

Review Article

Trend of COVID-19 cases and health sector response in Nepal

Meghnath Dhimal^{1,3,*}, Tamanna Neupane^{1,4}, Samir Kumar Adhikari^{2,5} and Pradip Gyanwali^{1,6}

¹Nepal Health Research Council, Ramshah Path, Kathmandu, Nepal

²Ministry of Health and Population, Government of Nepal, Ramshah Path, Kathmandu, Nepal

³ Email: meghdhimal@gmail.com, ORCID: 0000-0001-7176-7821

⁴ Email: tamanna.neupane@gmail.com, ORCID 0000-0002-5703-6261

⁵ Email: adhikarispk@gmail.com, ORCID: 0000-0002-3226-4428

⁶ Email: prgyawali654@gmail.com, ORCID: 0000-0001-8609-6717

Received: May 24, 2020; Accepted: June 14, 2020; Published: June 25, 2020

Abstract: We are facing global pandemic of novel corona virus diseases COVID-19 which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This paper is aimed to assess trend of COVID-19 cases and health sector response in Nepal. We reviewed WHO databases to observe the global trends and epidemiology of COVID-19 as well as daily situation updated reports of Health Emergency and Operation Centre (HEOC), guidelines, national and international government documents. The first case of COVID was reported in Nepal on 23 January 2020 and number of cases reached 454 on 21 May 2020. In order to address the increasing number of cases of COVID-19, Government of Nepal is adopting various preventive measures like extending lockdown period, setting up quarantine and isolation facilities, sealing borders, suspending flights, closing public places etc. There is need of joint effort by individuals, communities and government to prevent the further spread and flatten epidemic curve in Nepal.

Keywords: Coronavirus diseases; COVID19; health; Nepal

सारांश: हामी कोभिड-१९ भाइरस रोगको विश्वव्यापी महामारीको सामना गरिरहेका छौं जुन गम्भिर एक्जुट रेस्परेटोरी सिन्ड्रोम कोरोना भाइरस-२ को कारण लाग्दछ । यो अध्ययनको उद्देश्य नेपालमा कोभिड-१९ को प्रवृत्ति र यस सम्बन्धी स्वास्थ्य क्षेत्रको प्रतिक्रियाको मूल्यांकन गर्नु हो । हामीले कोभिड-१९ भाइरसको विश्वव्यापी प्रवृत्ति र एपिडेमिओलोजी अवलोकन गर्न डब्ल्यू एच ओ को डाटाबेस, स्वास्थ्य आपातकालीन परिचालन केन्द्रको दैनिक रिपोर्ट, मार्गनिर्देशनहरू तथा राष्ट्रिय र अन्तर्राष्ट्रिय सरकारी कागजातहरूको समीक्षा गर्नु। नेपालमा कोभिड-१९ को पहिलो केस २३ जनवरीमा २०२० देखिएको थियो र २९ मे २०२० मा यो संख्या ४५४ पुगेको छ । कोभिड-१९ को बढ्दो संख्यालाई कम गर्न नेपाल सरकारले विभिन्न रोकथामका उपायहरू अपनाइरहेको छ जस्तै लकडाउन अवधि बढाउने, क्वारेन्टाइन र आइसोलेसन सेवा स्थापना गर्ने, सीमा सिल गर्ने, उडानहरू स्थगन गर्ने, सार्वजनिक स्थल बन्द गर्ने आदि। नेपालमा कोभिड-१९ थप फैलिन नदिन र रोकथाम गर्न व्यक्ति, समुदाय र सरकारको संयुक्त प्रयासको आवश्यक छ ।

* Corresponding author, E-mail: meghdhimal@gmail.com; Tel.: + 977-9851167198
© RECAST/TU

