ASSESSMENT OF DEMOGRAPHIC, ETIOLOGICAL AND CO-MORBIDITY STATUS AMONG PATIENTS FROM RURAL AREAS OF GARHWAL REGION OF UTTARAKHAND FOR VARIOUS DISEASES

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ABSTRACT
The current study was designed to identify the demographic, etiological and co-morbidity pattern of out- patients attending rural health training centre (RHTC), community health center (CHC) and government hospital of pokhra block of pauri garhwal district, Uttarakhand, North India. The present study record-based cross-sectional study was conducted among the out-patients attending the rural health training centre (RHTC), community health center (CHC) and government hospital of pokhra block of pauri garhwal district, uttarakhand, north India during the study period of 6 months in 2024. Data was retrieved from the OPD registers maintained at the rural health training centre (RHTC), community health center (CHC) and government hospital. Data was collected pertaining to socio-demographic profile, morbidity details and treatment pattern. Descriptive analysis was done. Study was carried out by reviewing prescription of 80 patients, out of which 67.5% were males and 32.5% were females. The majority of the patients were in age group of 56-60 years (34.16%). Of the 80 patients, 41.25% were smokers, 42.5% were alcoholics and 6.25% had other social habits. Etiological evaluation revealed that 30% of patients were related to lifestyle factors (e.g., diet, smoking, etc.), followed by 18.75% of patients with low socioeconomic status. Among 80 patients, the most common co-morbidity found was skin disease with fungal infection with poor hygiene 17.5%.This study was concluded to state that such studies were found helpful for existing patient population, publics and also for scientific researchers.

KEYWORDS: Rural Health training Centre (RHTC), Community Health Center (CHC), Demographic, Etiological, Co-morbidity.

INTRODUCTION
India is a large country witnessing huge variations in the health indicators across states and districts of the country. Though there exists few Indian studies that have been documenting the morbidity profile of their population, even today there exists a wide paucity of adequate information related to morbidity and mortality data at the facility level especially Uttarakhand.[1]

The health of an individual does have a direct relationship with human resources development and economic development of a nation. From the time of Alma Ata declaration to achieve "Health for All by 2000", lot of planning, effort and public expenditure had been devoted to improve the health of the people both in rural and urban areas of India. Further, the spread and accessibility of medical care has also improved substantially across the country. However, despite of these efforts, India is one of the many developing countries, which have high levels of morbidity.[2]

However, India has made significant progress in improving the health conditions of its population. While there has been a general decrease in mortality leading to significant gains in life expectancy, what has happened to morbidity is yet to be assessed. Very little information is available about the disease people of different population groups in India. The level and prevalent pattern of morbidity in the country show that India has entered into the fourth stage of health transition.[3] Due to

industrialization and the persisting inequality in health status between and within States and Union Territories (due to varying economic, social and political reasons), India currently faces a "Triple burden of diseases", which include unfinished agenda of communicable diseases, emerging non-communicable diseases related to lifestyles and emerging infectious diseases.[4]

Geographically, Uttarakhand state is having a higher prevalence rate of some major communicable diseases especially tuberculosis (170/ lakh population), malaria (14% of all fever cases) and a greater vulnerability towards HIV/AIDS. Due to negative lifestyle practice, there are increasing trends in the prevalence of non-communicable diseases (NCDs) as well. The prevalence of high-risk factors for these chronic diseases like hypertension, dyslipidaemia, and diabetes mellitus is quite high among the elderly population, especially amongst urban counterparts.[5]

Health is an important determinant of wellbeing. It is positively related to labour productivity and economic efficiency. Therefore, maintaining good health is important for an individual or a household at the micro level and for the society at the macro level. Health status in most developing countries is constrained by poor working and living conditions on the one hand and supply and demand factors on the other.[6]

The concept of health, disease and treatment are related to the social structure of the community. Our health is affected not by only unbalanced diet but also by the disease, which may be water borne, airborne, or food borne. More than how what a person looks like and how intelligent he or she might be, genes are the most determining factors to decide whether a person will be predisposed to certain illness like specific cancer, heart problems, diabetes and obesity. Loss of life and morbidity are the important components of human welfare. Connections between mortality and morbidity are an area of wider discussions in the present Indian context. The current health scenario in India is often described as "Dismal" or "Disturbing". In a difficult terrain of a Hilly state of India the morbidity statistics was completely untouched. This study was able to explore the patterns of disease and the high risk population among this community. Even though the life expectancy of Indians has increased in the last few decades, the level of morbidity is still in a pathetic condition.

