Analytical Study of Population Change in Metro-Cities Due To COVID-19 with Special Reference to Uttarakhand

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Abstract- *COVID-19 is such an infectious disease that has become a matter of concern for the global health. Social scientists of the urban condition have long been interested in the causes and outcomes of the phenomena that shape the growth and decline of metro-cities and their suburbs. Such interests have become more relevant due to COVID-19 pandemic. Given the advanced concentration of population and economic activities in metro-cities, they are often hotspots of COVID-19 infections. During COVID-19, two major questions arise in the mind of researcher, academic and other popular analyses: How has the pandemic changed the metro cities? And given thesechanges, are they permanent? Metro-cities contributed almost three-fourth of the total cases from the beginning. Because most of the population pressure can be seen in urban areas. People migrate from rural areas to urban areas in search of employment, education, better health facilities. Population changes (migration and death) began in 2020 due to the onset of the COVID-19 pandemic in various states across the country. The demographic components that have been affected by the pandemic reveal important consequences for these changes, such as immigration from different regions of India to Uttarakhand, a decrease in the number of births and an increase in the number of deaths. Due to the closure of industries in the lockdown, the migration of industrial workers mainly from the industrial area SIDCUL etc. took place in the hilly areas, in the Purvanchal areas, and in the areas of Bihar state. Due to lack of employment, they went to their native places and the academic activities of the students stopped here. After the end of the lockdown, industrial activities have started again, due to which workers and other citizens who have gone in reverse migration are settling back in the metro-cities. The main objective of this research is to understand the impact of COVID-19 pandemic on metro-cities in Uttarakhandand to examine the factors that have changed thepopulation of metro-cities due to COVID-19.To analyze this research, we used primary and secondary data. In this research paper, this research data has been collected in the metro-cities like Dehradun, Haridwar, Rishikesh, Roorkee, Kashipur, Rudrapur, Haldwani located in Uttarakhand. In this research paper, migration and reverse migration have been studied during and after the COVID-19 epidemic. An analysis of the causes and effects of migration and reverse migration is presented in this research paper. The research paper also analyzes the changes in the education of students due to migration and reverse migration. This research is based on the one major*

factors of population change in migration (immigration and emigration). The outcomes of this research will be fruitful for academicians, researchers, and policymakers in related studies.

Keywords: COVID-19 Pandemic, metro-cities, migration

Introduction

India, like almost every country, found itselftrapped in the web of social and economic changes in the stage of COVID-19. A country with the second largest population like India has also faced the severe crisis caused by the COVID-19 virus and its consequence. The country has seen the second largest mass relocation of people in the history of India since the partition of India in which more than 14 million people were displaced (Inamdar and Thusoo,2020). Among the demographic factors, migration is considered the biggest factor in which the population of any area increases with birth and immigration and decreases with death and emigration. Hence immigration and emigration of population in any area is called migration, which plays an important role in population change, that is why migration is also called the stepchild of demography (Bhowmik, 1984). According to the latest data on migration, the total number of migrants in census 2011 was 456 million and 38% of the total population, while in 2001 the number of migrants was 315 million and the population was 31%. In this decade from 2001 to 2011, the population grew by 18% while the number of migrants increased by 45% (Iyer, 2020). Migration is an integral part of the Indian economy as well as plays an important role in the GDP of the country. According to census 2011, there are about 482 million workers in India. Out of these workers, about 194 million workers are permanent and semipermanent migrant workers (Acharya and Acharya, 2020). Due to the declaration of lockdown 24 March 2020 and because of non-operation of economic activities and industries, the Prime Minister himself led to the unemployment of about 40 million workers (Mukhra, Krishna and Kanchan-2020). Most of these workers belong to the states of Uttar Pradesh, Uttarakhand, Madhya Pradesh, Bihar, Chhattisgarh, Rajasthan, and Orissa. There is no one pattern of migration across India, but it is a distinct or mixed pattern in different states. The prosperity of any region attracts people like a magnet. Therefore, people migrate to such areas which are socially and economically developed in search of employment, better education, and other social amenities. But in the situation of COVID-19 pandemic, Indian workers had to make an inauspicious choice between ‘life’ and ‘livelihood’, due to which the Indian government declared a lockdown of 68 days in 4 phases till March 2020. Due to this many people were left with no longer any other option but to go to their native place which was their most familiar and safe place. According to the World Bank report, more than 40 million people have been affected by internal migration and about 50,000 to 60,000 people have been reported to have migrated from urban areas to their respective native place during COVID-19 pandemic. Individuals’ migration decisions were linked to personal experiences, aspirations, and choices affected by the changes brought by the pandemic and coronavirus threat. Volume of migration, geographical pattern, migration challenges and the negative socio-economic and health impacts of the COVID-19 pandemic faced by migrants and

