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Research Article

Spectrum of diseases and injuries presentation among patients visiting Emergency Department at Janaki Medical College Teaching Hospital

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ABSTRACT

Background & Objectives: The Global Burden of Disease study is a systemic effort to quantify the comparative magnitude of the health loss due to diseases, injuries and risk factors by age, sex and geographies in specific point of time. Five out of ten causes of disease burden in 2017 in Nepal are Non-Communicable Disease (NCDs), ischemic heart disease (IHD), Chronic Obstructive Pulmonary Disease (COPD), Lower Respiratory Tract Infection (LRTI) and Tuberculosis (TB). We aimed to find out the demographic, clinical presentation and outcome of Emergency patients at Janaki Medical College Teaching Hospital (JMCTH) Emergency department.

Materials and Methods: A descriptive observational study of patients visiting ED at Janaki Medical College, Ramdaiya, Bhawadi, Dhanusha. Distinctiveness of adult patients who entered the emergency department (ED) in a hospital in Nepal were prospectively recorded in the local emergency registry from 2023-04-15 to 2023-07-18. Patients were diagnosed, treated and admitted in different wards for further evaluation and treatment. Data were collected, analyzed, interpreted, using SPSS version 20.

Results: The majority of patients were male (55.58%) predominantly from Dhanusha (79.4%). Common symptoms included musculoskeletal pain (16.5%), abdominal pain (13.3%), and fever (9.9%). The most common diseases were acute pain abdomen (21.26%) and hypertension (11.06%). Abrasions (35%) and cut injuries (13.59%) were the most frequent injuries. Most of

the patients were admitted to the observation ward (52.9%).

Conclusion: Acute abdominal pain, hypertension, and respiratory illness followed by COPD and pneumonia were the most frequent diseases. Most common injuries reported were abrasions and cut injuries. The results emphasize the necessity of better emergency care services and public health initiatives in Janakpur, as well as the critical role of emergency department which provides services in wide range of acute and chronic diseases.

Keywords: Disease spectrum, Emergency department, Injury patterns, Non-communicable diseases (NCDs)

INTRODUCTION

Nepal is a multi-ethnic country with a great sociocultural diversity across seven provinces and three ecological regions. In the era, when most of the countries are facing demand of the heath resources either due to increasing burden of diseases and injuries or lack of man power and infrastructure as well. Different types of emergency patients as well as uncommonly traumatized patients present with a spectrum of illnesses and injuries in the emergency department. Serious such situations are responsible for increasing morbidity, referral to higher centers and mortality Burden. In Nepal, the Terai region was estimated to have maximum mortality burden 51% followed by Hill 37% and mountain 12% [1]. 59% of the Disease Burden in 2017 is due to NCD, 31% due to Communicable Maternal-Neonatal and Nutritional Disorders (CMNN) diseases and 10% due to injuries. Five out of ten causes of Diseases Burden in 2017 are Non-Communicable Disease (NCDs), Ischemic Heart Disease (IHD), Chronic Obstructive Pulmonary Disease (COPD), Lower Respiratory Tract Infection (LRTI) and Tuberculosis (TB) [2]. In Kathmandu Medical College, Emergency Department in 2019/2020, out of 6944, numbers of patients coverage was Internal medicine 47.14%, General Surgery 16.89%, Gynae/bs 6.26%, ENT 1.24%, Psychiatry 1.89%, Neurosurgery 12.57%, orthopedics 8.94% and Pediatrics 5% [3]. Almost similar patterns of patients were present last year there [4].

Indian state level diseases burden 2015 explored diarrhea, LRTI, Iron deficiency anemia, neonatal disorder, tuberculosis as endemic whereas increasing patterns includes cardiovascular diseases, Diabetes, chronic respiratory disease, Neuropsychiatry, Musculoskeletal disorders, Cancers, Chronic kidney disease and injuries [5]. During lockdown period, admission in ED was decreased even though there were increasing rate of injuries like RTA, falls, sharp injuries, physical assaults, homicidal, suicidal and poisoning [6]. COVID-19 outbreak has been associated with decrease in ED visits in Nanjing, China but increases in the proportion of severe ED visits like poisoning in increasing pattern [7].

