarrheal illnesses, vector-borne diseases, and skin infections.

**Seasonal Trends**

An increase in diarrheal and vector-borne diseases was observed during the monsoon months, while respiratory infections peaked during winter.

**Inpatient Services**

The centre has 15 beds (separate male and female wards). A total of 5,160 admissions were recorded during the study period. The average length of stay was five days. Most admissions were related to gastrointestinal and respiratory conditions. Severe cases were referred to higher centres.

**Tuberculosis Services**

Under the National Tuberculosis Elimination Programme (NTEP), 88 individuals were screened for tuberculosis during the study period. Ten patients were diagnosed as sputum-positive and initiated on treatment as per national guidelines.

**Maternal and Child Health Services**

The centre conducted an average of 1–2 deliveries per month, primarily normal vaginal deliveries. Antenatal care services were regularly provided, including HIV screening and immunization activities. Vaccination coverage activities were intensified during outreach months.

**Adolescent Health Services (RKSK)**

A total of 374 adolescents (10–19 years) were registered during the study period. Females constituted 55% and males 45%.

Common health issues included:

- Menstrual disorders
- Anemia
- Skin infections
- Febrile illnesses

Services provided included iron-folic acid supplementation, deworming, and counseling on nutrition, hygiene, and substance abuse.

**Specialty Services****Ophthalmology Services**

A total of 6,730 ophthalmic cases were managed during the study period. Refraction was performed in 3,740 patients, and 1,814 spectacles were prescribed. Other common conditions included foreign body and conjunctivitis (1,176 cases).

**Dental Services**

A total of 2,076 dental procedures were performed annually, including extractions, fillings, cementation, root canal treatment, scaling, and dentures.

**Emergency Patient Profile**

The emergency ward at RHTC Tauni Devi provides services 24/7.

Common emergencies included trauma, animal bites, poisoning and seizures.

Referral rate: 48%

**DISCUSSION**

The present study highlights high utilization of primary healthcare services at RHTC Tauni Devi, with a substantial burden of non-communicable diseases accounting for more than half of the total morbidity. This finding aligns with national and global evidence indicating a rising dominance of NCDs even in rural populations. The predominance of females among service users may reflect improved health-seeking behavior and increased utilization of maternal and child health services.

The higher burden of non-communicable diseases (53%) indicates an ongoing epidemiological transition in rural India. However, the persistence of communicable diseases (47%) reflects a dual burden, consistent with patterns observed in other low- and middle-income settings.

Seasonal variations in morbidity highlight the importance of preventive public health strategies and preparedness planning at the primary care level. The referral pattern indicates that RHTCs function as stabilization centres before higher-level referral.

Strengthening NCD clinics, enhancing tuberculosis case detection, and improving adolescent-friendly services are essential to further improve rural healthcare delivery.

**Limitations**

This study was retrospective and based on register data, which may be subject to recording errors or incomplete documentation. The unit of analysis was patient visits; therefore, repeat visits by the same individual were included. Inferential statistical analysis was not performed. Long-term treatment outcomes could not be assessed.

**CONCLUSION**

RHTC Tauni Devi provides comprehensive primary healthcare services to its rural catchment population. The one-year profile reflects a predominance of non-communicable diseases alongside persistent communicable diseases, indicating an ongoing epidemiological transition. Strengthening chronic disease management, tuberculosis screening, adolescent health services, and seasonal preparedness measures is essential for improving rural health outcomes.

**Conflict of Interest**

The author declares no conflict of interest.

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