**Impact of COVID-19 on People with Disabilities in Nepal: A Preview into Assistive Technology Use during Pandemic**

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**Abstract**

This article is related to a desk study on the impact of COVID-19 on the lives of people with disabilities and the use of assistive technology together with the impact of assistive technology use by people with disabilities during the pandemic in Nepal. Along with the impact on the global economy, food security, and mental health, COVID-19 has devastating effects on the healthcare systems, shifting resources from disease treatments to the management of COVID-19. In such crises, marginalized groups such as people with disabilities are often neglected. An intensive literature search was performed in PubMed and Google Scholar with a thorough search of all possible government and non-government reports on the research interests. The situation was found to be devastating in a low-income country like Nepal where the majority of the people with disabilities were not provided with government social protection assistance. People with disabilities experienced an increased level of anxiety and depression because of the pandemic and lockdowns in the country. Many people with disabilities heavily depend on assistive technology to perform their daily activities but due to the pandemic delivery of assistive technology services has reduced drastically. A disability-inclusive response is recommended to empower people with disabilities to handle their lives in difficult circumstances, and increase access to health care, and assistive technology use.

**Keywords:** Assistive technology, impact of COVID-19, Nepal, pandemic, people with disabilities

**Introduction**

The world has been facing a pandemic since 2019 from a novel virus named severe acute respiratory syndrome, coronavirus 2 (SARS-CoV-2), which is commonly known as Coronavirus disease of 2019 (COVID-19). The virus can transmit easily through direct and indirect contact via droplets from the nose and mouth of an infected individual (Coronaviridae Study Group, 2020; Lam et al., 2020). The common symptoms observed in COVID-19-infected individuals are fever, cough, headache, body aches, loss of taste and smell, diarrhea, and dyspnea in some cases (Çalıca Utku et al., 2020; Coronaviridae Study Group, 2020). However, the majority of infected people are asymptomatic in nature which assists in the easy spread of the virus in the community causing unnecessary anxiety (Coronaviridae Study Group, 2020).

The risk of viral transmission increases in crowded places (Xie et al., 2007). To mitigate its effects, authorities around the world promulgated social distancing, hand washing, and the use of Personal Protective Equipment (PPE), such as face masks. Along with the utilization of human and financial resources and infrastructure for disease management, the provision of locking down the risky zones of various countries around the world has been implemented (Carbone et al., 2021). The practice of lockdown along with the fight against the pandemic severely affected the lives of people globally, especially the marginalized population such as people with disabilities (PWDs). Many PWDs depend on assistive technology (AT) to perform their daily activities (Brandt et al., 2020). However, the pandemic has affected drastically the delivery of AT services due to a lack of provider availability and decreased head-to-head services (Smith et al., 2022).

The realization after the initiation of the pandemic is that new pathogens can arise and evolve rapidly causing a public health problem (Dhama et al., 2020). In the case of COVID-19, the primary concerns of the pandemic are the prompt and direct impact on human health like the aforementioned symptoms. Despite this, there are secondary concerns that are indirect and result either from fear or the preventive measures that are obligatory to follow during the pandemic (Carbone et al., 2021; UNICEF, 2020). Mental health issue is a major indirect consequence of the pandemic that spikes dramatically during such conditions for which the healthcare system must be prepared (Kang et al., 2020).

In South Asia, mental health problem is spiking up due to the pandemic affecting the vulnerable population (Mehrotra & Soldatic, 2021). A substantial percentage of the population in Asia has suffered from some symptoms of mental illness like anxiety and depression due to the pandemic. However, it seems this figure is low compared to other parts of the world like China and Europe (Pappa et al., 2022). Additionally, the limited resources are shifted for the management of COVID-19, which causes a shortage for the treatment of other diseases (Dhama et al., 2020). In low-resource settings, novel and recurring disease epidemics can potentially handicap the healthcare system for a long period as a result of infrastructure deficiency (Velavan & Meyer, 2020). The economically vulnerable populations residing in low and middle-income countries (LMICs) are subject to difficult livelihoods. Thus, there are expected differences between rich and poor nations’ experiences during the pandemic.

