

## Original Research Article

# A mega health camp at a rural municipality of Eastern Nepal: a cross-sectional study revealing the state of health among the population served

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## ABSTRACT

**Background:** Health camps are usually targeted to underprivileged people of rural places. They help in the awareness, preventive and curative services to those people. A mega health camp was conducted in Yangwarak rural municipality of Panchthar district of Eastern Nepal. All the services including medicines, consultation charges, laboratory services and imaging were free of cost.

**Methods:** It's a prospective cross-sectional study comprised of all consecutive patients attending the camp in Yangwarak rural municipality of Panchthar district in Eastern Nepal. All the patients attending the free camp were taken as a case. Necessary information was deducted and enrolled in this study. The data was entered into the Microsoft excel software and analysed using statistical package for social studies (SPSS) software 23.0 version.

**Results:** A total of 1656 people were directly benefitted with consultation of a dozen of department. 58.7% were female and rest were male. Majority of people had gastrointestinal issues. The knowledge, attitude and practice to health was poor.

**Conclusions:** Keeping in mind the findings of the camp, this only represents the tip of iceberg. There are many such places with needy people who need the help of health professionals and proper address by the government. The preventive approach to health should be magnified even more.

**Keywords:** Mega, Health, Camp, Community medicine, Prevalence

## INTRODUCTION

The World Health Organization (WHO) defined health as a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity but recently it has been amplified to include the ability to lead a socially and economically productive life too.<sup>1</sup> Recent decades have perceived incredible advancements in health and survival throughout the world. The United Nation's 2010 revision of world population prospects states that life expectancy at birth for the world's

population as a whole increased from 48 years in 1950/55 to 68 years in 2005/10. In Asia, life expectancy improved by 26 years while in Africa it augmented by 17 years over the last half century.<sup>2</sup> The health services include approaches to prevention, promotion, treatment, rehabilitation and palliative care with a note that these services must be sufficient to meet health needs both in quantity and in quality.<sup>3</sup> According to 2011 Census, Nepal has a population of 26.6 million.<sup>4</sup> Only about 37% of the population (34% of rural and 66% of urban) and 6% have access to safe drinking water and to proper

sanitation facilities respectively.<sup>5</sup> This is an important constraint that determines the health of Nepalese citizens. The overall configuration of morbidity in Nepal is dominated by reproductive issues (both maternal and perinatal), infectious disease and nutritional disorders. These are responsible for approximately 68% of the disease burden. Degenerative and non-communicable diseases account for 23% of the burden, with accidents and injuries comprising the remaining 9%.<sup>6</sup>

Health camps provide adequate health personnel to provide child health services at community level; emphasises implementation of integrated maternal, new born and child health activities and maintains information for planning, reporting and monitoring purposes. Similarly, it also helps to improve health by counselling and raising awareness programs at community level to encourage health utilization at health institutions; referral for complicated cases addressing and integrating health issues of minorities and indigenous people in the general health programme. The camp not only performs curative services and awareness programs but also provides screening programs for various diseases and referral to higher centre for further management.

This mega health camp was conducted in Yangwarak rural municipality of Eastern Nepal with a population of about 2300 among the local residents with the aim to cater health services to the needy. Yangwarak is located in the hilly region of Mechi zone with difficult geographical terrain in the eastern development region of Nepal. This rural municipality is far from the facilities of development and health due to lack of human resources and difficulty in access. Health camp was conducted in cooperation with health professionals of B. P. Koirala Institute of Health Sciences, Dharan, Lions Club International and direct support from Yangwarak rural municipality and Tharpu Higher Secondary School. Free health camps are the sole source of health care in some rural communities and their importance has been demonstrated in areas devastated by hurricanes, floods, disasters, difficult geographical location and in this period of travel restriction due to COVID pandemic.

Another justification given for health camp is cost containment that provided less expensive primary care alternative than private health centres.

The objective of this study was to explore the state of health among the patients visiting the camp and to provide reports to the Ministry of Health and Population, Nepal and to the district and local governmental sector so that several programs can be launched and the needy and underprivileged people would be supported to live a healthy and a wealthy life.

## METHODS

It's a prospective cross-sectional study comprised of all consecutive patients attending the camp in Yangwarak

rural municipality of Panchthar district in Eastern Nepal. All the patients attending the free camp were taken as a case. The study period was of 5 days from 09 September 2021 to 13 September 2021. No specific selection criteria were allocated. Any patient who attended the health camp and willing to participate were enrolled in the study. A brief explanation about the study was offered to the subjects and verbal consent was obtained either from them or their parents in case of disable and dependents. A continuous sequential number was given to each subjects and available necessary information collected was kept confidential in a separate file. The socio demographic profile which contained name, age, sex, caste along with the basic diagnosis made was entered in a file. The clinical records of the patients were also taken into consideration during the study. The data was entered into the Microsoft excel software and analysed using statistical package for social studies (SPSS) software 23.0 version.

## RESULTS

A total of 1656 people were included in the study. 684 were male comprising 41.3% and 972 were female comprising 58.7%. The number and sex of patients in respective departments is illustrated in Table 1.

Out of 144 patients intervened by the consultant dermatologist, 9.7% were diagnosed with tinea cruris, 5.6% with scabies, 4.9% with psoriasis, 4.2% with acne vulgaris, seborrheic dermatitis and pityriasis versicolor, 3.5% with discoid eczema and tinea corporis, 2.8% with polymorphous light eruption (PMLE) and chronic eczema, 2.1% with contact dermatitis, onychomycosis, pemphigus vulgaris, scalp folliculitis, tinea incognito and vitiligo vulgaris. Similarly, alopecia, aphthous ulcer, generalized pruritus, genital herpes, keloid, lichen simplex chronicus, palmer psoriasis, photodermatitis, senile pruritis, tinea capitis and vulvovaginal candidiasis were diagnosed in 1.4% of those people. Single cases each with truncal acne, urticarial pigmentosa, systemic lupus erythematosus (SLE), scrotal calcinosis, sebaceous cyst, port wine stain, post herpetic neuralgia, planter psoriasis, and other common cases were too diagnosed. No any cases of leprosy were detected. The bar graph of those diagnosed cases is illustrated in Figure 1.