their families after the pandemic crisis have been a major subject of interest to various researchers and academic discipline.

Uttarakhand is a major state affected by the coronavirus pandemic. The state of Uttarakhand has seen many ups and downs since its inception. Usually, people of mountain areas depend on subsidence farming, livestock and small-scale trade and wage activities for their livelihood (International Centre for Integrated Mountain Development (ICIMOD) 2017). People migrate from hill areas to plain areas and rural areas to urban areas because of unemployment, low health facilities, lack of better education, security, and harsh climatic conditions. People migrate under compulsion in the hope of a better future. People enter the metro-cities of the Uttarakhand like Dehradun, Haridwar, Rishikesh, Roorkee, Kashipur, Rudrapur, and Haldwani to get employment and better education for their children. In the metro-cities these people mostly work in the unorganized sector of the economy. People had been working in these metro-cities for a long time and leading a better life. But due to the COVID-19 pandemic, the whole life changed for the workers living in metro-cities. People had to return to their native village due to complete lockdown, fear of disease, and closure of industries.'Reverse Migration' is the process of moving people from their place to their native place. According to Rural Development and Migration Commission Report, a total number of 59,360 migrants returned to the different areas of the state. And many other people returned to the Purvanchalareas and Bihar from the metro-cities. Novel coronavirus is not only a matter of health crisis, but it has also exposed the inequality of social and economic aspects of our life. According to the report of Uttarakhand Rural and Migration Commission, about half the population of the state enters the metro-cities for employment while 15.21% of the population enters the cities for education. Most of the migrant workers were facing financial problems due to no employment in their native place. Safety of life and starvation was the main concern of reverse migrants. That is why people started coming back to the metro-cities again after the government ended the lockdown, took some relief in the COVID-19 rules, and restarted the industries.

Objectives

- To understand the impact of COVID-19 pandemic on metro-cities in the study area.
- To examine the various factors that have changed in the population of metro-cities due to COVID-19.
- To analyze the impact of migration and reverse migration on the education of students.
- To analyze the cause and effect of migration and reverse migration during and after COVID-19 in the study area.

Hypothesis

Due to COVID-19 there has been a big change in the population of metro-cities in Uttarakhand, it has had a negative impact on the employment, health of the people and education of the students.

Methods and Procedures

In the present research paper, both primary and secondary data have been used to study the change in population due to migration and reverse migration. Respondents have been randomly selected to get the primary data. Data was collected by preparing schedules and questionnaires. In this research paper, data was obtained only from the workers employed in industries like SIDCUL etc. in the metro-cities of Uttarakhand state. For this, 210 respondents from 7 metro-cities have been randomly selected. 30 respondents were selected from each metro-cities as a same size out of which 15 workers belong to hilly areas and 15 workers belong to purvanchal and Bihar areas. In this research paper only people working in the unorganized sectors have been included. Secondary data are obtained from books, published reports, the internet, libraries, Uttarakhand Rural and Migration Commission, Census of Uttarakhand, periodicals and reports from some government agencies. The data has been analyzed with the help of a computer program/MS Excel.

