

Navigating Workforce Challenges in Nainital During COVID-19: Socio-Economic and Policy Perspectives

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Abstract—The present study aimed to investigate the impact of COVID-19 across different work forces in Nainital, Uttarakhand, India. Data collection was conducted through field surveys between 2022 and 2024 using semi-structured interviews with open-ended questions, employing purposive sampling. Most of the local population comprises daily wage laborers, shopkeepers, street vendors, transporters, fishermen, and individuals associated with tourism. Comparative analysis revealed that tourism-dependent workers were the most affected, followed by those in the fishing sector. The pandemic's economic consequences were primarily driven by the fear of disease transmission and uncertainty surrounding lockdown durations.

The study also highlights the disproportionate impact on women, who were entirely displaced from the labor market, exacerbating household unemployment and reducing per capita income. Additionally, findings indicate a decline in community cohesion, as self-centered behaviors led to widespread violations of "stay home" directives. As urbanization trends continue to rise, there is an urgent need for improved city-level governance, including long-term planning, investment in healthcare and education, and coordinated crisis response strategies. Strengthening these mechanisms will enhance preparedness for future pandemics and public health emergencies. This study contributes to the academic discourse by offering an interdisciplinary perspective on the socio-economic ramifications of COVID-19 and the necessity for sustainable urban resilience policies.

Keywords—COVID-19; Labour force; Nainital.

I. INTRODUCTION

The COVID-19 pandemic has profoundly impacted global public health and economic stability, with significant disruptions in employment patterns (World Bank, 2020). To contain the virus, governments worldwide swiftly implemented lockdown measures, leading to widespread job losses and economic downturns. A study by the World Bank

estimated that approximately 43% of those employed in December 2019 had lost their jobs by April 2020, though around 95% were reemployed by August 2020

(<https://openknowledge.worldbank.org/handle/10986/35044>). Notably, employment shifts were observed, particularly in self-employment and the informal sector. In India, the nationwide lockdown announced on March 24, 2020, triggered widespread uncertainty.

According to CMIE estimates, approximately 123.8 million workers, constituting 30.5% of the workforce, lost their jobs in April 2020, while the number of unemployed individuals surged to 52.6 million. The unemployment rate tripled to over 23% in April and May 2021 (Mamgain, 2021). Micro-, small, and medium enterprises (MSMEs) bore significant losses, with an estimated 25–30 million workers unemployed by June 2020 (Kumar et al., 2021). The second wave exacerbated economic distress, intensifying unemployment across sectors such as trade, manufacturing, and daily wage labour. However, the agricultural sector emerged as a stabilizing force, absorbing displaced workers and demonstrating resilience in the Indian economy (Reardon et al., 2020).

To mitigate the crisis, both central and state governments introduced policy measures targeting affected sectors and vulnerable populations. Despite these interventions, the economic downturn had a pronounced gendered impact, disproportionately affecting women workers (Abraham et al., 2022). A similar trend was observed in Nainital, Uttarakhand, where strict lockdown measures severely disrupted various industries. The restriction of movement led to economic stagnation, closure of institutions, and social isolation.

In this context, the present study aims to examine the following objectives:

1. Assess the impact of COVID-19 across different labour classes.
2. Analyze disease transmission and lockdown effects.

Investigate gender disparities in employment outcomes.

II. MATERIALS AND METHODS

Study Area

Nainital, (Figure 1) a picturesque hill station in Uttarakhand, India, is nestled in the Kumaon region of the Himalayas at an elevation of approximately 2,084 meters (6,837 feet) above sea level (Bhandari and Wankhade .2025). The town is renowned for its scenic beauty, characterized by lush green hills, dense forests, and a pleasant climate throughout the year. Nainital experiences a temperate climate, with

cool summers, chilly winters, and moderate to heavy rainfall during the monsoon season. The town is best known for the stunning Naini Lake, a natural freshwater body that serves as its centerpiece, along with other lakes like Bhimtal, Sattal, and Naukuchiatal, earning it the title of the "Lake District of India." Nainital is famous for its colonial-era architecture, vibrant Mall Road, Naina Devi Temple, and as a popular tourist destination offering boating, trekking, and panoramic views from Snow Viewpoint. It shares its boundaries with Almora to the east, Champawat to the southeast, and Udham Singh Nagar to the south, while the northern and western regions are bordered by the vast Himalayan ranges. The town's strategic location and breathtaking landscapes make it a sought-after retreat for nature lovers and adventure enthusiasts alike.