Injuries is a most important global public health challenges causing significant mortality and permanent disability[8]. The burden of injuries is gradually rising and more devastating in developing countries[8,9] due to rapid urbanization, industrialization, changing in life style, poorly built infrastructure, non-maintained road system and limited prehospital and emergency care[10]. The Global Burden of Diseases' study is a powerful platform for understanding the main diversity of poor health at local, regional, national and international level. Data of spectrum of diseases and injuries provides insight also on potentially preventable causes of diseases

and injuries, facts to calculate morbidity and mortality. Examining the ranking of diseases, injuries in Nepal directs to make policies and prioritize to maximize good heath outcome. However, few literatures highlight the spectrum of diseases and injuries in Nepal. But, due to the scarce of data in Madhesh Province, we aimed to quantify, categorize and know the spectrum of diseases and injuries presentation in emergency department of Janaki Medical College, Ramdaiya, Bhawadi.

MATERIALS AND METHODS

This study was carried out at Janaki Medical College, Teaching Hospital, Ramdaiya, Bhawadi which is located at Kshireshwornath Municipality Dhanusha. Convenient sampling was done on patients presented to Emergency Department for four months in summer 2023-04-15 to 2023-07-18. All patients (n=510) visiting Emergency Department were enrolled. Patients who did not intend and/or give even verbal consent were excluded. The survey was carried out by attending the patients in Emergency Department. Written as well as verbal consent was obtained from participants. Epidemiological factors like age, gender, educational status, occupation, marital status, religion, and ethnicity were studied. Chronological factors like arrival time, time elapses in presentation to hospital were also included in the study. Etiology, anatomical distribution, pattern of injury and outcome was also studied. Data concerning to them were collected, assessed, analyzed and interpreted. They were diagnosed and treated with the protocol. They were further admitted in different wards once they became stable. The data was computed using Microsoft Excel 2010 and analyzed by using SPPS version 20. Ethical approval was taken from Ethical Review Committee of Janaki Medical College, Ramdaiya, Dhanusha (Ref no. 580/2021/2022).

RESULTS

Out of 510 patients presented to ER of JMCTH, the majority of patients were from Dhanusha (79.4%) and classified under the yellow triage category (59.21%), were predominantly from Hindu religion (94.3%). Males constituted 55.58% of the patients, and the largest caste group was the Terai Madheshi other caste (TMOC) at 61.73%. Regarding lifestyle habits, 25% were tobacco consumers, while only 11.8% consumed alcohol. Most patients (95.29%) had good socioeconomic status, and housewives (21.5%) formed the largest occupational group. Additionally, 54% of the patients were literate (Table-1).

Among the total of 510 patients, 655 signs and symptoms were observed. The common sign and symptoms observed emergency department were musculoskeletal pain (16.5%), pain abdomen (13.3%), and fever (9.9%), followed by shortness of breath (9.6%) and cough (8%). Headache (4.5%) and alertness (3.8%) were also noted. Less frequent symptoms included dizziness (4.5%) and bleeding (various types totaling 4.5%) (Table-2).

Table 1: General Characteristics of patients (n=510)