In developed countries, financial losses are overcome either by the provisions of government programs, consideration from the employer of the firm, or the citizen’s savings. However, in low-resource setting countries, people lack financial security. Luckily, in such countries, the virus has done less harm as the majority of the population is young. Additionally, these countries have limited import/export of goods and in migration/outmigration of the population. As a result, LMICs faced the problem of the pandemic later comparatively and it seems that they were able to learn about the preventive measures to limit the spread of the infection from the experience of other countries like China, North America, and Europe (Egger et al., 2021).

In Asia, the travel restriction and shortage of workers on the farm have obstructed the process from agricultural production to selling products in the market (Kim et al., 2020). The pandemic has caused substantial losses in the agricultural sector causing short-and long-term impacts not only on food security but also on the overall economy. In 2020, this region alone faced a reduction of 3.11% in agricultural production. This has been affecting the 100.77 million population. This year, the GDP of the Southeast Asia region has declined by 1.4% (USD 3.76 billion) (Gregorioa & Ancog, 2020). Furthermore many people have lost their jobs and have no income to buy food for themselves. This problem has mostly affected marginalized and vulnerable populations, increasing the problem of food insecurity and under nutrition (Kim et al., 2020).

As COVID-19 has immensely affected the lives of all people especially PWDs it becomes essential to understand the impact of COVID-19 on the lives of PWDs. The learnings from the experiences are essential to tackle the difficulties for decreasing challenges to PWDs in such unprecedented situations. Also, it is important to know the use of AT by PWDs, especially in a resource-poor country like Nepal, and identify the impact of COVID-19 on AT use. AT can be extremely helpful to ease the daily lives of PWDs and hence it is important to continue its use irrespective of any pandemics. Thus, this paper aimed to identify the impact of COVID-19 on the lives of PWDs and explore the use of AT along with the impact of AT use among PWDs in Nepal.

**Methods**

It used a desk review format, which included narrative review techniques, in a style that was easy to read and accommodated a wide range of viewpoints on a subject. Some of the tasks included reviewing the arguments that are currently being made, assessing previous studies on the effects of COVID-19 in the global context and in Nepal, outlining the effects of COVID-19 on the lives of people with disabilities, with a particular emphasis on the use of assistive technology by PWDs and the impact of COVID-19 on the use of assistive technology, and identifying any discrepancies or shortcomings in the field. Article search was performed using PubMed and Google Scholar during February 2022 to June 2023. Keywords used were COVID-19, disabilities, people with disabilities, the impact of COVID-19, consequences of COVID-19, psychological impact, mental health, economic impact, and assistive technology. Boolean operators such as “AND” and “OR” were used in PubMed with the above-mentioned keywords. The reports on the impact of COVID-19 on PWDs, disability conditions, and AT use by PWDs were searched using Google basic search. All the literatures were thoroughly read,

**Results and Discussion**

**Impact of COVID-19 on People with Disabilities (PWDs)**

PWDs are the ones with prominent health gaps as recently discerned by public health. According to the Centers for Disease Control and Prevention, this population is a highly marginalized, neglected, and understudied group (Sabatello et al., 2020). It has been said that comorbid cases like diabetes, high BMI, asthma, cancer, and other immune-deprived conditions are at higher risk for hospitalization and mortality due to COVID-19 (Carbone et al., 2021). In the pandemic, vulnerable groups such as old aged people, pregnant women, and the homeless are focused on. However, disabled people, who face a range of trouble from getting access to healthcare facilities to being mentally disturbed and socially disadvantaged, are neglected (Courtenay & Perera, 2020). This is a challenge as the prevalence of the disease is higher among the disabled and they have a lower life expectancy (Perera et al., 2020).

Based on the findings of the article, the pulmonary disorder is the major cause of mortality among disabled people, especially among those with Down syndrome. It has been highlighted that the prevalence of obesity is higher among these groups, which increases the risk of the severity of COVID-19 (Courtenay & Perera, 2020). In addition, mental disorders are likely to be higher among PWDs as compared to the general population (Perera et al., 2020).

Unlike the general population, differently able people take time to cope with sudden changes. In difficult times like that of the pandemic, these people need the assistance of others to follow the safety measures and protect themselves from the viral transmission. Moreover, it will be difficult for them to understand and apply preventive measures like hand washing, and social distancing from others. It will also be troublesome for the caretakers if PWDs would not understand the safety rules (Courtenay & Perera, 2020). Globally, the health needs of PWDs seem to be unmet because these groups of people do not visit the health practitioner often if they have any problems. Thus, they get less guidance for their health and get neglected in terms of diagnosis and treatment of diseases. Ultimately, these groups tend to suffer more during pandemics such as COVID-19 (Perera et al., 2020).