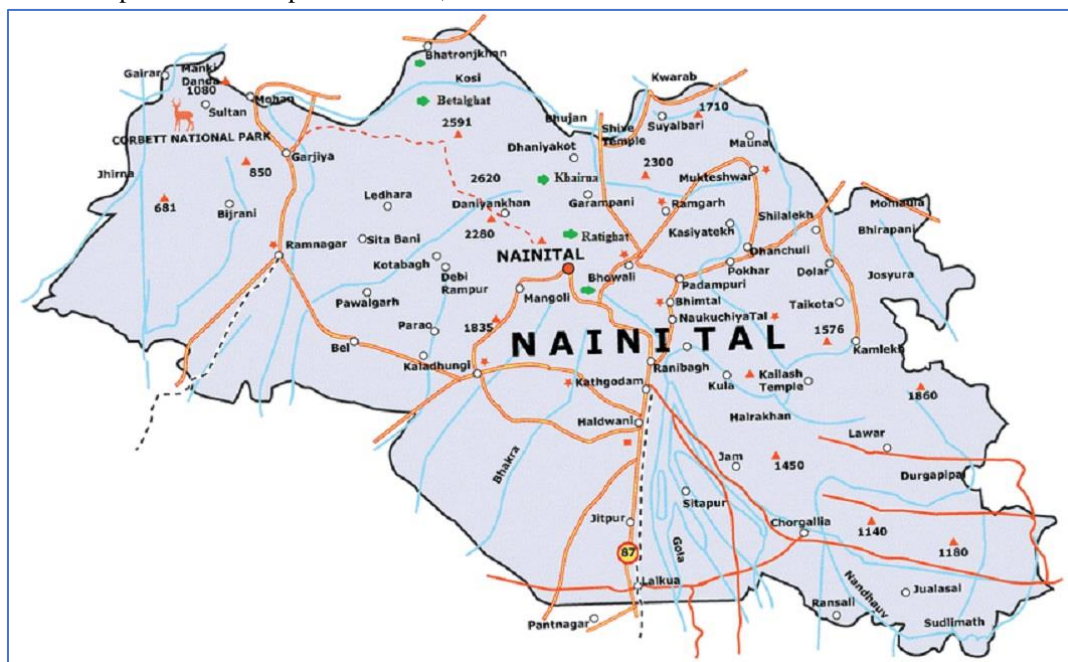


Figure. 1: Map of the study area (Source: Google Maps)

Informant selection and Data collection

Purposive sampling was employed to gather data, ensuring that respondents with the most relevant knowledge and insights were selected to meet the study's objectives (Kumar, 2018). Adhering to ethical guidelines outlined by the International Society of Ethnobiology, data collection was conducted with oral consent through semi-structured interviews and open-ended questions (Mamgain, 2021). Special attention was given to cultural sensitivities during interactions, including protocols for initiating conversations and approaching households. To enhance data reliability, multiple interviews were conducted where necessary to clarify ambiguities.

A total of 315 informants participated in the study, comprising 287 males and 28 females (Table 1). Respondents represented diverse age groups and professional backgrounds. The predominance of male participants can be attributed to cultural norms, where religious and social customs discourage women from interacting with unfamiliar males, introducing a potential bias in the study. Prior to data collection, all informants were briefed on the study's objectives, and their personal information was kept strictly confidential in accordance with the principles of the (<https://www.cbd.int/abs/about/>).