1. Introduction

The COVID-19 pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), initially detected in Wuhan, China which took lives of many citizens of China and now it is continuously spreading in many parts of the world creating the global pandemic (Centers for Disease Control and Prevention [CDC], 2020). World Health Organization (WHO) declared the outbreak of corona virus as a Public Health Emergency of International concern on 30 January 2020 (WHO, 2020a) and Public Health Pandemic on 11 March 2020 (WHO, 2020). Some major signs and symptoms are fever, cough, myalgia, dyspnea, anorexia and complications like pneumonia, respiratory failure etc. may be noticed on COVID-19 patients (Guo et al., 2020; Huang et al., 2020; Poutanen et al., 2003). It is mainly transmitted during close contact via respiratory droplets while coughing or sneezing (CDC 2020, 2020a). As of 21 May 2020, vaccines or antiviral treatments are not available for COVID-19. The standard diagnosis method for this virus is reverse transcription polymerase chain reaction (rRT-PCR) test done using upper respiratory specimen (CDC, 2020b). As of 21 May, around 4.90 million cases have been reported in 188 countries with more than 323412 deaths (WHO Dashboard, 2020).

COVID-19 has imposed great threat to low and middle income countries including Nepal. The fragile health system and availability of limited resources are vital challenges to cope with this large-scale outbreak and to mitigate its consequences (Koirala and Acharya, 2020). The first case of COVID-19 was confirmed in Nepal on 23 January 2020 (Bastola et al., 2020). Nepal Government adopted 6T strategy (travel restriction, testing, tracing, tracking, treatment and togetherness) to combat this pandemic (The Record, 2020). Soon after the detection of second case on 23 March, Government of Nepal (GoN) declared lockdown across the country on 24 March and enforced self and home quarantine of two weeks for the people visiting Nepal (UN Nepal, 2020). Later the quarantine time was extended for three weeks on 4 April 2020 when Ministry of Health and Population (MoHP) announced that two weeks was not enough to prevent the spread of disease again extended the quarantine time (Subedi, 2020). GoN also collaborated with various multisectoral agencies, local health sectors and international bodies to formulate high level coordination mechanism to combat this public health issue strengthening the national health system (The World Bank, 2020). In total, 126 hospitals were designated

for running COVID clinics and 28 hospitals designated in level one, two and three for treating the patients of COVID-19 in Nepal (MoHP, 2020).

Furthermore, MOHP has developed "Health Sector Emergency Response Plan COVID-19" to strengthen the health system response to counter the COVID-19 pandemic. The plan includes strategic approaches and interventions such as public health and social measures, hospital based interventions, management of human resources and logistic and fund management. The plan also states that collaboration will be made with Nepal Health Research Council and other academic and research institutions to strengthen the country's capacity in conducting COVID-19 related research (MoHP, 2020). This paper aims to review the current trends of COVID-19 and health sector response to combat its outbreak in Nepal.

2. Materials and Methods

Government of Nepal, Ministry of Health and Population, Health Emergency and Operation Centre (HEOC) report, guidelines, national and international government documents and news were reviewed for evaluating the responses of government in combating this pandemic. Data were also retrieved from WHO dashboard for analysis.

3. Results

As of 21 May 2020, Nepal confirmed 454 COVID-19 cases including three deaths. Among the four neighbouring countries, the highest number of cases was reported in India (112,359 cases) and highest number of deaths was reported in China (4645 deaths). Bhutan having low population, confirms less infected cases (21 cases) as compared with others. The highest Case Fatality Rate was observed in China (5.50%) followed by India (3.06%). (Table 1)

The sample of first case was sent to Hongkong, as Nepal didn't have reagents for test. Later, reagents were borrowed from Centre for Molecular Dynamics Nepal (CMDN) and WHO provided test kits. The National Public Health Laboratory started testing (rRT-PCR) the virus on 27 January 2020. The second case was confirmed after two months on 23 March. Nepal reported 57 cases till the end of April that reached to 454 cases in 21 May. As of May 21, 2020, in total 38737 RT-PCR tests and 78695 RDT tests have been performed and number recorded confirmed cases were 454 (Figure 1).

As of 21 May 2020, high share of people of Province 5 tested positive for COVID-19 (198 cases) followed by Province 2 (136 cases) and Province 1 (84 cases). In total, 49 cases have recovered and three deaths have occurred (Figure 2).