Characteristics	No	%	Characteristics	No	%
Geographical areas			**Triages**		
Dhanusha	405	79.4	Yellow	302	59.21
Mahottari	78	15.3	Red	131	25.68
Siraha	10	2	Green	74	14.51
Sarlahi	7	15	Black	3	0.58
Others	10	2	**Occupation**		
Gender			Housewife	107	21.5
Male	285	55.58	Students	96	18.73
Female	225	44.11	Retired	82	16.17
Religion			Farmer	54	10.65
Hindu	481	94.3	Business	51	10
Muslim	28	5.5	Household worker	38	7.5
Christian	1	0.2	Play group	24	4.7
Socioeconomic status			Baby	14	2.76
Good socioeconomic status	486	95.29	Others	41	8
Poor socioeconomic status	24	4.41	**Marital status**		
Caste wise distribution			Married	372	73.0
Terai Madheshi other caste(TMOC)	315	61.73	Unmarried	138	27.0
Janajati	61	12	**Comorbidity**	46	9
Brahmin	48	9.6	**Tobacco concerning**		
Dalit	44	8.6	Tobacco consumer	128	25
Muslim	30	6	Tobacco non-consumer	365	71.7
Chhetri	7	1.3	Ex-tobacco consumer	17	3.3
Newar	3	0.5			
Literate patients	275	54			
Family positive history disease	10	2	**Traditional healer without use of Ayurvedic drugs**	156	30.57

Out of 510 patients, 407 presented with diseases. The most common diseases among patients were acute pain abdomen (21.26%) and hypertension (11.06%). Chronic Obstructive Pulmonary Disease (COPD) (7.1%), while pneumonia (6.38%). Psychosis (4.17%), cerebrovascular accident (CVA) (3.93%), acid pepsin disorder (APD) (3.93%), acute gastroenteritis (AGE) (3.68%), and enteric fever (3.68%) were also frequent (Table-3).

Out of total 510 patients, the total number of injuries were 103. Most common injuries reported were abrasions (35%) and cut injuries (13.59%). Lacerations and femur fractures each accounted for 4.85% of cases, while head injuries, physical assaults, and soft tissue injuries each made up 3.9%. Other injuries, including fractures of the humerus, mandible, and tibia, as well as various other conditions like retention of urine, urethral bleeding, and hanging, were observed in smaller proportions, each contributing around 1.94% or less (Table-4).

Table-2: Sign and Symptoms observed in Emergency department

Symptoms of Patients	No	%	Symptoms of Patients	No	%
Musculoskeletal Pain	108	16.5	Alertness	25	3.8
Pain abdomen	88	13.3	Loose motion	18	2.7
Fever	65	9.9	Vomiting	17	2.6
Shortness of breath	63	9.6	Chest pain	15	2.2
Cough	53	8	Swelling	12	1.8
Headache	33	4.5	Unable to stand	6	15.3
Dizziness	30	4.5	Anorexia	5	12.8
Bleeding			Nausea	4	10.2
Nasal	11	1.6	Vertigo	4	10.2
Hematuria	7	1.0	Hyperventilation	2	5.1
Per vagina	4	0.6	Insomnia	2	5.1
Hemoptysis	3	0.4	Slurring of speech	2	5.1
Hematemesis	2	0.3	Black out	2	5.1
Anal	1	0.15	Unable to speak	2	5.1
Urethral	1	0.15	Palpitation	2	5.1
Gum	1	0.15	Decrease vision	2	5.1
TOTAL	30	4.5	Chest indrawing	2	5.1
Ear, Nose, Throat symptoms	9	1.3	Salivation	1	2.5
Unconscious	14	2.13	Hand paresis	1	2.5
Weakness	13	1.9	Pus discharge	1	2.5
Hemiparesis	12	1.8			
Seizure disorder	7	1.06			
Whitish pv discharge	5	0.76			