Out of 230 patients seeking help in department of internal medicine, 26.1% were diagnosed with acid peptic disease (APD), 10.9% with hypertension, 8.3% with chronic obstructive pulmonary disease (COPD), 7% with gastroesophageal reflux disease (GERD), 6.5% with diabetes mellitus, 4.3% with bronchial asthma, and 2.2% with migraine. Additionally, few cases of atrial fibrillation, compressive neuropathy, stroke, lower respiratory tract infections, post COVID syndrome, urinary tract infections, tension type headache, lower back pain, anxiety disorder and acute pharyngitis were also found. The bar graph of those diagnosed cases is depicted in Figure 2.

Out of 120 patients in the department of obstetrics and gynecology, 25% were diagnosed with pelvic inflammatory disease (PID), 18.3% came for antenatal care (ANC) check-up, 9.2% had abnormal uterine bleeding and abdominal pain under investigation. 5.8% were diagnosed with urinary tract infection (UTI), 5% each of secondary sub-fertility and peri-menopausal symptoms were identified. 2.5% were found to have postmenopausal bleeding and primary sub-fertility. Cases of right adnexal cyst, utero-vaginal prolapse, APD, cervical polyp, dysmenorrhea, amenorrhea and secondary infertility were also diagnosed. The bar graph representing those cases is shown in Figure 3.

Out of 400 patients intervened by consultant ophthalmologists, 160 cases of cataract, 160 cases of refractive error, 36 cases of conjunctivitis, 20 cases of pterygium, 15 cases of glaucoma, 3 cases of congenital cataract, 4 cases of squint and 2 cases of amblyopia were detected.

Out of 250 patients seen by dentists, 36% had decayed teeth, 31.2% had dental caries, 13.2% had root stump, and 5.2% had mobile tooth. Additionally, supernumerary teeth, plague, gingivitis, generalized attrition, dental calculus and cervical abrasion were also diagnosed. A total of 60 extractions were done successfully. The bar graph of the frequency and diagnosis of dental case is shown in Figure 4.

Out of 189 cases seen by Orthopedist, 39.2% were diagnosed with osteoarthritis, 15.3% with lumbar spondylosis, 10.1 % with plantar fasciitis, 9.5 % with lower back pain, 2.6 % with rheumatoid arthritis (RA), and 3.7% with musculoskeletal pain. Cases of tennis elbow with plantar fasciitis, sciatica, ganglion cyst, ankle sprain and baker's cyst were also diagnosed. A typical case of ulnar deviation due to RA was encountered. The bar graph showing the diagnosed cases is illustrated in Figure 5.

159 patients were intervened by consultant ENT doctors. 18.2 % had chronic suppurative otitis media, 15.7% with acute suppurative otitis media, 12.6% with allergic rhinitis and allergic pharyngitis. 9.4% had laryngotracheoreflux. Cases of aphthous ulcer, presbycusis, senile pruritus and impacted wax were also diagnosed.

The bar graph of those diagnosed case is shown in Figure 6.

40 children seek help with consultant pediatrician. URTI, UTI and APD were detected in 10% of cases. 7.5% had allergic rhinitis. Cases of mesenteric lymphadenitis, phimosis, scabies, viral fever, right inferior nasal hypertrophy, left inferior nasal hypertrophy, diaper rash, and right sided testicular mass were also detected.

The bar graph of these cases is shown in Figure 7.

Among total 22 cases seen in psychiatry outpatient department (OPD) during health camp, 50 percent were male and 50 were female. Majority of them belong to age group 15-30 years of age. Commonest psychiatric diagnosis was anxiety disorder (9, 40.9 %) followed by mood disorder (6, 27.27%). Somatoform disorder was present only in two male patient (2, 9%) and dissociative disorder was present in one female (4.5%). Organic condition and alcohol use including alcohol induced delirium was found in 1 female patient (4.5%). Non organic insomnia was equally prevalent in male (4.5%) and female (4.5%). Primary headache was present in 4 patient in which migraine headache was present predominantly in female patient (2, 9%). Seizure disorder was also common equally present in male and female accounting for 4.5% each.

Base line investigations, electrocardiography and ultrasound was freely available. A pregnant woman was found to have a dead fetus and she was intervened in the district hospital which hit the headlines.

102 patients were benefitted with surgical consultation. 12.7% were diagnosed with haemorrhoids. 10.8% had acid peptic disease. Cases of hydrocele, right sided direct inguinal hernia, right adnexal cyst, right congenital hernia, phimosis, keloid, diabetic foot, and anal fissure were also diagnosed. One interesting case of carcinoma of right breast in a 32 year-old-male patient was also diagnosed.

The bar graph showing the frequency and diagnosed cases is depicted in Figure 8.

**Table 1: Distribution of patients according to departments and sex.**

Departments	Male (%)	Female (%)	Total
<b>Dermatology and venereology</b>	73 (50.7)	71 (50.3)	144
<b>Internal medicine</b>	90 (39.1)	140 (60.9)	230
<b>Obstetrics and gynecology</b>	-	120 (100)	120
<b>Ophthalmology</b>	174 (43.5)	226 (56.5)	400
<b>Oral medicine</b>	85 (34)	165 (66)	250
<b>Orthopedics</b>	92 (48.7)	97 (51.3)	189
<b>Otorhinolaryngology</b>	89 (56)	70 (44)	159
<b>Pediatrics</b>	21 (52.5)	19 (47.5)	40

Continued.