METHODOLOGY
Study design: Record-based cross-sectional study.

Study Site: The study was conducted at the Rural Health Training Centre (RHTC) under the Department of Community Medicine of Pokhra block, pauri garhwal district, Uttarakhand.

Study Duration: The study duration was 6 months.

Study Criteria
* ***Inclusion Criteria***
a. All patients attending OPD of Rural Health training Centre (RHTC), Community Health Center (CHC) and government hospital of pokhra block of pauri garhwal district were diagnosed.
b. Patients with various diseases with or without co-morbidities.
c. Both genders.

* ***Exclusion Criteria***
a. All the in-patients of concerned department.
b. Patients who does not gave consent to participate in the study.
c. Patients from pediatrics, pregnancy and lactating groups.

Source of Data
The study data was collected from the following sources
1. Direct interview of patients at OPD of Rural Health training Centre (RHTC), Community Health Center (CHC) and government hospital.

2. Data Collection Form provides the information regarding the demographic details of the patient which includes age, gender, occupation, social history, past medical history and prescription details which includes medicines prescribed, dose, frequency, duration and dosage form.

Data Collection
Study data was collected in the format containing patients demographics as well as medicines related information (Appendix-I) after obtaining informed consent (Appendix-II).

Study Procedure
The study was carried out after getting approval from the Institutional Review Board. Permission to carry out the study was also obtained from Head of Rural Health training Centre (RHTC), Community Health Center (CHC) and government hospital before starting the study. Data from patients attending the respective OPDs diagnosed with various diseases during the study period was collected. Detailed information on age, gender, diagnosis, drugs used including name of the drug, dosage schedule (dosage form, route, and frequency) was recorded from the prescriptions given to the patients. The brand names of the drugs prescribed was decoded to generic names using latest version of standard Current Index of Medical Specialities (CIMS) India - (October 2018 - January 2019). Rationality of prescribing the drugs was evaluated by using the WHO core drug prescribing indicators.

Data Analysis
Data was analyzed by preparing tables and graphs using Microsoft excel.

RESULTS

❖ **Demographic Analysis of various diseases Patients**

The study was conducted among 80 patients with various diseases in Rural Health training Centre (RHTC), Community Health Center (CHC) and OPD of government hospital of pokhra block of pauri garhwal district. Under demographic assessment, all subjects were evaluated to obtain the following results.
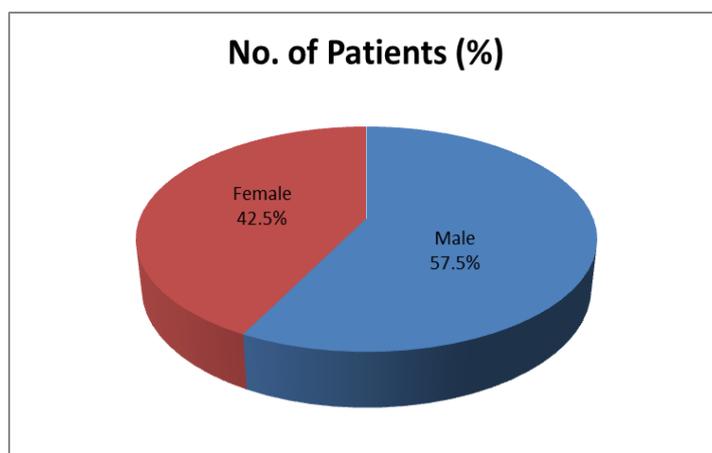
I. Gender wise distribution of patients

Demographic assessment of 80 various diseases patients was involved in this study. Among them, 46 (57.5%) were males and 34 (42.5%) were female (Table 1 and Figure 1).

Table 1: Gender wise distribution of patients.

| S. No.	Gender	No. of patients (%) (n = 80)
1.	Male	46 (57.5%)
2.	Female	34 (42.5%)

Figure 1: Gender wise distribution of patients.