Table-3: Diseases presentation

Diseases	No	%	Diseases	No	%
Acute pain abdomen	88	21.26	Pleural effusion	3	0.73
Hypertension	45	11.06	Acute cholecystitis	3	0.73
COPD	29	7.1	RA	2	0.49
Pneumonia	26	6.38	Pancreatitis	2	0.49
Psychosis	17	4.17	Distended abdomen	2	0.49
CVA	16	3.93	Bee sting	2	0.49
APD	16	3.93	CLD	2	0.49
AGE	15	3.68	Piles	2	0.49
Enteric fever	15	3.68	Bronchiolitis	2	0.49
MI	12	2.95	Substance abuse	2	0.49
Depression	7	1.71	Viral fever	2	0.49
DM	7	1.71	Asthma	2	0.49
Poisoning	7	1.71	Panic disorder	2	0.49
OP poisoning	4	0.98	DKA	1	0.24
Amitriptyline poisoning	1	0.24	CRF	1	0.24
Phenol poisoning	1	0.24	Neurocysticercosis	1	0.24
Copper sulphate poisoning	1	0.24	Hernia	1	0.24
Mental disorder	7	1.71	Choledocholithiasis	1	0.24
PTB	5	1.23	Hydatid cyst in liver	1	0.24
Cholelithiasis	5	1.23	AOM	1	0.24
Headache	5	1.23	Ca stomach	1	0.24
Epistaxis	5	1.23	Rhinitis	1	0.24
Conversion disorder	4	0.98	Variceal bleeding	1	0.24
Bronchiectasis	4	0.98	Globus pharynges	1	0.24
Febrile convulsion	4	0.98	Alcohol intoxication	1	0.24
URTI	4	0.98	Meningitis	1	0.24
Hypotension	4	0.98	Sepsis	1	0.24
PV bleeding	4	0.98	Abdominal migraine	1	0.24
PID	3	0.73	PCOD	1	0.24
IHD	3	0.73	BPAD	1	0.24
UTI	3	0.73	Burn	1	0.24
			Electric burn	1	0.24

Table-4: Injuries presentation

Injuries	No	%	Injuries	No	%
Abrasion	36	35	Urethral bleeding	2	1.94
Cut injury	14	13.59	APH	2	1.94
Laceration	5	4.85	Spine injury	2	1.94
Fracture femur	5	4.85	Wrist bone fracture	1	0.97
Head injury	4	3.9	Arm injury	1	0.97
Physical assault	4	3.9	Colles' fracture	1	0.97
Soft tissue injury	4	3.9	PPH	1	0.97
Humerus fracture	3	2.91	Occipital injury	1	0.97
Mandible fracture	3	2.91	5th metatarsal joint dislocation	1	0.97
Tibia fracture	3	2.91	Calcaneum fracture	1	0.97
Retention of urine	2	1.94	Hematuria	1	0.97
Hanging	2	1.94	Abortion	1	0.97
Radius fracture	2	1.94	Dislocation of elbow	1	0.97

Out of 510 patients, the majority of patients were admitted to the observation ward (52.9%), followed by internal medicine (13.7%) and the ICU (10%). The surgery department (8.4%) of cases, while psychiatry (5%), orthopedic (3.3%) (Table-5).

Table-5: Department-wise admission referred from Emergency Department(n=510)

Departments	No	%
Observation ward	270	52.9
Internal medicine	70	13.7
ICU	51	10
Surgery	43	8.4
Psychiatry	26	5
Orthopedic	17	3.3
Pediatric	13	2.5
Gynecology	9	1.7
NICU	7	1.4
Dental	3	0.6
ENT	1	0.2

DISCUSSION

In Nepal, the demographic characteristics of emergency department (ED) patients are shaped by socio-cultural, economic, and geographic factors. Male population constitute a large portion of ED visits, driven by several factors. Lifestyle-related health issues and risk factors associated with non-communicable diseases (NCDs) emerging in early adulthood also contribute to the high ED visits among young males [11]. In Nepal, the Terai region was estimated to have maximum mortality burden 51% followed by Hill 37% and mountain 12%. Only 59% of diseases burden in 2017 was due to NCD, 31% due to CMNN diseases and 10% due to injuries. In our study locally in ED, NCD covers 47% only. The datum was low because of alertness to diseases to visit doctors on time was increasing and modifying health activities. Five out of ten causes of disease burden in 2017 were NCDs, IHD, COPD, LRTI and TB. Our study revealed ten diseases burden were acute pain abdomen, hypertension, COPD, Pneumonia, Psychosis, CVA, APD, AGE, Enteric fever and MI. Medically significant burden was acute pain abdomen because of casual diet, spicy food and untimely food taking habit. Hypertension, Psychosis, APD, MI like burden were due to poor standard of living and life style. Similarly, Pneumonia, COPD, AGE, Enteric fever were frequently alarming in numbers