Departments	Male (%)	Female (%)	Total
Psychiatry	11 (50)	11 (50)	22
Surgery	49 (48)	53 (52)	102
Total	684 (41.3)	972 (58.7)	1656

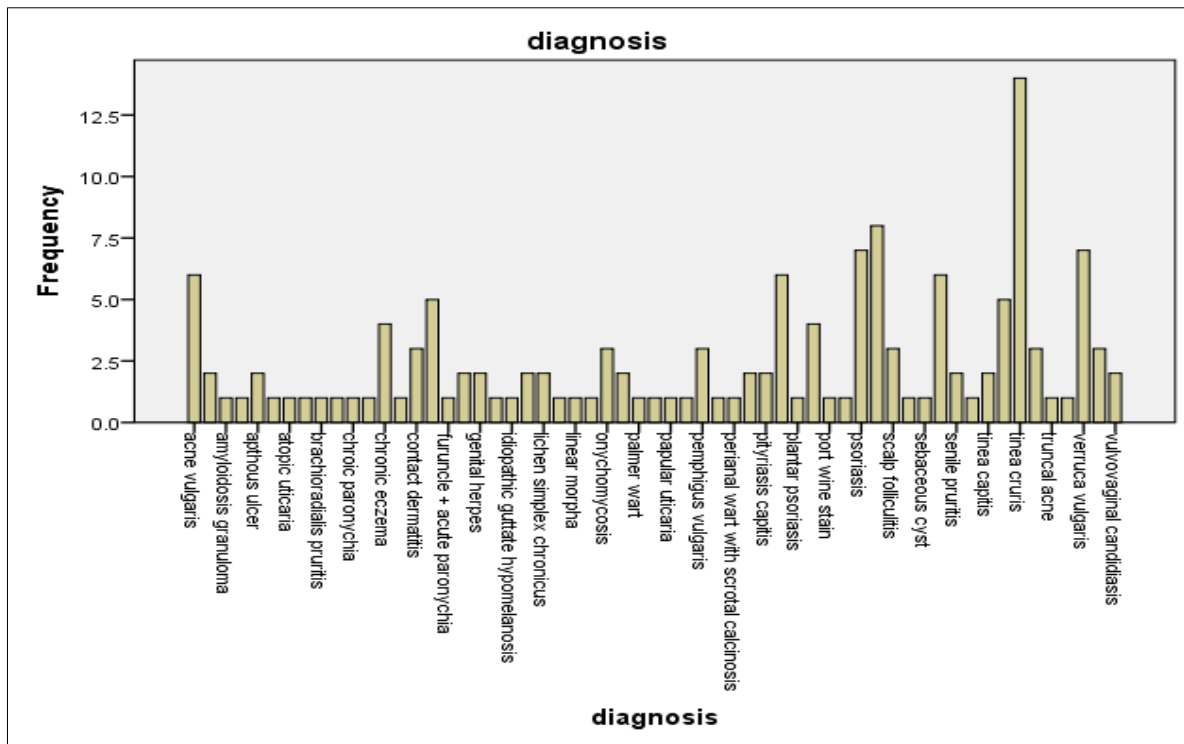


Figure 1: Frequency and diagnosis of dermatological cases.

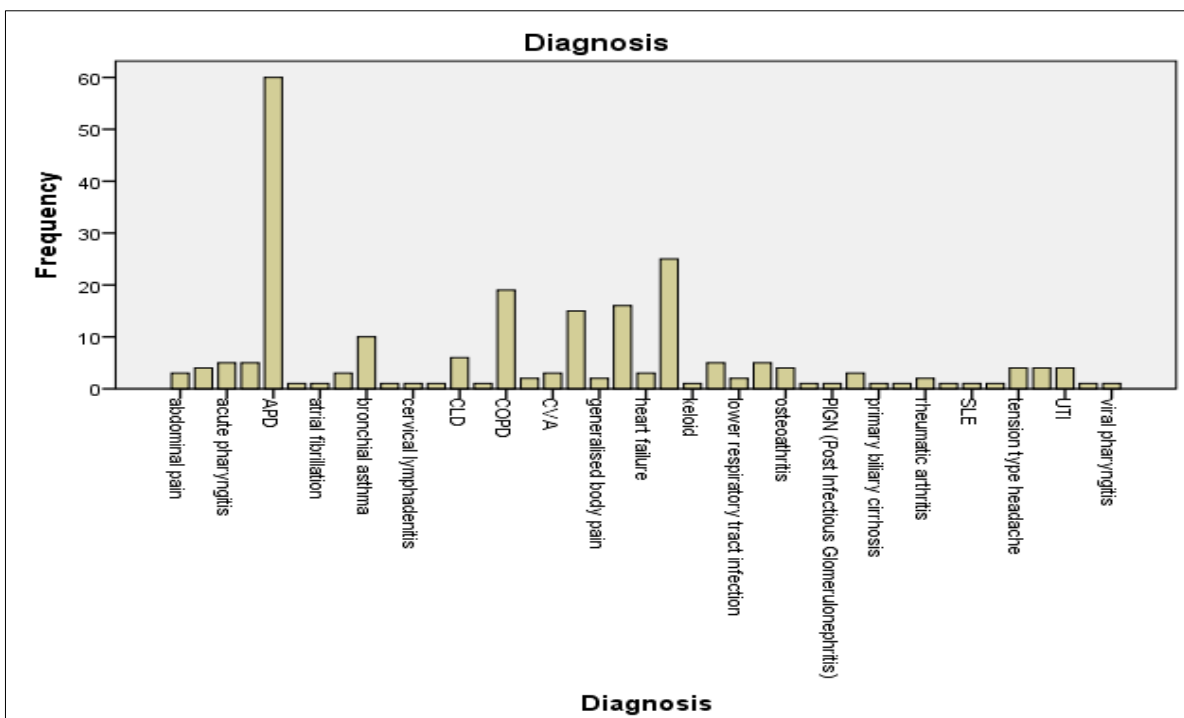


Figure 2: Frequency and diagnosis of cases in internal medicine.

