

Impact Of Covid-19 In Health Care Delivery In Tertiary Neurological Centre In Kathmandu.

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ABSTRACT

Hospital is the place to provide medical facility and treat the injured and diseased population. Even in various calamities and other unprecedented cases, the hospital must operate smoothly. However, there was a great impact on the service rendered by hospitals during COVID-19 pandemic. The study of effect of COVID outbreak to hospitals was performed in ANNAPURNA NEUROLOGICAL INSTITUTE AND ALLIED SCIENCES (ANIAS), Kathmandu.

ANIAS is a specialized hospital rendering its service to public for the treatment of neurological and neurosurgical cases. Since the establishment in 2010, the private hospital has been serving constantly in diagnosis and treatment of public. With availability of modern and advanced technologies like 3T MRI, CT scan, ultrasound, well equipped laboratories and surgical ward, the hospital has been one of the pioneers in treatment of neurological and neurosurgical patients. However, there was major obstacle for the hospital management team to run efficiently due to COVID outbreak from late 2019 to mid-2020.

With an aim to determine the impact of pandemic and lockdown in health care the OPD, imaging, surgical cases and other investigations in ANIAS were compared to the pre COVID (2019) and post COVID (2021) period. The data demonstrated significant decrease in cases during the pandemic while the number of surgical cases rose above the average after the COVID lockdown eased as compared to the previous year 2019.

Keywords: Hospital Management, Covid-19, Pandemic.

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I. INTRODUCTION

The global pandemic of Coronavirus Infectious Disease (COVID-19) has posed significant challenges and hazards to human life and health systems.(1) In the lack of clear cures for COVID-19, the infection control and management mostly relied mainly on public health-preventative methods to prevent disease transmission, such as lockdown and social distancing.(2) To combat the spread of COVID-19 infection, more than a hundred countries were in partial or complete lockdown by the end of March 2020, forcing millions of people to stay at home. Economic activity, public health and mental wellbeing, health care delivery, and health service consumption have all been significantly harmed by the lockdown tactics, particularly in resource-poor countries like Nepal.(3,4) Nepal was among one of the most vulnerable countries to the COVID-19 pandemic, with few resources available to combat the outbreak. (5)

The Nepalese government enforced a statewide lockdown on March 24, 2020, affecting the majority of the people in both rural and urban areas of Nepal. This lockdown took place in Nepal at a very early stage of the epidemic, well before COVID-19 community transmissions were detected. (4,6) Transportation services, markets, city centers, and even outpatient services at hospitals were all shut down as part of the lockdown. Furthermore, due to a lack of personal protective equipment (PPE) for health workers, the majority of peripheral health facilities were closed, and regular essential health services were disrupted for several months.(7) Maternal deaths, child deaths, various forms of malnutrition, and the burden of mortality and morbidity linked with both non-communicable and communicable diseases have all been high in Nepal, which have been exacerbated by the lockdown's disruption of health care. (6)

Detrimental effects include high rates of infection and death, financial hardships faced by individuals, stress related to known and particularly unknown information, and fear of the uncertainty regarding continued impact. Healthcare workers (HCWs), at the heart of the unparalleled crisis of COVID-19, face challenges treating patients with COVID-19: reducing the spread of infection; developing suitable short-term strategies; and formulating long-term plans.(8) HCWs must also continue to successfully treat non-COVID patients and maintain personal responsibilities, including taking care of their families and themselves. The psychological burden and overall wellness of HCWs has received heightened awareness, with research continuing to show high rates of burnout, psychological stress, and even suicide.(9) HCWs experience emotional exhaustion, which may lead to medical errors, lack of empathy in treating patients, lower productivity, and higher turnover rates.

The ability of HCWs to adequately cope with stressors is important for their patients, their families, and themselves. Providers vary in levels of psychological resilience, the ability to positively adapt to adversity to protect themselves from stress.(10) Prior to COVID-19, wide-ranging research had established the multifactorial nature of stressors in healthcare: electronic health record duties; insurance and billing issues; any patient dissatisfaction; and balancing busy work-life schedules.