Table 1. Trends of COVID-19 in Nepal and it's neighboring countries

	Nepal	India	Bangladesh	Bhutan	China
Total cases	454	112,359	28,511	21	84,507
Death	3	3,435	408	0	4645
Case fatality Rate	0.66	3.06	1.43	0.00	5.50

(Source: WHO COVID-19 Dashboard)

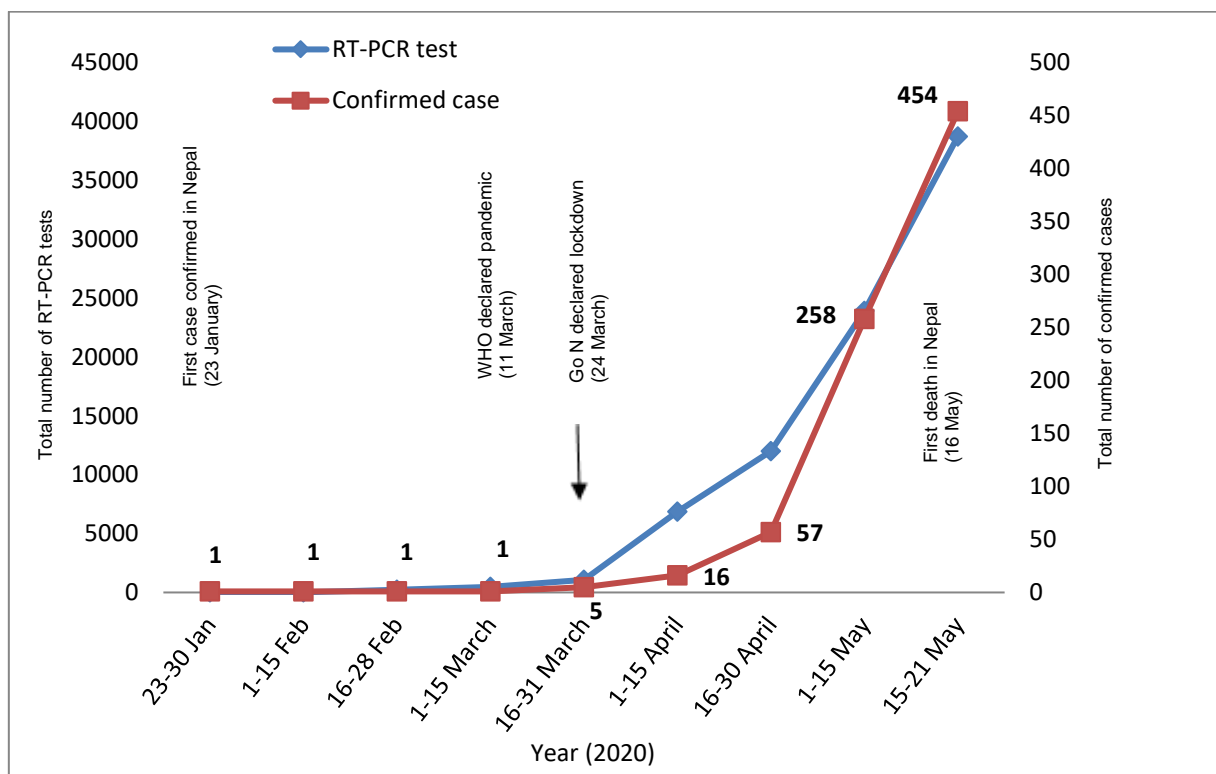


Figure 1. Trend of cumulative cases and RT-PCR test in Nepal

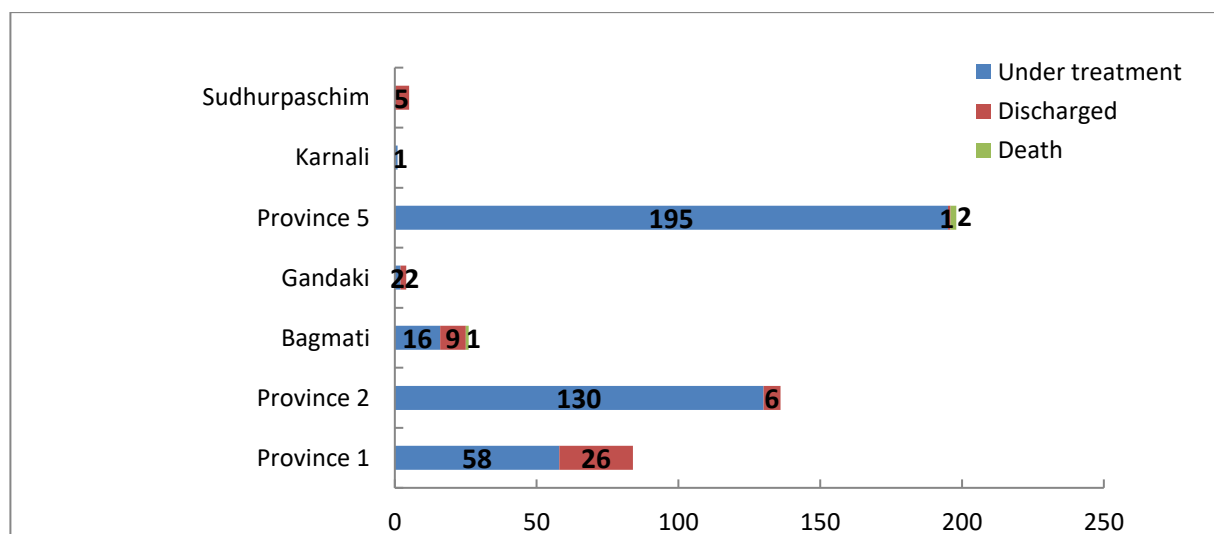


Figure 2. Province wise distribution of COVID-19 cases in Nepal