Results and Discussion

The purpose of this research paper is to express how the population has changed due to migration and reverse migration. Uttarakhand faced migration problem since its establishment. Hilly and rural people were leaving their native place in search of better education and employment. Many people have settled in metro-cities like Dehradun, Haridwar, Roorkee, Rishikesh, Kashipur, Rudrapur, Haldwani from hilly areas. There are ample employment opportunities for people in metro-cities in which they can work and take care of their families well. In Uttarakhand SIDCUL (State Industrial Development Corporation of Uttarakhand Limited)is an enterprise of Uttarakhand government. It promotes industries and develops industrial infrastructure in the state. Many migrants who come to metro-cities for employment from hilly areas, Bihar and Purvanchal areas, they work in industrial areas like SIDCUL etc. There are many industries and famous places in the metro-cities which attract migrants for employment.

Dehradun is the capital of Uttarakhand and provides more opportunities to livelihood. It is a commercial and IT hub with establishment of software technology parks of India (STPI) and SEZs (special economic zones) around it. Apart from this, many other reputed companies are established in Dehradun which promote employment. Haridwar is a holy place and pilgrimage. It is situated on the bank of the river Ganges. Besides this heavy engineering and manufacturing complex from BHEL has been set up in Haridwar. Here in the industrial area SIDCUL is spread over 2034 acres where large companies have set up manufacturing facilities. Roorkee is prominent for the manufacture of surveying and civil engineering. Under SIDCUL it has grown to have 100+industries and corporate houses. Rishikesh is a Center Point of attraction of Hindu pilgrims. It is a spiritual tourists place in Uttarakhand. Here industries are the backbone of the city. Many industries such as IT industries, tourists' industries, auto industries, chemical industries, etc. are in Rishikesh. Haldwani is an important commercial hub and home to one of the largest vegetable, fruit and foodgrain markets. Rudrapur is considered a major industrial city in Uttarakhand. It is a large Integrated Industrial Estate under SIDCUL and emerged as a major

regional manufacturing hub. Integrated Industrial Estate (IIE) is spread out over a total land area of 310.96 acres in Kashipur. It accounts for almost 50% of the share of small and largescale industries in the district.

Testing of Hypothesis

Here, based on the consent and non-consent of the respondents, the hypothesis is tested based on the impact of the pandemic on the employment, education and health of workers who stayed at the place of employment or went back to their native place during the COVID-19 pandemic. Here a null hypothesis was formulated that COVID-19 had a negative impact on the employment, education, and health of the workers. For this, three variables were tested separately, and the results are as follows-

Table- 1
Impact on the Employment

Migrant Workers	Consent	Non-consent	Total
Workers stayed at their workplace (fo1)	32	68	100
Return their native place (fo2)	85	15	100
Total (fo1+ fo2)	117	83	200
Fe(fo1+fo2)/2	58.5	41.5	
(fo-fe)	26.5	26.5	
$(fo-fe)^2$	702.25	702.25	
$(fo-fe)^2/fe$	12.00	16.92	28.92

Source: Self Survey

Here the sum of the chi-square test (X^2) of the workers who stayed at their workplace and who returned their native place during COVID-19 is 28.92+28.92 = 57.84. Here d.f. (2-1) (2-1) = 1 is 1 d.f. but the value of X for significance at 5% confidence level = 3.841 and at 1% confidence level = 6.635. The value of X^2 obtained in the study is more than the above two values, so it is meaningful on both levels. Here the null hypothesis cannot be true. Based on the analysis (Table-1), it can be said that COVID-19 had a negative impact on the employment of workers who stayed at their workplace and return their native place because during the pandemic, the economic activities were completely closed due to the lockdown.

Table- 2
Impact on the Education

Migrant Workers	Consent	Non-consent	Total
Workers stayed at their workplace (fo1)	46	54	100
Return their native place (fo2)	63	37	100
Total (fo1+fo2)	109	91	200
Fe(fo1+fo2)/2	54.5	45.5	
(fo-fe)	8.5	8.5	
$(fo-fe)^2$	72.25	72.25	
$(fo-fe)^2/fe$	1.33	1.587	2.917

Source: Self Survey

Here the sum of the chi-square test (X^2) of the migrant workers who stayed at their workplace and who returned their native place during COVID-19 is 2.917+2.917 = 5.834. Here d.f. (2-1) (2-1) = 1 is 1 d.f. but the value of X for significance at 5% confidence level = 3.841 and at 1% confidence level = 6.635. The value of X^2 obtained in the study is less than the above two values, so it is not meaning on both levels. Here the null hypothesis can be true. Based on the analysis (Table-2), it can be said that COVID-19 had less impact on education as students who lived in metro-cities during pandemic were able to continue their education through online medium while students who went back their native place faced some problems.