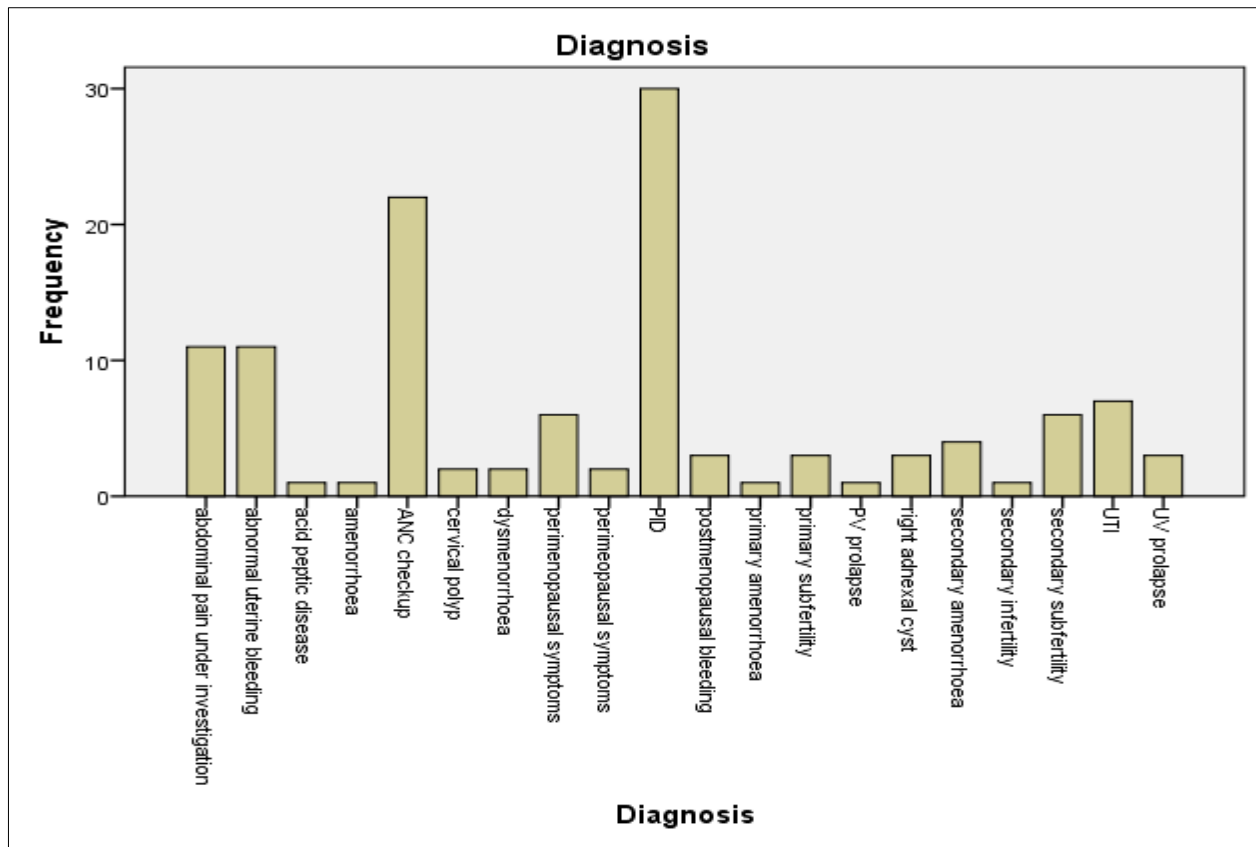


Figure 3: Frequency and diagnosis of cases in obstetrics and gynecology.