During the period of first lockdown though the government had ordered the hospitals to completely shut-down the outpatient services, the emergency department and emergency surgical procedures were still running at Annapurna Neurological Institute and Allied Sciences. So with an aim to quantify the impact of the lockdown and closure of outpatient services, the retrospective comparison of number of patients visiting the hospital before, during and after the lockdown was performed.

The COVID-19 pandemic has posed unprecedented challenges and threats to the health care system, particularly affecting the effective delivery of essential health services in resource-poor countries such as Nepal. This study aimed to explore the impact of COVID-19 from the perspective of health care providers.

II. MATERIAL and METHODS

The study design was single centred, cross-sectional and retrospective. The entire patient visiting Annapurna Neurological Institute and Allied Sciences, from January 2019 to December 2021 were included in this study. The data was included from OPD, IPD, surgery, radiological imaging and investigations like Electrocardiogram (ECG), Electroencephalogram (EEG), Nerve Conduction Test (NCT). Patient visiting the hospital for various check-up programs conducted by hospital were also included in this study.

The data were collected from the hospital data bank and Family Health Nepal (an organization for management of hospital records). The data were collected, stored and analysed using excel spread sheet.

III. RESULTS AND FINDINGS

The following data depicts the change in patient flow in hospital for the year 2019 (pre covid), 2020 (Covid time) and 2021 (Post Covid).

Table 1: Comparison in services rendered in year 2019 to 2021

SERVICE	2019	2020	2021
OPD	32660	19484	37009
IPD	2835	2190	2828
SURGERY	1461	1253	1998
IMAGING	20,271	16,038	23,621
PHYSIOTHERAPY	12,199	6550	21,697
Other Investigations (ECG, EEG, NCT)	4119	3396	6356

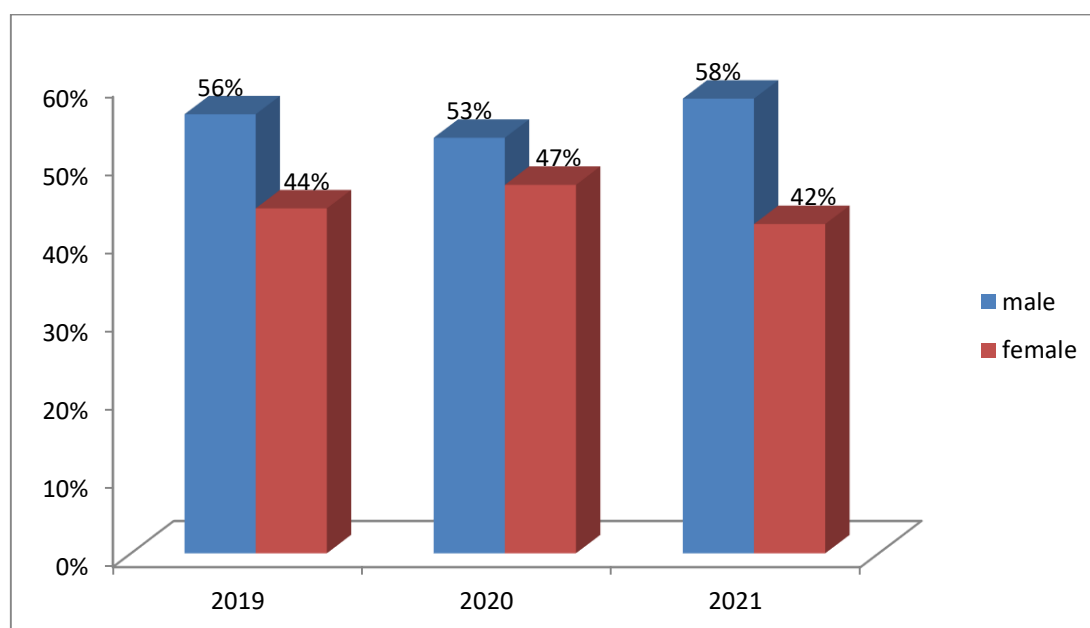


Figure 1: Gender wise comparison of patient in every year (in percentage)