Table 1. Demographic information of respondents

Sample	Frequency	Percentage
Bio-geographic region		
<i>Nainital</i>		
Total Population	1200000	
Houses	315	
Gender		
<i>Male</i>	287	91.11
<i>Female</i>	28	8.8
Language	Hindi, Kumauni	
Age groups	18-67	
Professional groups		
<i>Transporters</i>	55	17.46
<i>Wage laborer</i>	53	16.82
<i>Street vendors</i>	49	15.55
<i>Fisher men</i>	47	14.92
<i>Tourism related people</i>	54	17.14
<i>Shopkeepers</i>	57	18.09
Economic status		
<i>Rich</i>	157	49.84
<i>Poor</i>	158	50.15

III. DATA ANALYSIS

Microsoft Excel was used for result interpretation, while the statistical web tool ClustVis (<https://biit.cs.ut.ee/clustvis/>) was utilized for comparative analysis. For heat map clustering, row centering and unit variance scaling were applied, with both rows and columns clustered using correlation distance and average linkage. Principal Component Analysis (PCA) was performed using unit variance scaling for rows, and singular value decomposition (SVD) with imputation was employed to compute principal components.

IV. RESULTS AND DISCUSSION

Impact of COVID-19 across the different labour classes

The informal sector, which employs approximately 421 million people across India, was among the hardest hit by the COVID-19 pandemic (ILO, 2020). While recessionary employment trends were already evident before the pandemic (Khannan &

Raveendran, 2019), COVID-19 further exacerbated the crisis. Our study reveals that various professional groups faced economic distress, with tourism-dependent workers (29%) being the most affected, followed by fishermen (26%) (Figure 2b). The statistical association between COVID-19 impact and professional groups is represented as $y = 8.342 + 5.466x$, $R^2 = 0.715$ (Figure 2a).

Nainital, a major tourist destination, provides employment to thousands of individuals. However, the pandemic led to a complete halt in tourist inflow, leaving the region economically devastated. Tourism is a key driver of economic growth in Nainital (Ahmad & Hussain, 2011), and its development is closely linked to broader economic improvements (Bull, 1995; Gartner, 1996; Tribe, 2005; Scarlett, 2021). Briedenhann & Wickens (2004) emphasize that in developing countries like India, tourism is a crucial determinant of regional and national economic development. Consequently, disruptions in the tourism sector directly impact socio-economic stability. Epidemics and pandemics pose significant

threats to global travel, increasing the risk of disease transmission. As witnessed during COVID-19,

widespread travel bans rendered tourism particularly vulnerable to economic downturns.

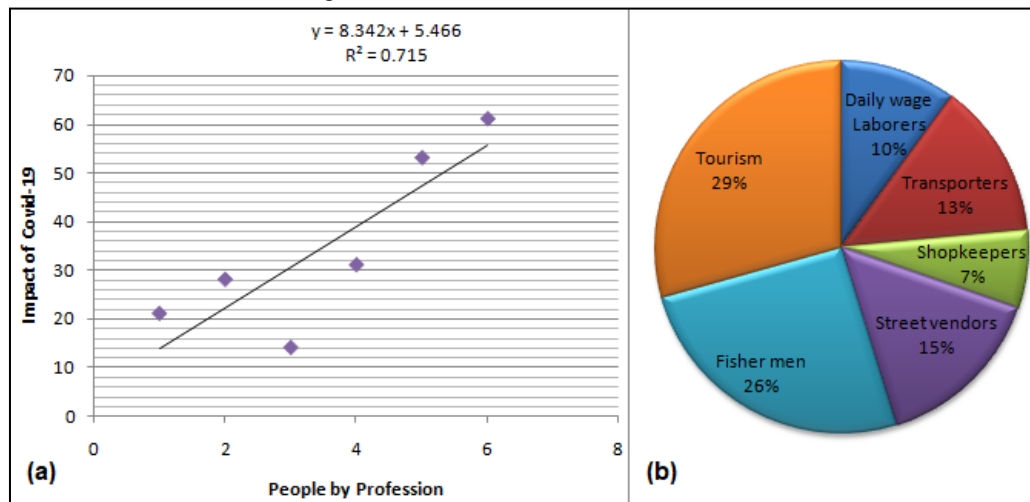


Figure 2. (a) Relationship between covid-19 impact and professional groups (b) Impact of job loss on the different professional groups