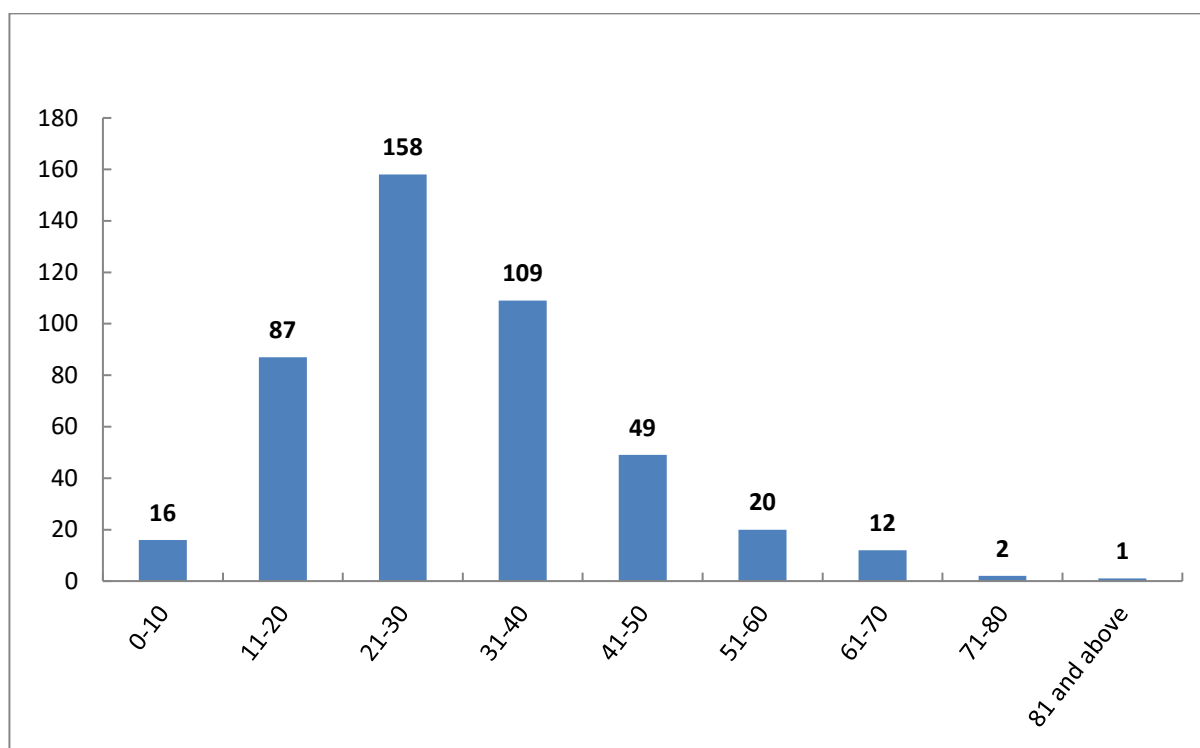


Figure 3. Age and sex wise distribution of COVID-19 cases in Nepal

As of 21 May, 2020, highest number of cases was reported among age group 21-30 years (158 cases, 34.8%) followed by 31-40 years (109 cases, 24%) and 11-20 years (87 cases, 19.2%). Male were mostly infected with COVID-19 virus (384 cases, 84.6%) compared to female (70 cases, 15.4%). (Figure 3)