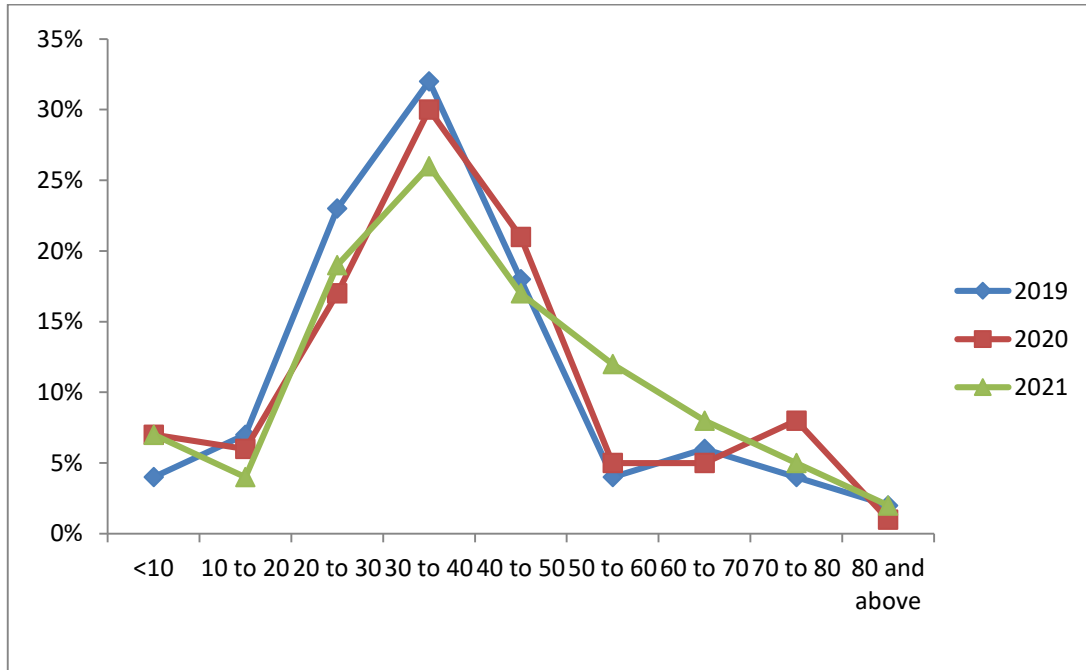


Figure 2: Classification of patient based on age group

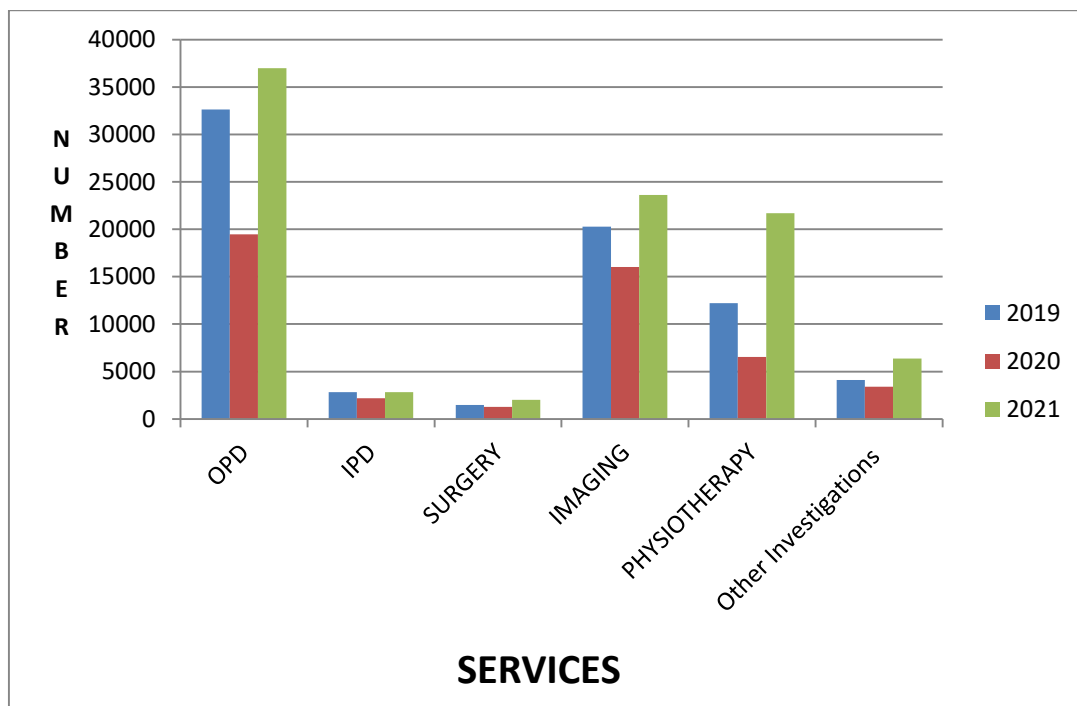


Figure 3: Various services rendered by ANIAS

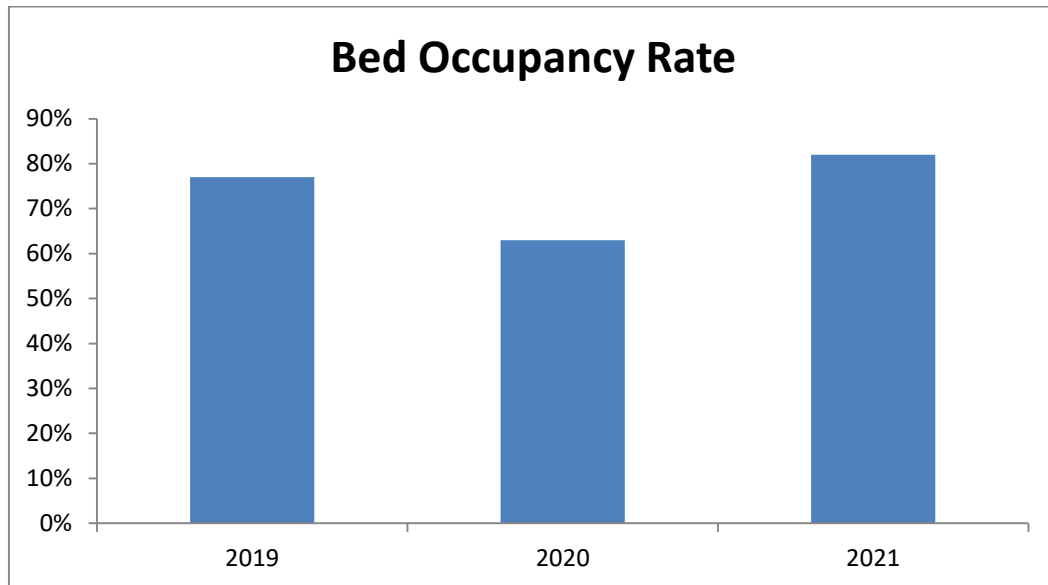


Figure 4: Average bed occupancy rate for 3 years

The above data demonstrates there was significant drop in various services delivered by the hospital in the year 2020, the time when the covid was at its peak and there was nation-wide lockdown. The following figure shows the distribution of patient from various provinces for the year 2019 to 2021.