**COVID-19 in Nepal**

The first case of COVID-19 was reported in January 2020 in Nepal, and the country had its first lockdown on 24th March 2020. Due to the open border with India, there was a large inflow of people from the neighboring country of Nepal and many other people across the globe, thus resulting in increased COVID-19 cases in Nepal (Rohwerder et al., 2021).

The delivery of reliable information on preventive measures is a vital step to containing the virus. In the primary stage of the pandemic, many people were unable to access information on COVID-19 because of linguistic communication barriers and due to little initiation from organizations. The Ministry of Health and Population disseminated information on COVID-19 through television networks and radio programs, however, it could not reach the communities which had no access to social media including marginalized groups like PWDs and people living in rural areas (Rohwerder et al., 2021).

People with vision problems rely significantly on contact, which is prohibited during the pandemic to keep the illness contained. People with visual and hearing disabilities faced communication hurdles during the pandemic because to a lack of knowledge and difficulties understanding the unique virus, which caused widespread concern in Nepal due to information accessibility issues that led to disinformation (Rohwerder et al., 2021).

In a need assessment survey in Nepal, among 686 respondents who were PWDs, 78% reported understanding the prevention measures for COVID-19 received (Humanity and Inclusion, 2020). According to this, two out of three respondents received information on COVID-19 from their friends and family members (67%) and others through social media like radio (66%), mobile device services such as messages/SMS or ringtones (63%), and television (54%).

**Consequences of COVID-19 in Nepal**

Nepal-being a low-income country the purported misconduct performed in the procurement process during the pandemic, given delays and corruption in medical supplies, impacted COVID-19 testing and quarantine amenities (Sharma, 2020). Alleged caste-based discrimination is also the main issue in quarantine facilities under the Government of Nepal (Rohwerder et al., 2021). An increment in gender-based violence was noticed during the pandemic (Neupane, 2020). A ten-year-old girl with a disability belonging to a marginalized group was raped during the lockdown in the Rautahat district (Minority Rights Group International, 2020). The impact of the COVID-19 pandemic is apparent among people who have low socio-economic status, live in difficult geographical areas, are PWDs, and people belonging to lower castes (Rohwerder et al., 2021). Out of 686 PWDs in the need assessment survey in Nepal, only 2% reported having health programs and actions for PWDs from local governments and 78% did not have a source of information on relief packages by government and NGOs (Humanity and Inclusion, 2020). The detrimental effects of the COVID-19 pandemic hastened abruptly for marginalized groups among PWDs like indigenous women (Santos, 2020).

Nepal has been severely affected by the pandemic with heavy economic depletion in tourism, entertainment, recreation, and transportation sectors, hence, leading to a massive impact on the country’s economic growth (Institute for Integrated Development Studies, 2020; UNDP, 2020). The loss of jobs, reduced income sources, decreased overseas remittances, and escalated living costs could revert the country into poverty (Institute for Integrated Development Studies, 2020).

According to a household survey conducted via phone calls in April 2020 in Nepal, one in ten households had lost their jobs, three in ten had reduced income, and 23% had insufficient food supply due to COVID-19 (Regmi, Kohutova, & Thapa, 2020). In the second round of household surveys in August 2020 in Nepal, the households reported more job loss (11%) and income loss (31.2%), indicating degradation in the country’s situation over time (World Food Programme, 2020). The population most susceptible to encountering losses in income were workers depending on daily paid jobs, migrant labor, and families with a PWD (Regmi et al., 2020; World Food Programme, 2020) Women were found to be more prone to lose their jobs than compared to men with increased responsibilities in the family (Institute for Integrated Development Studies, 2020).

**Impact of COVID-19 on PWDs in Nepal**

Based on a rapid assessment conducted in April 2020 in Nepal reported that “persons with disabilities face significant barriers to protecting themselves and their families from COVID-19 and its broader impacts” (Humanity and Inclusion, 2020). According to the 2011 census, the prevalence of disability in Nepal is 1.94%. However, based on the National Living Standards Survey (2011), the prevalence of disability in the country is 3.6%. The global estimate of the prevalence of disability by WHO is approximately 15% of the general population and is assumed to have the prevalence data under-reported in Nepal (Karki et al., 2021).