Quarantine centers were set up in all the provinces of Nepal with 70376 beds in altogether as of 21 May, 2020. Around twenty-five thousand were staying in quarantine with high number of people in Province 5 (14761 people). Similarly,

3349 beds were set up for isolation services in all the provinces. All the five confirmed cases of Sudurpaschim province were discharged from isolation (Table 2).

Ministry of Health and Population (MoHP) has formulated following guidelines for mitigating the risk of COVID-19 disease. These guidelines lead the way for diagnosis, treatment, prevention and control of COVID-19 cases in Nepal (Table 3). MoHP also expanded RT-PCR testing laboratory from one National Public Health Laboratory to more than 20 places in Nepal.

Table 2. Province-wise distribution of quarantine and isolation services in Nepal

Province	No. of Quarantine beds	No. of people placed in quarantine	No. of isolation beds	Confirmed cases in isolation	Discharged	Deaths
Province 1	6274	1349	455	58	26	
Province 2	7834	4966	432	130	6	
Bagmati	6480	528	990	16	9	1
Gandaki	4384	591	235	2	2	
Province 5	25322	14761	534	195	1	2
Karnali	10430	741	540	1		
Sudurpaschim	9652	2095	163		5	
Total	70376	25031	3349	402	49	3

Table 3. Guidelines developed by Ministry of Health and Population, Nepal Government

Guidelines	URL
Safety measures to be adopted at the import point during the epidemic of Covid-19 disease	https://drive.google.com/file/d/1Prz1sPcQv04O9ToqLWkTsf7txsnROhNo/view
COVID-19 Patient Transfer Team (PTT) Guidelines	https://drive.google.com/file/d/1GLzSSLS_z8m-kZTeXoD3uaB6PcqbfJT/view
COVID-19 Dead Body Management Guideline	https://drive.google.com/file/d/1qpNTguqXC5m-oc8xJSOcmJz0QA0eSBQc/view
Guidelines for use of PPE -COVID-19 (In Nepali and English)	https://drive.google.com/file/d/1WAG7Ruhk32zpa2R-oZxDQRgTzRE959Wk/view
Interim Clinical Guidance for Care of Patients with COVID-19 in Health Care Settings	https://drive.google.com/file/d/1LezeHthMjd2uLga_8K3mknjvKYbxNG/view
NMC Interim Guidance for Infection Prevention and Control when COVID-19 is suspected	https://drive.google.com/file/d/1VzWcuQccAE0w_mvjZgnGedicKFBXz7c21/view
COVID and Non-COVID Health Service Guideline	https://drive.google.com/file/d/1kzWQTtyi2cz8HSA4Hwv3zjdHwExJQXhO/view
Interim Guideline for the establishment and Operationalization of molecular Laboratory for COVID-19 testing in Nepal	https://drive.google.com/file/d/157Q7JK3rFTgQRfK3DCuVpw_-owRCBI65/view
Ayurveda and Alternative Medicine Guidelines of Preventive Measures and Management Protocol for COVID-19 in Nepal	https://drive.google.com/file/d/15ZeiYQgNrHkP3qRG-uSzcLmP_WAu2tZ2/view
Case Investigation and Contact Tracing Team Management Interim Guideline	https://drive.google.com/file/d/1Sv2UHmYej_9sDp_yzBIOfXpPLPcE22C8/view
Staff Mobilization Guideline	https://drive.google.com/file/d/1GavLiOpTqgDYTxsr_vY8jFLLtKrj_gzZ/view
RDT Test Authorization to hospital Interim Guideline	https://drive.google.com/file/d/1GFAD3URLS85tZVAj4H4KPCbqvZn1M2rd/view
Interim Guidance for RMNCH services in COVID 19 Pandemic	https://drive.google.com/file/d/1mZF6s5YY5KSZFBFHVASJuZGwjNm7eHYk/view
COVID-19 Emergency Medical Deployment Teams (EMDT) Mobilization Guidelines	https://drive.google.com/file/d/1Ox84pbpoHLSv7naM_0QHcNnS_B1nEHwX/view
National Testing Guidelines for COVID-19	https://drive.google.com/file/d/16qC8AD3q-0E-pQtRr2Hca8S3Evg6GgrM/view
COVID-19 Cases Isolation Management Guidelines	https://www.publichealthupdate.com/covid-19-cases-isolation-management-guideline/