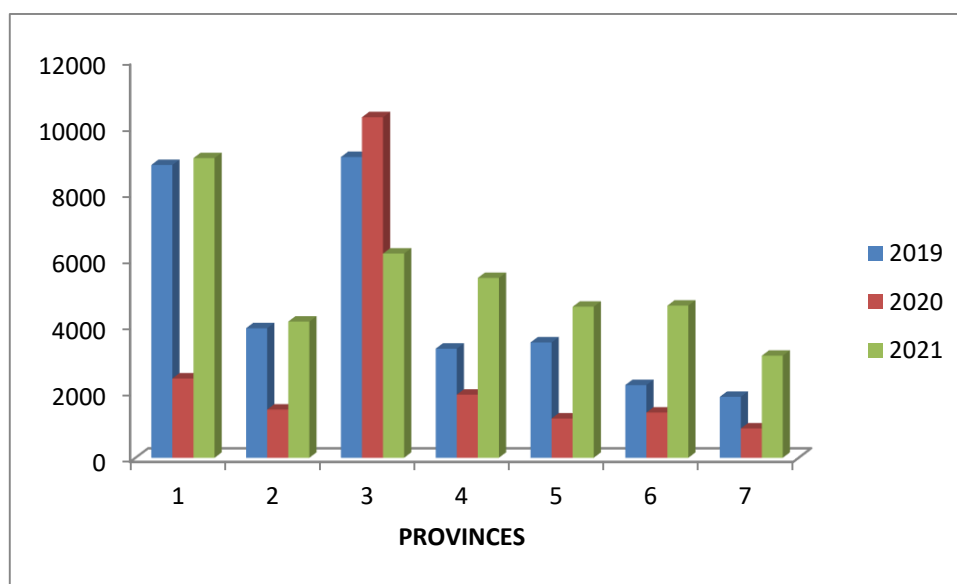


Figure 5: Province wise distribution of patient in ANIAS

Figure 5 shows that there used to be high patients from Province 1 in 2019 but for 2020 most of the patients were from province 3, this might be because of lack of transportation facility due to lockdown. Looking at the data of 2021, there is quite a smooth distribution of patient from every province.

IV. DISCUSSION

Annapurna Hospital being one of the renowned and specialized health care centres for neurosurgery, people from all places of Nepal visits here in search of better facilities. However, due to lockdown and closure of transportation system, majority of population were not able to reach during covid. This was the major reason for decrease in services.(11) Based on the data, the OPD per month for the year 2019 was 2722 which drastically decreased to 1624 in the year 2020, while in the second wave the number were quite better which can be due to the availability of vaccines, PPE, mask and hand sanitizers as compared to that of the first wave of the pandemic, the data improved to 3084 cases per month. During the second wave at around mid-2021, the hospital was assigned as COVID treatment centre, which led to higher patient flow as compared to previous years.

Furthermore the data depicts 14.23% decrease in surgical cases in 2020 as compared to 2019, while increase in surgeries by 59.45% in 2021 suggests that all the pending cases during covid visited the hospital once the lockdown was eased. Similar findings were seen in imaging, physiotherapy and other investigations, where all services decreased in 2020 while rose abruptly in 2021.

To add on to the impact, there were significant obstacles in supply of regular consumable and devices in hospital during the covid.(3,12) The lack of consumable and other devices compelled health care centres to limit the service provided by them. Unavailability of gloves, sanitizers, mask for the health workers demotivated them to render the service, while shortage of devices like oxygen concentrators, Respiratory support system along with lack of adequate oxygen cylinders were among the major hindrance for the hospitals to cure and treat the patients properly. The black marketing and artificial shortage of these products led the hospitals and health care centres to purchase such materials in higher cost than usual.(4,6)

The lockdown had a wide range of effects on health services, including disruptions in routine and vital health care such as immunization, maternity services, and drug and equipment supply chains. Our findings are supported by a recent study that reported a 50% decrease in institutional deliveries and a threefold rise in infant death during the lockdown period. Nonetheless, this research demonstrates how such services have been disturbed in ANIAS's OPD, lab and day to day surgical procedure after the lock-down was implicated on 24th March 2020.