Table-3
Impact on the Health

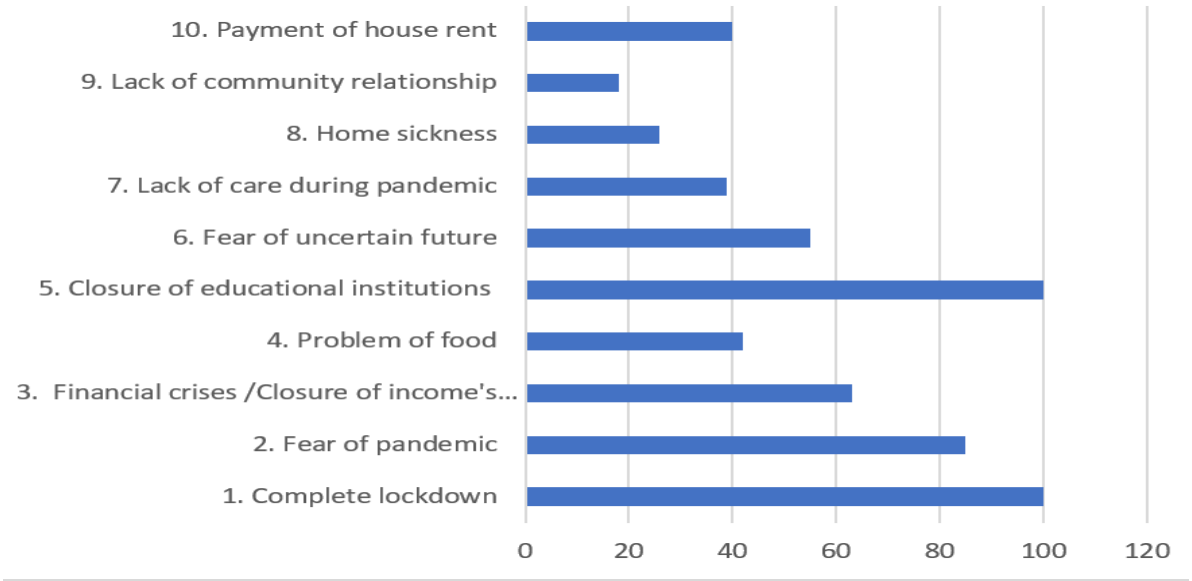
Migrant Workers	Consent	Non-consent	Total
Workers stayed at their workplace (fo1)	48	52	100
Return their native place (fo2)	46	54	100
Total (fo1+fo2)	94	106	200
Fe(fo1+fo2)/2	47	53	
(fo-fe)	1	1	
$(fo-fe)^2$	1	1	
$(fo-fe)^2/fe$	0.106	.0188	.0294

Source: Self Survey

Here the sum of the chi-square test (X^2) of the migrant workers who stayed at their workplace and who returned their native place during COVID-19 pandemic is .0294+.0294 = .0588. Here d.f. (2-1) (2-1) =1 is 1 d.f. but the value of X for significance at 5% confidence level = 3.841 and at 1% confidence level = 6.635. The value of X^2 obtained in the study is less than the above two values, so it is not meaningful on both levels. Here the null hypothesis can be true. Based on the analysis (Table-3), it can be said that COVID-19 had little impact on health because during the pandemic, the migrant workers were able to keep themselves safe by following the rules of COVID-19. But the impact of the pandemic was seen on the other family members of the workers.