Disease Transmission and Lockdown

Fear is an emotional response to perceived threats, often manifesting as a sense of vulnerability (Laroche et al., 2001). In this study, the impact of COVID-19 was largely driven by fear of disease transmission and uncertainty regarding the duration of lockdowns. Notably, fear levels varied across socioeconomic groups. A higher percentage (63%) of upper-class individuals reported significant fear of COVID-19, whereas only 49% of lower-class individuals expressed similar concerns (Figure 3). This disparity can be attributed to the resilience developed by lower-income groups, who endure daily hardships, engage in physically demanding labor, and navigate constant socio-economic challenges. These struggles foster a level of mental toughness, reducing their susceptibility to fear. Additionally, a strong sense of faith was observed among lower-class respondents, with 89% expressing a belief that life and death are governed by divine will. Many emphasized that love, care, and social bonds hold a higher purpose in life, which remains unaffected by the fear of death. Freud (1972) suggested that individuals who possess the capacity for love and hard work exhibit greater emotional strength, though he viewed spirituality as an immature psychological construct. However, fear does not only influence personal emotions but also affects interpersonal relationships and social behaviors. Witte & Allen (2000) noted that fear regulates actions such as message acceptance and resistance, while Leventhal (1970) highlighted fear as a key driver in shaping beliefs and behavioral responses.

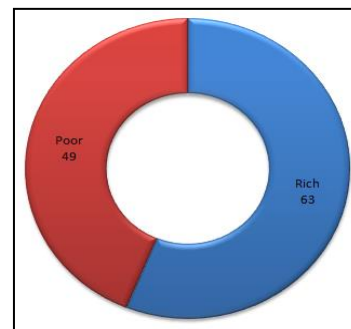


Figure 3. Percentage of fear revealed by the respondents from rich and poor class

The fear of infection among upper-class individuals led to strict adherence to precautionary measures, resulting in complete social isolation from friends, neighbors, and relatives. While these actions helped reduce the risk of virus transmission, they also had unintended psychological consequences. Many respondents reported increased frustration, family conflicts, and heightened levels of anxiety and depression. Research has consistently demonstrated a direct link between social isolation and mental health disorders, including anxiety and depression (Evans et al., 2019; Ben Salah et al., 2021; Santini et al., 2020). Schaller et al. (2012) further noted that disease-related fears often fuel ethnocentrism, exacerbating social divisions. In Nainital, the impact of lockdown was intensified by limited living spaces, restricting movement and social interaction. Van den Berg et al. (2010) highlighted that access to open spaces plays a crucial role in reducing stress and enhancing mental well-being, emphasizing the importance of environmental factors in mitigating psychological distress during confinement.

Beyond mental health challenges, the lockdown had severe economic and social repercussions, including job losses, reduced household income, disruptions in education, shortages of medical supplies, and the rampant spread of misinformation. Job loss emerged as the most significant concern, with 96% of respondents reporting financial hardship. Many described the lockdown as more devastating than the virus itself, as survival from COVID-19 was perceived as possible, whereas the economic fallout severely impaired livelihoods. Social connections, which serve as essential coping mechanisms for emotional regulation and stress management, were drastically weakened. Shopkeepers struggled to pay rent, many were forced to borrow money to sustain their households, some resorted to selling jewelry, while others depleted their savings.

Education was another major casualty, as children were disconnected from schools, leading to increased screen addiction. Many children developed an overreliance on television and mobile phones, negatively impacting their cognitive development. Moitra & Madan (2022) reported that screen addiction among children during COVID-19 in India adversely affected eating habits and sleep quality. Although online classes were introduced as an alternative, their effectiveness was limited, particularly for children from low-income families who lacked access to smartphones.

The healthcare sector also faced significant disruptions. Individuals with chronic illnesses experienced medicine shortages and delays in doctor appointments. Many hospitals suspended outpatient department (OPD) services, and non-urgent surgeries were postponed. This created additional health risks for vulnerable populations.

Furthermore, the lockdown fostered an environment conducive to misinformation, leading to the rapid spread of myths and falsehoods about COVID-19. This misinformation posed a substantial challenge to governments, public health organizations, and humanitarian agencies working to control the pandemic. Studies have highlighted the alarming role of social media in amplifying misinformation during the crisis (Parker et al., 2021; Bridgman et al., 2020; Shahi et al., 2021). These findings underscore the need for proactive measures to address economic vulnerabilities, strengthen healthcare systems, regulate digital information flow, and ensure psychological well-being in future crises.