II. Age wise distribution of patients

From Table 2 and Figure 2, out of total 80 patients, 7.5% patients were in age group of 0 - 14 years, 23.75 % patients were in age group of 15 - 34 years, 40 % patients were in age group of 35 - 64 years and 28.75% patients were in age group of above 65 years.

Table 2: Age wise distribution of patients.

S. No.	Age (Year)	No. of Patients (%) (n = 80)
1.	0 – 14	06 (7.5%)
2.	15-34	19 (23.75%)
3.	35-64	32 (40%)
4.	≥65	23 (28.75%)
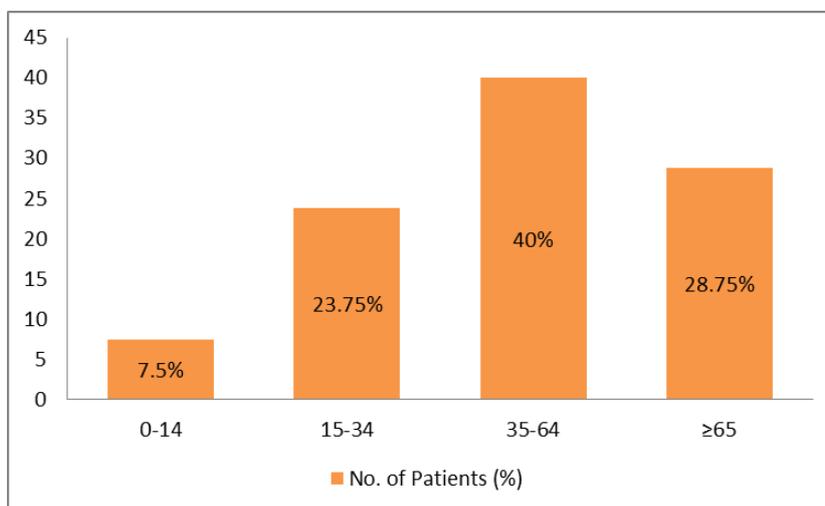
Figure 2: Age wise distribution of patients.

III. Distribution of patients according to social habit

From the study, out of 80 patients, 32 (40%) male and 02 (2.5%) female were found alcoholic while 28 (35%) male and 05 (6.25%) female were found with smoking habit while 04 (5%) male and 01 (1.25%) female were found with other habits (Table 3 and Figure 3).

Table 3: Distribution of patients according to social habit.

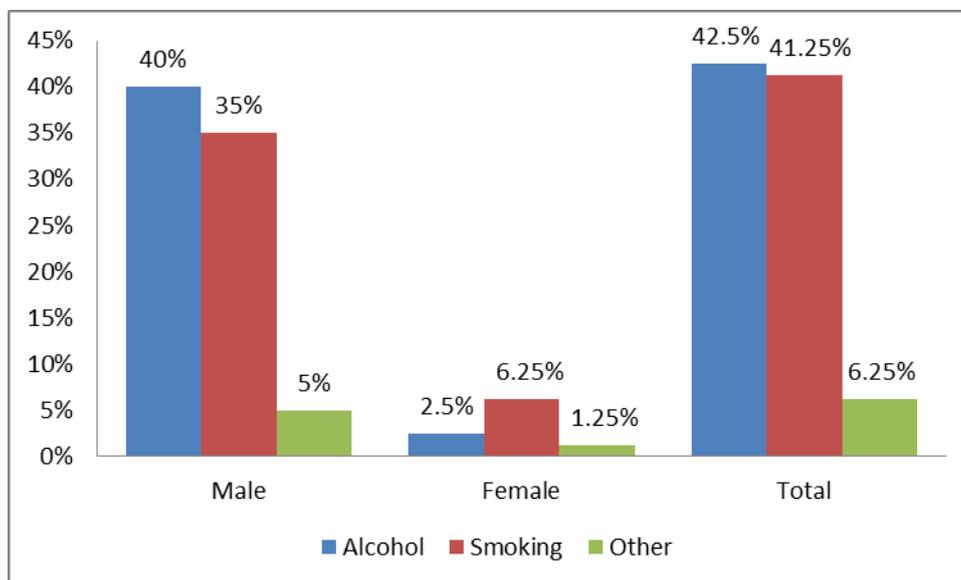| S.No.	Social habit	No. of patients (%) (n = 80)		
		Male	**Female**	**Total**
1.	Alcohol	32 (40%)	02 (2.5%)	34 (42.5%)
2.	Smoking	28 (35%)	05(6.25%)	33 (41.25%)
3.	Other	04 (5%)	01 (1.25%)	05 (6.25%)

Figure 3: Distribution of patients according to social habit.