because of poor hygiene, decrease level of knowledge, attitude and practices about health and diseases. The healthcare-seeking behavior was influenced by their socio-economic background, with urban residents often benefiting from advanced healthcare facilities that are scarcely found in rural areas, where services are typically less advanced. Healthcare providers encounter various hurdles, including inadequate preparation and high rates of burnout, which negatively impact the delivery of emergency care. The lack of specialized knowledge in emergency medicine amplifies these challenges [12,13].

In emergency departments, the presentation of symptoms can vary significantly. Our findings reported that musculoskeletal pain was the most common symptom that patient complained followed by abdominal pain and fever. This aligns with findings from various studies that highlight the prevalence of these symptoms among patients seeking urgent care. For instance, musculoskeletal pain is often a common reason for emergency visits, reflecting the high incidence of related injuries and conditions in the general population [14]. Additionally, fever is frequently encountered, often necessitating further investigation to rule out serious infections [15]. Shortness of breath and cough are also notable presentations, particularly in cases of respiratory distress or hypertensive emergencies, where breathlessness was reported in 53.8% of patients with hypertensive crises [16]. Headaches and personality changes, while less common, indicate the need for thorough neurological assessments, as they may signal underlying conditions requiring immediate attention [17]. Overall, the diverse symptomatology underscores the complexity of emergency care, necessitating a comprehensive approach to diagnosis and treatment [18].

In our study, the most common diseases presented in the emergency department included acute pain abdomen and hypertension, alongside significant occurrences of Chronic Obstructive Pulmonary Disease (COPD), pneumonia, cerebrovascular accidents (CVA), acid pepsin disorder, acute gastroenteritis (AGE), and enteric fever.

An observational study in tertiary care hospital of Nepal reported that patient admitted to ER was most commonly diagnosed with CVA followed by intoxication, AE of COPD, Pneumonia and CKD respectively[19]. The high incidence of hypertension is particularly notable, as it correlates with the increasing prevalence of chronic kidney disease (CKD), where patients often present with complications related to electrolyte imbalances and high blood pressure, especially in advanced stages of CKD [20]. Additionally, the burden of respiratory diseases like COPD and pneumonia is exacerbated by factors such as smoking and environmental pollution, which are prevalent in Nepal [21]. The COVID-19 pandemic has further complicated the clinical landscape, leading to increased hospital admissions due to respiratory distress and post-viral complications[22,23]. This multifaceted health crisis underscores the need for targeted public health interventions to address both acute and chronic conditions effectively.

Our study revealed that majority of the injuries presented to ER of JMCTH were with abrasion followed by cut injury and laceration which is indicative of blunt force trauma, often from heavy objects. Additionally, the

prominence of cut injuries may be linked to the use of sharp objects during assaults or self-harm. A study showed that majority of the patient were brought to ER for violence-related injuries which constituted for majority of assault and the reason behind was alcohol intoxication [24]. Lacerations and femur fractures, while less common, suggest a need for attention to severe trauma cases, potentially arising from road traffic accidents or physical altercations, as indicated by the patterns of maxillofacial injuries and the high incidence of blunt force trauma [25]. The interplay of socioeconomic factors, such as unemployment and alcohol use, exacerbates these injury patterns, highlighting the need for targeted interventions to reduce violence and improve road safety in Nepal [26].

In our study, majority of the patients from emergency ward was admitted to observation ward, which serve as a transitional care area for those requiring further monitoring after initial emergency treatment. For instance, a study at Tribhuvan University Teaching Hospital in Nepal reported that 205 patients were admitted to the observation ward, with 92% remaining there for further care, primarily for conditions like dengue fever and COPD [27]. Similarly, another study indicated that 14% of patients from the emergency department were placed in observation wards, with a significant majority being discharged after a mean stay of three days [28].