Nepal has experienced multiple manmade and natural catastrophes such as the Maoist insurgency (1996-2006) (Bogati, 2015), earthquake (2015) (Groves et al., 2017), traffic accidents (Mytton, Bhatta, Thorne, & Pant, 2019), and injuries (Gupta et al., 2015) that unsubstantially indicates increased disability in the country compared to other low-middle income countries. The Nepal constitution of 2015 along with the Disabled Protection and Welfare Regulation (2051/1994), the UNCRPD (2010), and the Disability Rights Act (2017) sanctioned the right of PWDs to provide equal opportunities and restricts any form of discrimination to PWDs. However, the discrimination against PWDs persists hampering their access to health care services, AT services, education, and employment (Karki et al., 2021).

***Impact on Daily Activities of PWDs***

Based on a narrative interview among PWDs in Nepal and Bangladesh, the escalated costs of food and transportation during the pandemic made their lives difficult, and constant struggle along with the financial crisis increased their stress and mental pressure (Rohwerder et al., 2021). Most of the PWDs in these countries had to depend on other family members or friends or used their savings or took credit for their survival during lockdowns due to the pandemic (Rohwerder et al., 2021). Other than the support from organizations of people with disabilities (OPDs) and a few NGOs, many of the PWDs were not provided with Government social protection assistance in Nepal which is the only assistance given to PWDs (Rohwerder et al., 2021). However, such supports from OPDs and NGOs were insufficient and were unable to reach many of the PWDs in the country (Rohwerder et al., 2021).

Amid the pandemic where physical gathering was restricted, OPDs helped PWDs to socialize with others and maintained their mental health (Rohwerder et al., 2021). PWDs were deprived of essential health and education services during the lockdown which was the top most obstacles faced by this population (Rohwerder et al., 2021). The need assessment survey of April 2020 in Nepal reported that more than 40% of the interviewees had food insecurity, given, many buying foods with credit, buying low-priced foods, and abstaining from eating the required proportion of meals (Humanity and Inclusion, 2020).

***Economic Impact on PWDs***

In a rapid need assessment survey conducted among 686 disabled individuals in Nepal in April 2020, around half of the respondents did not have protective materials such as masks or soaps. The pandemic lockdown has tremendously affected the interviewee’s family income (76%), and personal income (49%) (Humanity and Inclusion, 2020). Another household survey in April 2020 in Nepal reported findings that PWDs were highly likely to have a loss of income compared to other households (Regmi et al., 2020). Around 13% of households with a PWD on average had job loss in comparison to 11% of households without a PWD (Regmi et al., 2020). The job loss count increased among households with PWDs by approximately 17% compared to around 11% of households without PWDs in the second round of the survey in August 2020 (World Food Programme, 2020).

***Mental Health Impact on PWDs***

The need assessment survey findings reported that 29% of the disabled respondents felt hopelessness or nervousness or anxiety or sleeping problems or physical reactions in the past week before the interview because of the pandemic and lockdowns in the country (Humanity and Inclusion, 2020). Similar findings were reported in another study where PWDs experienced an increased level of anxiety and depression (Dhakal et al., 2020). PWDs are often negatively perceived in Nepalese society and the pandemic has escalated the stigma among PWDs (Humanity and Inclusion, 2020). The respondents felt shocked and feared, felt confused or disoriented about themselves, and their family during the pandemic, felt imprisoned, exacerbated their anger, and felt distressed and worried due to the consequences brought up by the COVID-19 pandemic (Humanity and Inclusion, 2020). Most respondents also understood the importance of not socializing physically to contain the virus, however, the restrictions made them sad and elevated tensions between spouses and family members (Humanity and Inclusion, 2020). Another study reported that the PWDs experienced trauma and noticed behavioral changes in their family members towards them during the pandemic (Dhakal et al., 2020).

**The AT Scenario**

Access to AT is not uniformly distributed globally and many contributing factors hinder its use which is specifically true in resource-poor settings due to financial or other obstacles such as accessibility, affordability, and availability of relevant products (Rios et al., 2014).

***Global Access to AT***

AT is not getting the importance it should on the global level, hence less investment has been done. The necessity of equitable and affordable access to this technology is often disregarded (World Health Organization, 2020). In the absence of this technology, disabled people miss education and employment opportunities, which is a loss for the individual, family, and nation at large. It has been stated that more than 90% of people requiring access to AT are deprived of it (World Health Organization, 2020; Yeo & Moore, 2003). If the neediest and most vulnerable population is not protected, then universal health coverage would not be achieved. It also obstructs the pathway to achieving sustainable development goals (Kelsall et al., 2016).