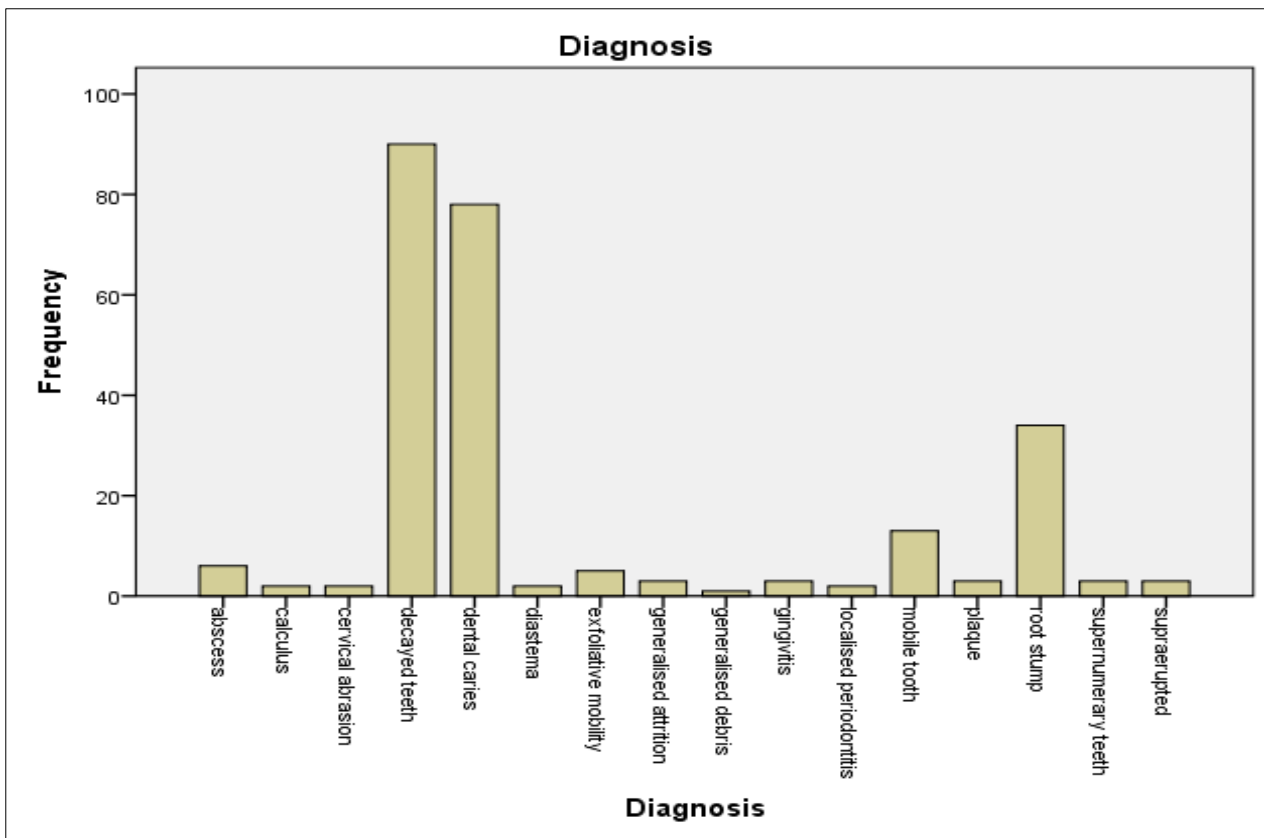


Figure 4: Frequency and diagnosis of the dental cases.

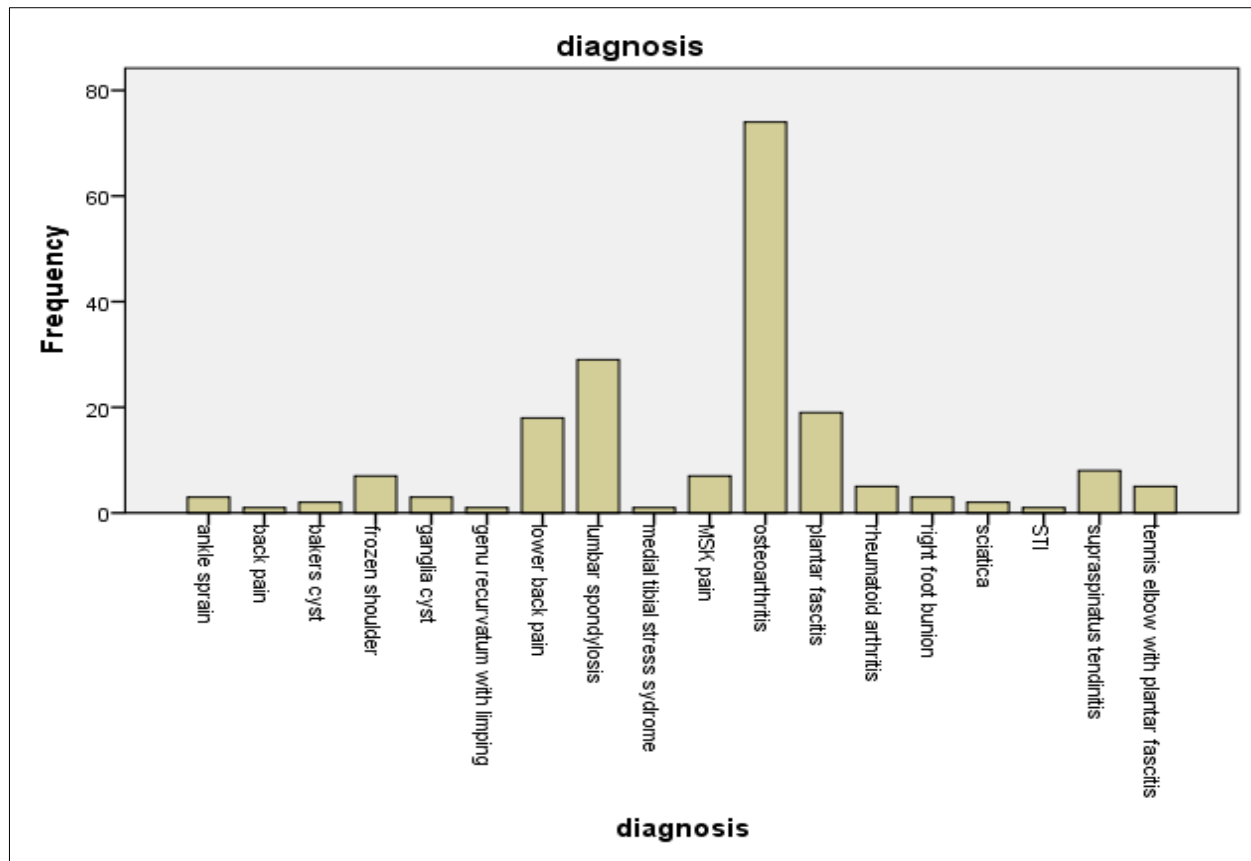


Figure 5: Frequency and diagnosis of cases in orthopaedics.