CONCLUSION

Acute abdominal pain, hypertension, and respiratory illness followed by COPD and pneumonia were the most frequent diseases. Furthermore, the high frequency of wounds such abrasions and cut injuries highlight the necessity of focused preventative initiatives. The study underlines the vital function of emergency departments in the management of various acute and chronic diseases, emphasizing the necessity of improved emergency care provisions and public health initiatives in this region.

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Author's Contribution: Conceptual design, manuscript writing, data collection, statistical analysis**,** reviewed literatures, reference management, revision of 1st draft**,** editing of 2nd draft, final revision **-HNP, DDS, RNM, RS.** All authors contributed equally in all phases of this study and approved the final draft for publication.

REFERENCES

1. Assessment_of_Burden_of_Disease_in_Nepal_2009_opt.pdf [Internet]. [cited 2024 Aug 17]. Available from: https://nhrc.gov.np/wp-content/uploads/2018/02/Assessment_of_Burden_of_Disease_in_Nepal_2009_opt.pdf
2. BoD-Report-Book-includ-Cover-mail-6_compressed.pdf [Internet]. [cited 2024 Aug 17]. Available from: https://nhrc.gov.np/wp-content/uploads/2022/02/BoD-Report-Book-includ-Cover-mail-6_compressed.pdf
3. Pant MN, Ranjitkar N, Raj Khanal T, Singh B. Status of Patient Flow in the Emergency Department of Kathmandu Medical College Before and After the National Level Lockdown for Pandemic. Journal of Karnali Academy of Health Sciences [Internet]. 2020 Dec 30 [cited 2024 Aug 17];3. Available from:

https://jkahs.org.np/jkahs/index.php/jkahs/article/view/348

4. Naghavi M, Ong KL, Aali A, Ababneh HS, Abate YH, Abbafati C, et al. Global burden of 288 causes of death and life expectancy decomposition in 204 countries and territories and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. The Lancet 2024 18;403(10440):2100–32.
5. The India State-Level Disease Burden Initiative - Public Health Foundation of India [Internet]. 2018 [cited 2024 Aug 17]. Available from: https://phfi.org/the-work/research/the-india-state-level-disease-burden-initiative/
6. Park C, Sugand K, Nathwani D, Bhattacharya R, Sarraf KM. Impact of the COVID-19 pandemic on orthopedic trauma workload in a London level 1 trauma center: the "golden month" The COVid Emergency Related Trauma and orthopaedics (COVERT) Collaborative. Acta orthopaedica 2020;91(5):556–61.
7. Sun H, Liu K, Li M, Tang S, Monte AA, Wang J, et al. The influence of coronavirus disease 2019 on emergency department visits in Nanjing, China: a multicentre cross-sectional study. The American Journal of Emergency Medicine 2020;38(10):2101–9.
8. Krug EG, Sharma GK, Lozano R. The global burden of injuries. American journal of public health 2000;90(4):523.
9. Nantulya VM, Reich MR. The neglected epidemic: road traffic injuries in developing countries. BMJ 2002;324(7346):1139–41.
10. Thapa S, Upreti AR, Dawadi BR. Spectrum of injury presenting to emergency department in A tertiary care hospital in Nepal: a descriptive cross-sectional study. JNMA: Journal of the Nepal Medical Association 2020;58(229):664.
11. Sapkota BP, Baral KP, Rehfuess EA, Parhofer KG, Berger U. Effects of age on non-communicable disease risk factors among Nepalese adults. PLoS One 2023;18(6):e0281028.
12. Bhandari SS, Adhikari S. Emergency medicine in Nepal: are we going the right way and fast enough? International journal of emergency medicine 2023;16(1):79.
13. Singh B. The crisis of physician well-being in Nepal: a multifaceted dilemma demanding urgent intervention. International journal for quality in health care 2023;35(3):mzad070.
14. Mateen S, Masakputra V, Siddiqi Z, Fatima J. Incidence, Pattern, Causes, and Outcome of Acute Chest Pain Among Patients Presenting in the Emergency Department of a Tertiary Care Hospital in North India. Cureus 2024;16(3).
15. Ghimire M, Risal UP, Bhandari R. Over-the-counter Medication Use among Patients Presenting with Fever in the Emergency Department in a Tertiary Care Hospital. JNMA: Journal of the Nepal Medical Association 2024;62(269):30.
16. Goswami B, Nanda V. Clinical Profile of Patients with Hypertensive Crisis Presenting to an Emergency Department of a Tertiary Care Hospital in Western India. Apollo Medicine 2024;21(2):148–52.
17. Chanda A, Kaeley N, Kumar B, Khapre M. Clinico-Epidemiological Profile of Patients Presenting With Acute Chest Discomfort in Emergency Medicine Department of a Tertiary Care Hospital in Uttarakhand, India: A Prospective Observational Study. Cureus 2023;15(9).
18. Poudel M, Bhandari R, Uprety S, Chaudhary R, Yadav A. Emergency Department Patient Satisfaction Survey in a Tertiary Care Hospital of Eastern Nepal. Journal of BP Koirala Institute of Health Sciences 2023;6(1):20–6.
19. Shrestha SK, Pradhan B, Shakya YM, Paneru HR. Clinical Profile of Critically Ill Patients Presenting to Emergency Department of Tertiary Level Hospital of Nepal. Journal of Institute of Medicine Nepal (JIOMN) 2019;41(1).
20. Sharma A, Bhusal L, Rajbhandari A, Maharjan S, Adhikari A, Aryal E. Clinical profile and complications seen in the patients in the later stages of chronic kidney disease presenting to the Emergency department in a tertiary care center in Nepal: A cross-sectional study. Annals of Medicine and Surgery 2024;10–1097.
21. Shrestha G. Associated factors for admission among acute exacerbation of chronic obstructive pulmonary disease patients presenting at the emergency department of a tertiary care center in Eastern Nepal: a cross-sectional study: Associated factors for admission among COPD patients. Journal of General Practice and Emergency Medicine of Nepal 2023;10(16):33–9.
22. Basnet LB, Thapa P, Bastola A, Khanal N, Panta N, Thapaliya S, et al. Prevalence and clinical

presentations of Post COVID-19 conditions in Nepal. medRxiv 2024;2024–04.

23. Yadav NK, Sah RK, Singh N. Clinical and Laboratory Characteristics of COVID-19 Patients Admitted in A Tertiary Hospital of Nepal. Journal of College of Medical Sciences-Nepal 2024;20(1):78–83.
24. Swarnkar M, Pal G, Lilhare S. Assault and self-harm injuries: pattern, severity and etiology of injuries in victims attending emergency department of teaching hospital in central India. International Surgery Journal 2016;3(3):1618–22.
25. Maharjan M, Sakya PR, Gurung J, Rai A, Tandukar A. Incidence, Aetiology and Pattern of Maxillofacial Injuries in a Tertiary Trauma Hospital, Nepal: A 5-year Retrospective Study. Nepal Medical Journal 2023;6(2):1–6.
26. Sah SK, Pandey C, Prasad SB, Chaurasiya AK. Pattern of Injuries in Physically Assaulted Victims in Mid Southern Region of Nepal. International Journal of Health Sciences and Research 2023; 13(8):162:77–1.
27. Shakya YM. Audit of observation ward supporting emergency room at tertiary care hospital: Kathmandu, Nepal: Audit of observation ward of an emergency room. Journal of General Practice and Emergency Medicine of Nepal 2023;10(15):63–6.
28. Shakya Y. Role of General Practice Led Observation Ward to Support Emergency Ward to Improve Health Outcomes at a Major Kathmandu Hospital in Nepal. Prehospital and Disaster Medicine 2023;38(S1):s54–s54.