The heat map cluster analysis (Figure 4) identified two primary clusters representing five major impacts of COVID-19 across six professional groups. Cluster 1 comprised job losses and income impairment, highlighting a strong interrelationship between employment disruption and financial instability. This correlation is further validated by Principal Component Analysis (PCA) (Figure 5), where job losses and income impairment are positioned in proximity, reinforcing their direct connection. Cluster 2 included loss of education, inadequate medical facilities, and the spread of misinformation, indicating a broader societal impact beyond economic factors. Similar intersectional analyses of COVID-19's effects have been reported in other studies, including Gezici & Ozay (2020) in the USA. Additional studies that align with these findings include Thakur et al. (2020) and Blundell et al. (2020), which emphasize the multifaceted consequences of the pandemic across different socio-economic dimensions.

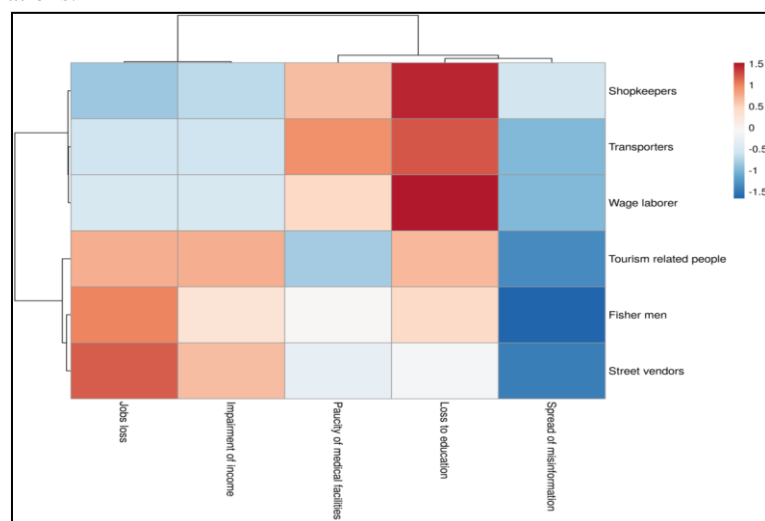


Figure 4. Heatmap cluster analysis showing correlation between the different professional groups and impacted services

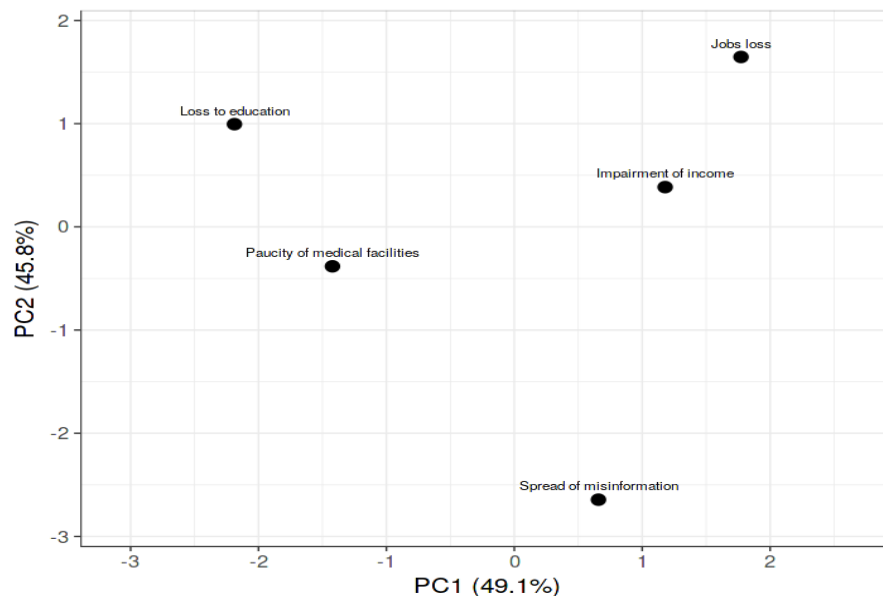


Figure 5. PCA showing association between impacted services across the different professional groups