❖ **Etiologic Assessment among Various Diseases Patients**

Table 4 and Figure 4 show the etiological evaluation among patients. It was analyzed that among the various risk factors found in patients, 30% of the patients are major risk factors related to lifestyle factors (e.g., diet, smoking etc..) followed by low socioeconomic status among 18.75% patients as the second most important risk in 18.75% of the patients. Contribution by other risk factors includes Medical conditions (e.g., hypertension, diabetes) [13.75%], Respiratory diseases (can be caused by infections, allergens, toxins, or genetic factors) [11.25%], Gastrointestinal diseases (caused by infections, autoimmune disorders, genetic factors, or dietary habits) [6.25%], Treated pulmonary tuberculosis (5%), Long standing asthma (3.75%), Infectious Diseases (Caused by pathogens like bacteria, viruses, fungi, or parasites) [2.5%], Psychiatric disorders (can be influenced by genetic predisposition, neuro chemical imbalances, psychological trauma, or environmental factors) [2.5%], Physical activity conditions (caused by bone fracture, muscle contraction, nerve problems and others) [2.5%], long respiratory tract infection during childhood (2.5%) and Occupational exposure (1.25%).

Table 4: Etiologic assessment among Various Diseases patients.

S.No.	Risk Factors in COPD Patients	No. of Patients (%) (n = 80)
1.	Low socioeconomic status	15 (18.75%)
2.	Lifestyle factors (e.g., diet, smoking etc..)	24 (30%)
3.	Gastrointestinal diseases (caused by infections, autoimmune disorders, genetic factors, or dietary habits)	05 (6.25%)
4.	Long standing asthma	03 (3.75%)
5.	Medical conditions (e.g., hypertension, diabetes)	11 (13.75%)
6.	Respiratory diseases (can be caused by infections, allergens, toxins, or genetic factors)	09 (11.25%)
7.	Treated pulmonary tuberculosis	04 (5%)
8.	Occupational exposure	01 (1.25%)
9.	Infectious Diseases (Caused by pathogens like bacteria, viruses, fungi, or parasites)	02 (2.5%)

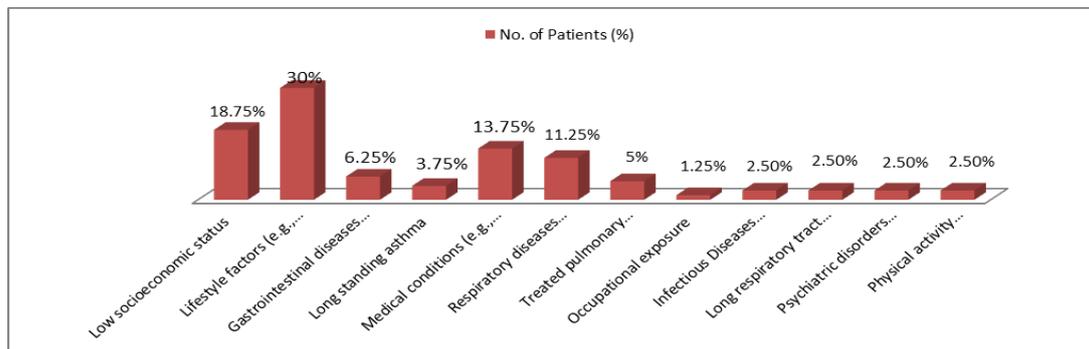| 10. | Long respiratory tract infection during childhood | 02 (2.5%) |
| 11. | Psychiatric disorders (can be influenced by genetic predisposition, neuro- chemical imbalances, psychological trauma, or environmental factors) | 02 (2.5%) |
| 12. | Physical activity conditions (caused by bone fracture, muscle contraction, nerve problems and others) | 02 (2.5%) |

Figure 4: Etiologic assessment among Various Diseases patients.