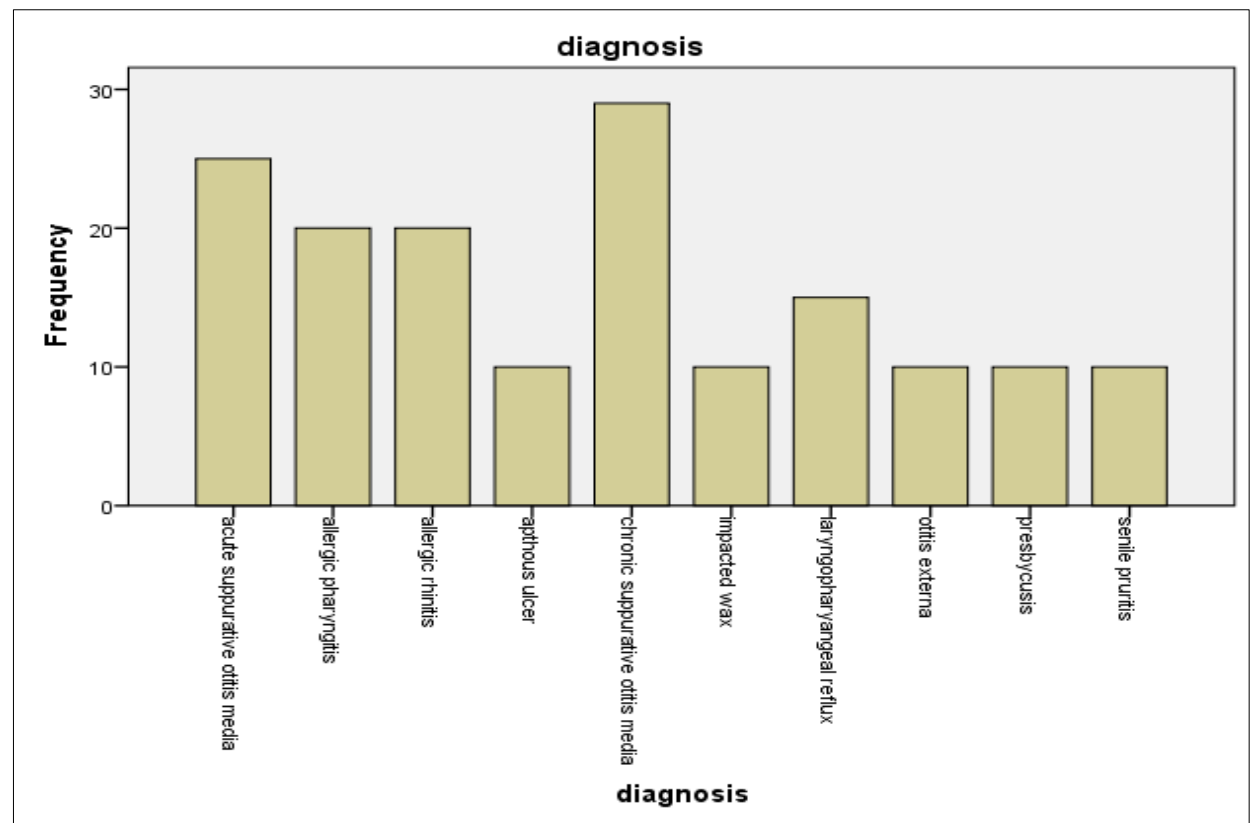


Figure 6: Frequency and diagnosis of ENT cases.

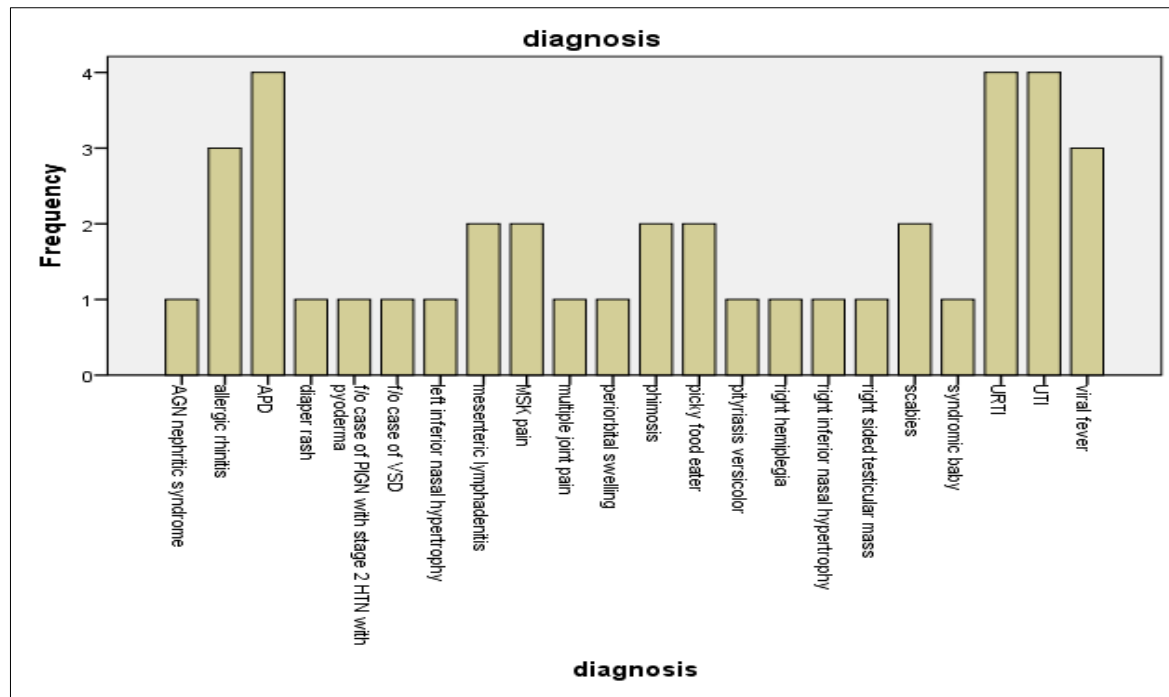


Figure 7: Frequency and diagnosis of pediatric cases.