4. Discussion

This study is aimed to describe the current trends of COVID-19 and health sector response to it in Nepal. The novel corona virus epicentered in Wuhan China is spreading in many of the countries and territories globally. Comparing the data of 188 countries, as of 21 May 2020, USA has the largest epidemic of COVID-19 cases (1,501,876 cases) with 90,203 deaths followed by European countries (Russia, Spain, UK, Italy, France and Germany). Similarly, among Asian countries, Turkey (152,587 cases) confirmed highest cases of COVID-19 followed by Iran, India and China till date (WHO Dashboard, 2020). As of 21 May 2020, Nepal reported 0.66% of case fatality rate (CFR) that is low compared to India (3.06%) and China (5.50%). However, there might be underestimation of the rate as the asymptomatic cases might be hidden or not diagnosed (Rajgor et al., 2020). This observation may support the assumption that these leading countries

should adopt appropriate public health measures to control the spread of virus and reduce the number of cases. Till the development of vaccines and specific medications, public health measures like individual effort, detection and isolation of cases, contact tracing and quarantine, social and physical distancing are crucial to prevent the disease spread and save lives of people (WHO, 2020).

The results of this study showed that people of all ages had COVID-19 infections in Nepal with high number of cases between 21 to 40 years of age and among men. According to WHO, people of all ages can be infected with novel corona virus and older and vulnerable people with pre-existing medical conditions are at high risk (WHO, 2020). A study conducted in China among 138 COVID-infected cases found that median age of patients was 56 years and 54.3% of confirmed cases were men (Wang et al., 2020). Similarly another study in Singapore carried out among 1000 patients revealed

that the highest age range of COVID-19 infection was 20-29 years (27.3%) with high percentage among men (57.6%).

Many countries have enforced various measures for fighting with the pandemic. One of the most effective actions was lockdown strategy. A study in Wuhan, China showed that doubling time of cases was increased after adopting the lockdown measure (Lau et al., 2020). On the other side, patients at emergency department in England fell by 25% during lockdown that implies the harmful situation of difficulty in assessing the non-COVID treatment services (Thornton, 2020). Likewise, the lockdown in India is estimated to have huge loss in India economy due to increment in unemployment rate and retail loans (Paul, 2020). This observation has important implication for revising the current policies to overcome the detrimental effects caused by these issues.

Predicting the large spread of COVID-19 in Lunar New Year of China, Government of Republic of China adopted various measures like extending the holiday long enough to shelter the incubation period of virus, isolating the confirmed cases in hospitals, developing quarantine shelters in different hospital and declaring the home based quarantine (Chen et al., 2020). Nepal also cancelled Visit Nepal 2020 campaign when COVID-19 outbreak turned into pandemic (Subedi, 2020). Like other countries, GoN declared lockdown across the country, sealed the land borders, suspended national and international flights (Giri, 2020), and cancelled academic examinations and educational activities (The Rising Nepal, 2020). MoHP has taken various measures for prevention of its spread and management of the treatment services in Nepal. Quarantine centers and temporary hospitals are setup with ICU units and isolation beds throughout the country. Laboratories facilities are upgraded and expanded and MoHP regularly ensures the availability of necessary items for the prevention and management of COVID-19 cases (Piryani et al., 2020). Department of Health Services has been supplying essential items such as Personal Protective Equipment (PPE), N95 mask, gowns, gloves, disinfectant sprayer pump, goggles, thermometer etc. (MoHP, 2020). Since 13 March 2020, two call centers along with three mobile phone services have been operated to provide counseling services on any queries regarding COVID-19 prevention and treatment. MOHP is continuously formulating various guidelines for providing guidance to effective diagnosis, treatment and prevention of COVID-19 cases in Nepal. Also, DHIS2 Tracker system training was conducted for health workers for routine reporting of COVID-19 test from laboratories (MoHP, 2020). There are however, other possible challenges like limited finance, lack of necessary