V. CONCLUSION

Many studies to show the impact of covid in different sectors have been done but no studies have shown its impact in health care. Though health care institutes should run smoothly during every situations like pandemic and calamities. But hospitals too had major impact of covid-19 pandemic in 2020. This study explored community perceptions of COVID-19 and their experiences towards health services utilization during the pandemic in Annapurna Neurological Institute and Allied Sciences as well as many other health institutes in Nepal and worldwide.

REFERENCES

- [1]. Barazzoni R, Bischoff SC, Breda J, Wickramasinghe K, Krznaric Z, Nitzan D, et al. ESPEN expert statements and practical guidance for nutritional management of individuals with SARS-CoV-2 infection. Vol. 39, Clinical Nutrition. 2020.
- [2]. Anderson RM, Heesterbeek H, Klinkenberg D, Hollingsworth TD. How will country-based mitigation measures influence the course of the COVID-19 epidemic? Vol. 395, The Lancet. 2020.
- [3]. Pons-Odena M, Valls A, Grifols J, Farré R, Cambra Lasosa FJ, Rubin BK. COVID-19 and respiratory support devices. Paediatr Respir Rev [Internet]. 2020;35:61–3. Available from: <https://doi.org/10.1016/j.prrv.2020.06.015>
- [4]. Singh DR, Sunuwar DR, Adhikari B, Szabo S, Padmadass SS. The perils of COVID-19 in Nepal: Implications for population health and nutritional status. J Glob Health [Internet]. 2020 Jun 1 [cited 2021 May 27];10(1). Available from: [/pmc/articles/PMC7307805/](https://pubmed.ncbi.nlm.nih.gov/3307805/)
- [5]. Khan N, Naushad M. Effects of Corona Virus on the World Community. SSRN Electron J [Internet]. 2020 Feb 6 [cited 2021 Apr 15]; Available from: <https://papers.ssrn.com/abstract=3532001>
- [6]. Singh DR, Sunuwar DR, Shah SK, Karki K, Sah LK, Adhikari B, et al. Impact of COVID-19 on health services utilization in Province-2 of Nepal: a qualitative study among community members and stakeholders. BMC Health Serv Res. 2021;21(1).
- [7]. Bassi MA, Lopez MA, Confalone L, Gaudio RM, Lombardo L, Lauritano D. Enhanced Reader.pdf. Vol. 388, Nature. 2020. p. 539–47.
- [8]. Rayamajhee B, Pokhrel A, Syangtan G, Khadka S, Lama B, Rawal LB, et al. How Well the Government of Nepal Is Responding to COVID-19? An Experience From a Resource-Limited Country to Confront Unprecedented Pandemic. Front Public Heal. 2021 Feb 17;0:85.
- [9]. Suicide cases on the rise in Nepal during COVID-19 lockdown- The New Indian Express. [cited 2021 May 27]; Available from: <https://www.newindianexpress.com/world/2020/jul/07/suicide-cases-on-the-rise-in-nepal-during-covid-19-lockdown-2166528.html>
- [10]. Thapa A, Sharma K, Shrestha P. Standard Operating Protocol: Operating on COVID-19 patients. Nepal J Neurosci [Internet]. 2020 Apr 20 [cited 2021 May 27];17(1):66–71. Available from: <https://www.nepjol.info/index.php/NJN/article/view/28534>
- [11]. Majority of COVID-19 cases in Nepal, like in Singapore, are asymptomatic - The Himalayan Times - Nepal's No.1 English Daily Newspaper | Nepal News, Latest Politics, Business, World, Sports, Entertainment, Travel, Life Style News. [cited 2021 May 27]; Available from: <https://thehimalayantimes.com/nepal/majority-of-covid-19-cases-in-nepal-like-in-singapore-are-asymptomatic>
- [12]. Pfeifer M, Ewig S, Voshaar T, Randerath WJ, Bauer T, Geiseler J, et al. Position Paper for the State-of-the-Art Application of Respiratory Support in Patients with COVID-19. Respiration. 2020;99(6):521–41.