Impact of Covid-19 on Gender

Pre-COVID-19 trends indicate that female unemployment rates were consistently higher than those of males across India (Deshpande, 2020). However, the onset of the pandemic further widened this gender disparity (Deshpande, 2022). The present study revealed a complete withdrawal of women from the labor market, significantly contributing to rising unemployment and affecting household incomes. Among the 315 surveyed households, only 9% of women were engaged in the labor market before the pandemic, and all lost their jobs during the lockdown. Many respondents reported being asked to resign with the promise of re-employment once the situation stabilized. It is important to note that women employed in the government sector were not included in this analysis, as they remained unaffected.

Beyond financial consequences, the study also uncovered the psychological impact of job loss on women. Many respondents expressed feelings of diminished self-esteem due to their sudden dependency, emphasizing that COVID-19 had repercussions not only on economic stability but also on mental well-being. The World Health Organization (WHO) has reported that the pandemic has led to a significant rise in mental health issues, including suicidal thoughts (https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci_Brief-Mental_health-2022.1). Additionally, the study found that before COVID-19, women's earnings were primarily allocated to daily household expenses such as groceries, while the

income of other family members was often saved. However, the financial strain induced by the pandemic disrupted these patterns, affecting savings and economic security. Similar findings have been documented in global studies, highlighting the broader economic ramifications of the pandemic on female employment and financial independence (Kolmakov et al., 2021; De Koning, 2020; Syarif et al., 2022).

Declining Sense

The study reveals a significant decline in the sense of community during the COVID-19 pandemic, as many individuals disregarded government-imposed “stay home” directives due to self-centred behaviour. This trend was observed across socio-economic classes; however, 67% of respondents reported that such violations were more prevalent among the upper class. Wealthier individuals frequently travelled to rural areas, where restrictions were less stringent, to enjoy nature. Respondents suggested that these violations were often facilitated by connections within government agencies such as the police, municipal corporations, and health departments, enabling some to evade legal repercussions. Such actions were widely perceived as a lack of social responsibility, particularly during a time of collective hardship. Rather than indulging in leisure, it was argued that those with resources could have contributed to supporting vulnerable communities. Decision-making in times of crisis is often marked by uncertainty. Gino et al. (2016) argue that social relationships do not necessarily promote self-sacrifice when personal benefits remain ambiguous.

Similarly, Garcia et al. (2020) noted that uncertainty diminishes people's willingness to engage in altruistic behaviour. Effective pandemic response required strong community cooperation. Religious scholars played a crucial role in fostering solidarity, encouraging individuals to assist others, even though small acts of kindness. Nowak (2006) proposed that cooperation requires individuals to bear personal costs for the benefit of others, raising the question of how to cultivate such behaviour. Incentivizing cooperation while imposing sanctions on non-compliance is a potential solution. Fischbacher et al. (2001) found that individuals are more likely to cooperate when external conditions provide structural support. Therefore, establishing structured initiatives through NGOs, educational institutions, and local organizations can play a pivotal role in fostering a socially responsible and cooperative society, ensuring better preparedness for future crises.

V. CONCLUSION

The findings of this study highlight the profound impact of COVID-19 on Nainital, Uttarakhand, India. The pandemic disproportionately affected various professional groups, with those dependent on tourism experiencing the most severe economic distress, followed by the fishing community. Beyond economic repercussions, the crisis instilled widespread fear, significantly affecting the psychological well-being of the population. Given these concerns, comprehensive research is needed to assess the long-term physiological and mental health impacts of the pandemic on different labor classes. Additionally, evaluating the effects of lockdown measures is essential for formulating effective policies to mitigate future crises. The disruption of essential services during the pandemic underscores the need for urban resilience strategies. Strengthening healthcare infrastructure, implementing advanced education systems, introducing economic relief packages for job losses, and providing financial assistance to affected households should be prioritized. Long-term planning, proactive policy formulation, and strategic preparedness are imperative to enhance pandemic response mechanisms, ensuring cities can efficiently manage future outbreaks and public health emergencies.

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Author Contribution

All authors contributed equally.

Conflict of Interest

All authors declare no conflict of interest.

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