equipment such as PPE (Nepali Times, 2020), masks and Intensive Care Unit with ventilators required for prevention and treatment services (Paneru, 2020). It is also found that, as of 21 May, 2020, limited tests have been performed in Nepal (117,432 tests) as compared to other neighboring countries China, India (2,615,920 tests) and Bangladesh (214,114 tests) (Worldometer, 2020). Nepal is still struggling to manage the test kits and other logistic materials and improve the isolation services in some provinces.

As Nepal is practicing federal system since few years only, coordination among three tiers of Government (Federal, Provincial and Local) seems challenging for dealing with the COVID-19 outbreak. Despite the timely adoption of preventive strategies in Nepal, the number of cases is in increasing trend. It's critical to test all the suspected cases and adopt effective public health measures through public-private partnership in early stage to combat this pandemic. Being landlocked country, it's hard for government to completely seal off the Indian border. Hundreds of Nepalese are stuck at India border and on the other side; migrants who already returned from India are violating the quarantine protocol that is one of the major reason of rise in number of cases in Nepal (Nepali Times, 2020). Collaboration with India is vital to resolve this issue. The restriction of movement during lockdown has hindered the accessibility of health services in Nepal (Dhiren, 2020). The vulnerable groups like old aged, pregnant mothers and children are at high risk. Additionally, this pandemic is likely to increase the sexual and gender-based violence (Taub, 2020) and psychological distress are also expected to rise (Qiu et al., 2020).

5. Conclusion

There is a drastic increase of number of COVID-19 cases in Nepal after May 2020, nearly after three months of first report of COVID19 case in Nepal. Based on the nature of outbreak, Government of Nepal is adopting different preventing measures. There is need of joint effort by individuals, communities and government to prevent the spread. Multilevel and multisector coordination and collaboration should be strengthened before condition goes out of control to each stakeholder. Greater efforts are needed to formulate effective strategies using the available evidence to manage the COVID-19 outbreak in early stage in Nepal.