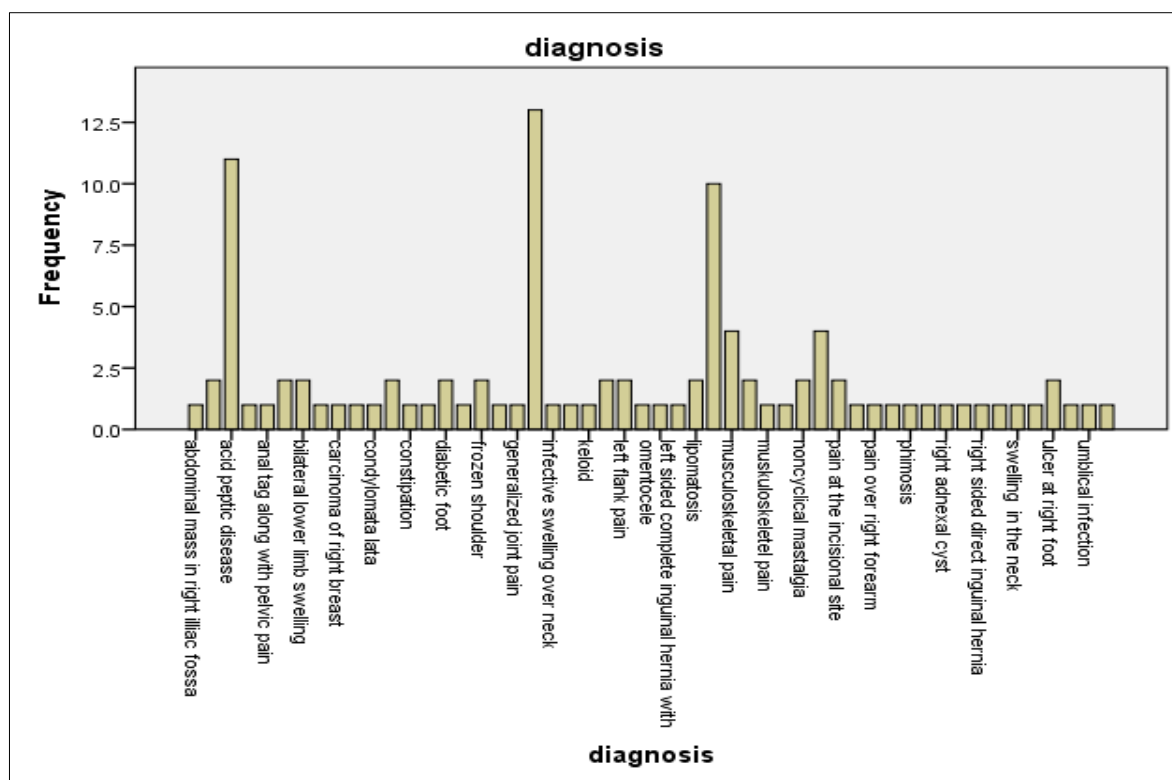


Figure 8: Frequency and diagnosis of the surgical cases.

## DISCUSSION

With an increasing proportion of the population falling into the adult and elderly age groups, this epidemiological profile of a rural municipality of an underdeveloped country reflected the diseases and health problems of

adults and geriatric population. In particular, chronic and degenerative diseases, accidents and injuries were reported more. Majority of patients attending the health camp were female. This can be explained logically because most men of all ages in that rural municipality are foreign land employees. Many of the men are enrolled



in military and migrate to capital city for employment.

Skin diseases are a major source of morbidity, loss of income and social exclusion. The impact on quality of life of psoriasis is as significant as that of other chronic conditions such as diabetes, hypertension, arthritis and depression.<sup>7</sup> Mathers and colleagues, using data from 2001, have shown that skin disease (not including leprosy) is associated with considerable mortality in the south Asia region and that in terms of disability-adjusted life years the impact is similar to that of war-related injury.<sup>8</sup>

In settings where healthcare is relatively expensive and difficult to access, dermatological problems and their consequences are often neglected. Accurate information about the common dermatological conditions affecting a population can inform the provision of scarce resources and optimize the training of healthcare workers. Training healthcare workers to recognize common (and in the main readily treatable) skin problems and to institute appropriate, affordable therapy will reduce morbidity and minimize the economic impact of the condition on those affected.

In rural Nepal health needs are usually met by a health post where staff have had limited training in general and little in dermatology specifically. This has the potential to lead to inadvertent misdiagnosis and incorrect or inappropriate therapy. The population of Nepal is largely rural: 85% of households are situated in the countryside.<sup>9</sup> A survey conducted in five villages in rural Nepal has demonstrated a very high point prevalence (62.2%) of skin disease.<sup>10</sup> The burden of skin disease in resource-poor settings is dominated by infections and infestations which are debilitating, disabling and transmissible. Most of the cases in our study included infections and infestations. The poor financial status and illiteracy leading to negligence of minor infections and dermatological manifestations could explain the possibility of prevalence of such diseases among the people seeking help at the mega camp.

Acid peptic disease, hypertension, COPD, bronchial asthma and diabetes mellitus were the common morbidities in the department of Internal Medicine. People living under the line of poverty do not have access to proper nutrition, thereby, pointing towards the possibility of acid peptic diseases. Similarly, the exposure to firewood could possibly explain the reason for more cases of COPD and asthma.