❖ **Evaluation of Co-morbidity Status among Various diseases Patients**

From Table 5 and Figure 5, co-morbidity status among various diseases patients were evaluated. Of the 80 patients, 17.5% had co-morbidity of Dermatitis with fungal infections with poor hygiene. These were followed Hypertension with Diabetes Mellitus (12.5%), Chronic back pain with sciatica (8.75%), Diabetes mellitus with Gastrointestinal Disorders (7.5%), COPD with cardiovascular diseases (6.25%), COPD with cardiovascular diseases (6.25%), Liver cirrhosis with gallstones (6.25%), Rheumatoid arthritis with Cardiovascular diseases (5%), Malaria with anemia (5%), Asthma with Co-pulmonale (5%), COPD with Tuberculosis (5%), COPD with Hypertension (5%), Asthma with Depression/Anxiety (3.75%), COPD with Esophageal Carcinoma with GERD (3.75%), and Alzheimer's disease with Diabetes mellitus (2.5%).

❖ **Table 5: Evaluation of Co-morbidity Status among Various Diseases Patients.**

| S. No.	Co – morbidities	Number of patients (%) (n = 80)
1.	COPD with cardiovascular diseases	05 (6.25%)
2.	COPD with Hypertension	04 (5%)
3.	Hypertension with Diabetes Mellitus	10 (12.5%)
4.	COPD with Tuberculosis	04 (5%)
5.	Asthma with Co-pulmonale	04 (5%)
6.	Diabetes mellitus with Gastrointestinal Disorders	06 (7.5%)
7.	COPD with cardiovascular diseases	05(6.25%)
8.	COPD with Esophageal Carcinoma with GERD	03 (3.75%)
9.	Asthma with Depression/Anxiety	03 (3.75%)
10.	Rheumatoid arthritis with Cardiovascular diseases	04 (5%)
11.	Alzheimer's disease with Diabetes mellitus	02(2.5%)
12.	Malaria with anemia	04(5%)
13.	Liver cirrhosis with gallstones	05(6.25%)
14.	Chronic back pain with sciatica	07(8.75%)
15.	Dermatitis with fungal infections with poor hygiene	14(17.5%)
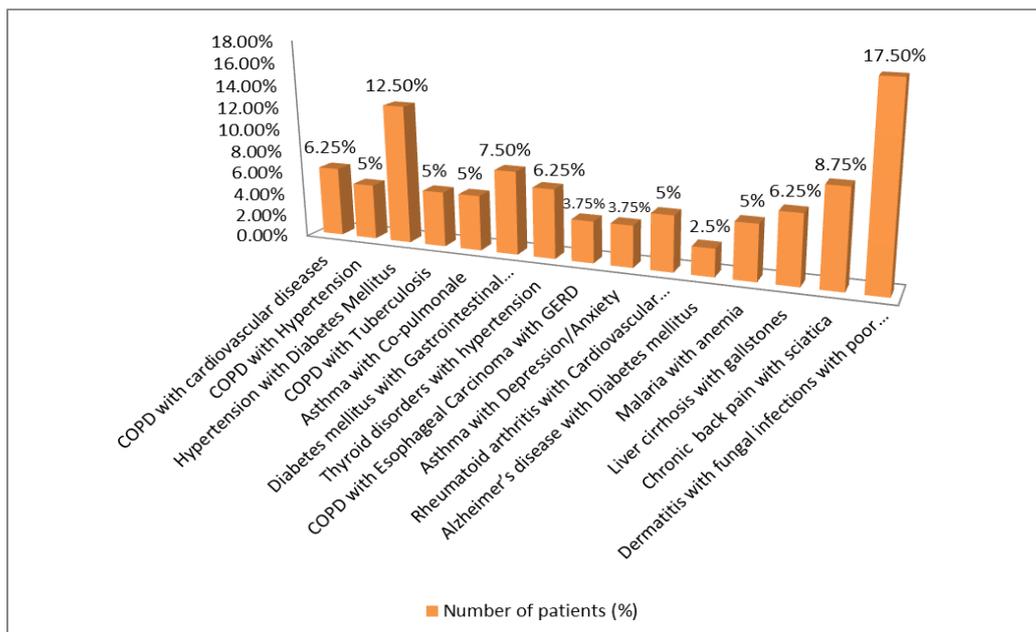
Figure 5: Evaluation of Co-morbidity Status among Various diseases Patients.