Author Contributions: MD and TN drafted and edited the manuscript. SKA and PG critically reviewed and edited the manuscript.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Bastola A, Sah R, Rodriguez-Morales AJ, Lal BK, Jha R, Ojha HC, Shrestha B, Chu DK, Poon LL, Costello A, Morita K. The first 2019 novel coronavirus case in Nepal. *The Lancet Infectious Diseases*. 2020 Mar 1;20(3):279-280
- CDC 2020. Situation Summary. *Coronavirus Disease 2019 (COVID-19)*.
- CDC 2020a. Centers for Disease Control and Prevention. How COVID-19 Spreads'. April 13, 2020. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Ftransmission.html.
- CDC 2020b. Centers for Disease Control and Prevention: 03/15/2020: Lab Advisory: Updated Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons Under Investigation (PUIs) for Coronavirus Disease 2019 (COVID-19). https://www.cdc.gov/csels/dls/locs/2020/updated_interim_pui_guidelines_for_covid-19.html
- Chen S, Yang J, Yang W, Wang C, Bärnighausen T. COVID-19 control in China during mass population movements at New Year. *The Lancet*. 2020 Mar 7;395(10226):764-766. DOI: 10.1016/S0140-6736(20)30421-9
- Covid-19 Roundup, 13 April: 14 cases nationwide, govt's 6T strategy & PM's New Year address'. *The Record* <https://www.recordnepal.com/covid19/covid19-roundup-13-april-14-cases-nationwide-govts-6t-strategy-pms-new-year-address/>
- Dhiren S. Kidney patients dying due to COVID-19 lockdown. *Nepali Times*. May2, 2020. <https://www.nepalitimes.com/here-now/kidney-patients-dying-due-to-covid-19-lockdown/>
- Giri A. Coronavirus lockdown to continue until April 27, border closed until situation improves in India'. *The Kathmandu Post*. <https://kathmandupost.com/national/2020/04/14/lockdown-extended-by-12-more-days-until-april-27>
- Guo YR, Cao QD, Hong ZS, Tan YY, Chen SD, Jin HJ, Tan KS, Wang DY, Yan Y. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak—an update on the status. *Military Medical Research*. 2020 Dec;7(1):1-0. DOI: 10.1186/s40779-020-00240-0
- Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, Cheng Z. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The lancet*. 2020 Feb 15;395(10223):497-506. DOI: 10.1016/S0140-6736(20)30183-5
- Koirala J, Acharya S. Impact of Novel Corona Virus (COVID-19 or 2019-nCoV) on Nepalese Economy. Available at SSRN 3560638. 2020 Mar 24. DOI: 10.2139/ssrn.3560638
- Lau H, Khosrawipour V, Kocbach P, Mikolajczyk A, Schubert J, Bania J, Khosrawipour T. The positive impact of lockdown in Wuhan on containing the COVID-19 outbreak in China. *Journal of travel medicine*. 2020 Apr;27(3):taaa037. DOI: 10.1093/jtm/taaa037
- MOHP. Ministry of Health and Population: HEOC Situation Report. In: Ministry of Health and Population: Health Sector Emergency Response Plan for COVID-19. 2020.
- Nepali Times. Hospital staff in Nepal at the frontlines of the battle against COVID-19 lack protective gear. 2020.
- Nepali Times. The India connection in Nepal's COVID-19 status. April 12, 2020. <https://www.nepalitimes.com/latest/the-india-connection-in-nepals-covid-19-status/>
- Paneru HR. Intensive care units in the context of COVID-19 in Nepal: current status and need of the hour. *Journal of Society of Anesthesiologists of Nepal*. 2020 Apr 10;7(1):e291. <http://www.jsan.org.np/jsan/index.php/jsan/article/view/291>
- Paul D. COVID-19: Impact of the Lock down in the Indian Economy. Department of Symbiosis International (Deemed University https://www.researchgate.net/publication/340930405_Covid_19_Impact_on_Indian_economy/link/5ea5334392851c1a9070a9fc/download
- Piryani RM, Piryani S, Shah JN. Nepal's response to contain COVID-19 infection. *Journal of Nepal Health Research Council*. 2020 Apr 20;18(1):128-34. https://www.researchgate.net/profile/Rano_Mal_Piryani/publication/340950591_Nepal's_Response_to_Contain_COVID-19_Infection/links/5ec3bbf5a6fdcc90d682b3bf/Nepals-Response-to-Contain-COVID-19-Infection.pdf
- Poutanen SM, Low DE, Henry B, Finkelstein S, Rose D, Green K, Tellier R, Draker R, Adachi D, Ayers M, Chan AK. Identification of severe acute respiratory syndrome in Canada. *New England Journal of Medicine*. 2003 May 15;348(20):1995-2005. <https://www.nejm.org/doi/pdf/10.1056/NEJMoa030634>
- Qiu J, Shen B, Zhao M, Wang Z, Xie B, Xu Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General psychiatry*. 2020;33(2). DOI: 10.1136/gpsych-2020-100213
- Rajgor DD, Lee MH, Archuleta S, Bagdasarian N, Quek SC. The many estimates of the COVID-19 case fatality rate. *The Lancet Infectious Diseases*. 2020 Mar 27. DOI: 10.1016/S1473-3099(20)30244-9
- Subedi K. Govt urges one and all to avoid public gathering to prevent outbreak of coronavirus'. *my Republica* March 1, 2020.
- Taub A. A new Covid-19 crisis: Domestic abuse rises worldwide. *New York Times*, 2020 April, 6. <https://www.nytimes.com/2020/04/06/world/coronavirus-domestic-violence.html>
- The Rising Nepal. Govt Postpones All Examinations Till 12 April. <https://risingnepaldaily.com/mustread/govt-postpones-all-examinations-till-12-april>
- The World Bank Nepal. COVID-19 Emergency Response and Health Systems Preparedness Project'. April 3, 2020. <https://www.worldbank.org/en/news/loans-credits/2020/04/03/nepal-covid-19-corona-virus-emergency-response-and-health-systems-preparedness-project>