The scarcity of AT creates an unimaginable economic burden in the country which is not often realized. The availability of AT can reduce a large amount of economic burden in terms of healthcare costs by fostering the health of the disabled, preventing comorbidity, and reducing the cost of the caretakers, which is a long-term cost. The unavailability of AT increases the risk of deteriorating health conditions and increasing social separation (World Health Organization, 2020).

***Impact of COVID-19 on the Use of AT***

The use of the combination of information and skills regarding assistive products, systems, and facilities is known as AT. It assists to upgrade the functioning of people in need and makes them independent, thus promoting their well-being. It is a life-changing assistive tool for people with physical impairments (World Health Organization, 2020). Some of the common examples of AT include prostheses, orthoses, and wheelchairs that aid the movement of PWDs (International Society for Prosthetics and Orthotics, 2023). It also includes hearing aids, visual aids, memory aid, communication aids, and spectacles (World Health Organization, 2020). Considering all issues, it is necessary to optimize the functioning of disabled people and make them independent, which can be possible with AT. However, there are no accurate data on the provision of AT services as well as proper planning (Boggs et al., 2021).

Disability in a person does not remain constant throughout their life but can be improved if they are provided with special care. Early identification and quality service can improve the function. For instance, early identification of physical impairment among children can be corrected with cochlear implants or spectacles which aid in the normal trajectory of growth In case of a pandemic, the availability of AT becomes delayed, which creates a shortage in service availability and hinders service delivery at the right time. In addition to this, if the quality of the product is not taken care of the provision of low–quality services increase the possibility of degrading health outcome (World Health Organization, 2020).

The UN Convention on the Rights of Persons with Disabilities (UNCRPD) is a legal document sanctioned for the right of PWDs to equitable access to prevailing programs, social protection, and disability-oriented programs like AT (Nuri et al., 2020). Nepal has approved the UNCRPD to make AT accessible for those in need of AT (Karki et al., 2021).

With the initiation of the National Policy and Plan of Action (2007) in Nepal, accessibility to AT services was established in the country for PWDs. A list of AT products was prepared by the Government of Nepal (GoN) according to WHO’s Global Cooperation on Assistive Technology initiative and the Nepal Disability Rights Act 2017. Although, GoN implies low import charges on AT equipment (World Health Organization & World Bank, 2011), one of eight PWDs was reported to have access to AT based on a 2016 study report (Eide et al., 2016). Additionally, PWDs who require AT services are understudied in the country.

The GoN has allocated a budget for AT and reservation of jobs by 5% in all sectors, however, the country has yet to go a long way to escalate the AT accessibility rate to PWD who needs AT in Nepal (Karki et al., 2021). According to Humanity and Inclusion (HI) need assessment survey in Nepal, 27% of the disabled interviewee had noticed an interruption in medical and assistive devices’ services, and 17% reported a disturbance in therapeutic services due to the COVID-19 pandemic (Humanity and Inclusion, 2020). Thirty-two percent of the interviewees could not receive the services provided by their caregivers due to the lockdown (Humanity and Inclusion, 2020).

**Conclusion**

COVID-19 has drastically impacted the lives of people worldwide and especially PWDs. The experiences of PWDs that they faced during the pandemic are essential in learning to protect this community on account of their vulnerability to COVID-19 and its impact on society. Moreover, consultations with disability-based program leaders, policymakers, and routine data collection from the disabled are necessary to put measures in place for managing the lives of PWDs during such pandemics. Concerning AT, community-based AT centers are recommended for increasing accessibility. However, budgeting from Government and respective partners plays a crucial role in enhancing its use among PWDs in Nepal and increases awareness of AT use. It is important in creating disability-inclusive responses to ensure that PWDs should be empowered to handle such situations with ease in pandemics in the future, improving access to healthcare AT use, and overall program networks.

**Declaration**

**Ethical Considerations**

The authors assert that ethical approval for the publication of this perspective piece was not required by their local Ethics Committee.

**Conflicts of Interest**

None.

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**Contributors**

SM and SS conceptualized the article and prepared the draft. BA revised and finalized the article for submission and also acted as the corresponding author. All authors gave final approval of the version to be published.

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