DISCUSSION

The present study reflected the burden of disease morbidity at the level of urban training centre. The comprehensive analysis of the morbidity pattern reflected the burden of different diseases in particular area and helped us in the betterment for the evolution of new health planning strategies. As per the finding of our study majority of patients were males (57.5% versus 42.5%). This could be explained partly from the so-called "male-female health survival paradox" (i.e., males report better health than females, but encounter higher mortality at all ages).[7] The diseases in which we found extreme over presentation(p<0.0001) of female patients were nervous system disorders, depression, ischemic heart disease and the diseases of musculoskeletal among non-infectious diseases, typhoid and gastroenteritis among the infectious diseases. It was found that the prevalence of depression is higher among this study group when compared to national prevalence.[8,9] We also found that there is an increased burden of depression among women which has been already emphasized among Indian women in earlier studies.[10] This may be explained by the fact a recent meta-analysis has found that being female was significantly associated with depression after natural disasters adjust five months before the start of study there was massive flooding in Uttarakhand to which as of 16 July 2013.[11] According to data statistics provided by National Disaster management authority government of India more than 4,094people were "presumed dead." Our study had more females with diagnosis of ischemic heart disease which is in contrary to earlier findings.[12] Disorders of respiratory system were more frequently diagnosed in males (Table 2 and 3).These findings are in accordance with the earlier done studies.[13]

Majority of patients who had visited us belonged to the age group (while reviewing age distribution in various diseases we found similar trends with diseases like osteoarthritis, hypertension, COPD occurring in geriatric age group and infectious diseases mostly occurring in younger age group (Figure 4). Earlier works have emphasized huge burden of chronic non communicable diseases among geriatric age group in India.[14]

Our study also confirms that out country still face challenges of both communicable and NCDs, although majority (70%) of the patients who presented to our OPD were suffering from NCDs. Among communicable diseases there was a higher proportion of typhoid and gastroenteritis cases (24% and 7%) in OPD which contradicts observation in an earlier study.[15,16] Most of them report upper respiratory infections as most common infectious disease.[17] This difference may be explained by the fact that this study started after six months in Uttarakhand, having witnessed a devastating flood which crippled sanitation and waste disposal mechanism leading to increased incidence of gastroenteritis. Also flooding has been identified as a significant risk factor for diarrheal illnesses caused by Salmonella enterica serotype Paratyphi A (paratyphoid fever) (comparison with community controls: OR, 4.52; 95% CI, 1.90-10.73).[18] Among non communicable disease, diseases of the musculoskeletal system and connective tissue are most common (23%). Second in proportion comes the acid peptic disease (10%), followed by hypertension (8.7%).

There are various limitation in our study most importantly, as our study was based at a single health centre, its generalization is of due concern. There always remains a chance of misdiagnosis of cases as our study was OPD based. Despite its various limitations, this study aptly reflects the role of flood as a risk factor in diseases such as depression in women and proportional

increase in water-borne diseases like typhoid and gastroenteritis when compared with an earlier study conducted at geographical proximity.[20] This study suggests the need for more in depth analysis of after affects of a natural disaster like flood in a regional perspective.

CONCLUSION

This study was conducted with the aim to assess the demographic, etiologic and co-morbidity status among various diseases patients. Various diseases was found more in males among middle age, elderly population and lifestyle factors (e.g., diet, smoking etc..) is among the major cause of various diseases, so efforts to minimize such burden is an essential task. Poverty and lower socioeconomic status are associated with an increased risk of developing various diseases. Dermatitis with fungal infections with poor hygiene was the mostly found co-morbid condition, therefore all factors contributing to its development considered being important. Overall outcomes of study results are helpful for existing general as well as patient population and also for scientific researchers in future considerations.

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