The population of Nepal is estimated to reach to 36 million by 2050 from 26.5 million in 2011.<sup>11,12</sup> The burden of disease shifted from communicable diseases, maternal and child health and nutritional issues to non-communicable diseases (NCDs) only recently. NCDs now accounts for nearly 60% of the total burden of disease, both in terms of mortality and morbidity.<sup>13</sup> Cardiovascular diseases (CVD), notably hypertension, is one of the major

contributors for a higher CVD mortality and sequelae of cerebrovascular events, whereas the evidences are very scarce in Nepal.<sup>14</sup>

The overall prevalence of hypertension is 18%, which is lower than the one reported in previously conducted NCD risk factor survey (26%) in 2013 and a systematic review, which reported a prevalence of 33.8% in Nepal.<sup>14,15</sup> Significant percentage of people in our camp were diagnosed with hypertension. Lack of exercise and consumption of alcohol and smoking are the causes attributed to high prevalence of hypertension and diabetes mellitus. People residing there are mostly of Kirat ethnic group, who usually accept drinking as a part of their ritual.

Out of 120 patients in the department of obstetrics and gynecology, 25% were diagnosed with PID, 18.3% came for ANC check-up, 9.2% had AUB and abdominal pain under evaluation. Women in this municipality are engaged in labor works and works needing physical strength. The travel restriction due to the COVID pandemic has forced the pregnant women to be away from their esteemed ANC visits. The stigma of pelvic organ prolapse was still seen with one patient living with it for 10 years without seeking help. This reflects the importance of education and the limitations of the central and local government in addressing those targeted population.

Majority of patients seeking the help of the dental doctors were found to have poor oral hygiene and most of them had dental caries. The habit of smoking and chewing tobacco were mostly the causes behind the aforementioned findings. Additionally, the lack of education and access to basic needs like toothbrushes and toothpaste were also playing the significant role.

Musculoskeletal conditions are prevalent and their impact is pervasive. They are the most common cause of severe long term pain and physical disability, and they affect hundreds of millions of people around the world. Pain is the most prominent symptom in most people with arthritis<sup>16</sup> and was the most important determinant of disability in patients with osteoarthritis.<sup>17</sup>

The prevalence of osteoarthritis increased indefinitely with age because the condition was not reversible. Men are affected more often than women among those aged less than 45 years whereas women are affected more frequently among those aged more than 55 years.<sup>18</sup> Worldwide estimates are that 9.6% of men and 18.0% of women aged more than or equal to 60 years have symptomatic osteoarthritis.<sup>19</sup>

Majority of patients had osteoarthritis in our finding. The elderly dependent population of people were mostly affected. Similarly, cases of musculoskeletal pain were also significant in number. A typical case of ulnar deviation as a complication of rheumatoid arthritis was



also noted. The late presentation could possibly again explained by poverty and lack of education.

Significant burden of disease of ear, nose and throat were also registered. Most patients had acute and chronic suppurative otitis media followed by allergic rhinitis and pharyngitis. The cold weather of that location and frequently associated climatic change could be one of the reasons for allergic conditions. Impacted wax was also noted in many of the patients. Hatcher et al, Elango et al and Minza et al reported prevalence rates of impacted wax ranging from 8.6% to 28.2% in their studies.<sup>20-22</sup> The use of small sticks and feathers of birds to remove the impacted wax were also found in some cases.

Anxiety disorders are the most common psychiatric disorders in the community study. Health camp in eastern Nepal where 160 cases were analyzed, commonest psychiatric diagnosis was depressive and somatoform disorder followed by anxiety disorder. Our study showed anxiety disorder commonest followed by mood disorder (depressive illness).<sup>23</sup> 36.6% of the people only visited themselves and rest were referred during health camp. It showed stigma related to mental health and awareness towards mental health are still lacking in the community which acts as barrier for access to mental health.<sup>24</sup> Regular health camp with community awareness can be a doorstep to enhance mental health problems in Nepal.

Acid peptic disease, allergy, masses in abdomen and vague presentation of diseases were found in paediatric population and those seeking surgical consultation. One male patient was diagnosed with right breast carcinoma. A huge number of patients were found to have cataract and refractive errors. Similarly, conjunctivitis was also common.

The overall knowledge, attitude and practice of health among the patients was poor. They only seek specialty care unless they are bedridden. The lack of education and poor financial conditions were the main hindrances of proper health. The superstitious beliefs and stigma of several diseases is yet to be broken. People were found to still believe in witch doctors and traditional rituals for the treatment of their devastating health conditions.

However, social media and television were imparting good services in terms of health delivery system. Therefore, health programs including awareness, screening to curative services should be launched. The joint effort of individuals, stakeholders, local and central government is lacking. Health care facilities should be augmented, only then a society with a vision of sustainable development can be achieved.

### Limitations

The camp was conducted for a single day. So, the patient flow was high and necessary information might have been missed. Proper history taking and diagnosis would

have been better if it was conducted for a days of two or more. Additionally, the patients did not bring their follow-up report of their previous hospital visit which could have saved time and human resources. We could not follow up the patients due to improper access. Also, day care operations could not be carried out due to lack of setup. Lastly, this is only the tip of iceberg which represents such rural areas where patients do not even meet primary standard of health care.

### CONCLUSION

The health camp conducted in Yangwarak rural municipality, Panchthar showed that the diseases of digestive system was the most common diseases in the community. Similarly other diseases include diseases of musculoskeletal and connective tissues, genitourinary, respiratory, skin and subcutaneous tissues, nervous system and diseases of ear and throat. Diseases of eyes were equally prominent. The overall knowledge, attitude, practice to health among the subjects was poor.

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