Reason of Reverse Migration during Covid -19 Pandemic

Diagram No.–01(Percentage of Respondent's Consent)



Source: Self Survey

From the analysis of Diagram No.- 1 the major reason for reverse migration in Metro-cities was complete lockdown. The number of respondents is shown in Parentheses (brackets). 100% (210) of workers went return to their native place due to the complete lockdown during the COVID-19 pandemic because economic activities had completely stopped. 85% (179) of migrants went back to their homes because of the fear of pandemic. 63% (132) people went return to their native place due to financial crisis and closure of income because almost migrant workers were not paid by their employers during COVID-19 induced lockdown, which reflect the disappointment and livelihood crisis that forced migrant to rush to their native places. 42% (88) of migrant workers went back to their hometown because of problem of food.100% (210) of migrant workers went

back to their native place along with family due to closure of educational institutions because due to closure of schools and colleges in the cities there was only one medium of education – online education. In addition, 55% (116) workers feared uncertainty about the future, 39% (82) lacked care during the pandemic, 26% (55) workers suffered from home sickness, 18% (38) lacked community relationship and 40% (84) workers did not pay house rent in the cities went return to their native place.

The return was a horrifying experience for the migrants during the pandemic. Even after reaching their native place, workers and students had to face many difficulties during the time of COVID-19. They faced a long-term loss of their livelihood when the lockdown was imposed. Due to no means of employment and lack of income, the problem of despondency and loneliness was born among the workers. Apart from this, the closure of educational institutions across the country also affected the education, social life, and mental health of the students due to COVID-19. Students schooling got converted to online education. The migration of students from cities to villages posed a serious problem. The entire education was based on online mode. Due to lack of adequate internet facilities, and Wi-Fi connection in the remote areas and village, the students were facing a lot of problems. Besides this, the stressful environment of the house was also hampering the studies of the students. Many students feared that they would never be able to go back to school. So, with the government relaxing the COVID-19 norms in the country, many migrant workers who had come to their native place during the COVID-19 pandemic, such as hilly areas, Bihar, and Purvanchal areas, came back to metro-cities after the lockdown was lifted. There are 10 prominent reasons for migrants to return from their native place to their place of employment after the COVID-19 pandemic.

Reason of Migration After Covid -19 Pandemic
Diagram No. – 02(Percentage of Respondents Consent)

Source: Self Survey

From the analysis of Diagram No.-2 based on the consent of the questions from the respondents, employment was the main reason for the migration of workers after the COVID-19 pandemic. The number of respondents is shown in Parentheses (brackets). 100% (210) of the people returned to the metro-cities due to no employment. 87% (183) of the people along with their families migrated back to the metro-cities due to lack of education in villages and far fling areas and lack of adequate internet facility. 95% (199) of the people returned to the metro-cities due to lack of any kind of industrial development in their native place. In addition, 81% (170) of the people returned to metro-cities due to lack of security at their native place and 91% (208) due to lack of health facilities. The analysis of other reasons is also presented in the diagram.

Conclusion

COVID-19 pandemic has taught us a lesson that every country must keep basic amenities for self-survival. Migrants have been severely affected by COVID-19 pandemic spreading and lockdown due to loss of employment, income, and education. As a result of this, a huge reverse migration and migration is being noticed all over the country and more, particularly, in metro-cities of Uttarakhand. The workable population has increased due to reverse migration. Greater employment among migrants was a serious matter of concern from the economic and social point of view. In this paper, there has been an in-depth study of the changes observed in population due to reverse migration and migration during and after the pandemic in metro-cities of Uttarakhand. It is known from the analysis of the study that due to the COVID-19 pandemic, a major change in population has been seen in the metro-cities of Uttarakhand. The COVID-19 pandemic has had an impact on the employment of workers as well as on their health and children's education. It has been found from the testing of the hypothesis that the COVID-19 pandemic has had a negative impact on the employment of workers and the education of students, due to which the null hypothesis was rejected, and the alternative hypothesis was accepted. The COVID-19 pandemic has had little impact on the health of the workers, as the migrant workers followed the rules to prevent the corona pandemic. Through the primary survey, the reasons for migration and reverse migration have been told by the respondents, in which the main reason for reverse migration was complete lockdown and fear of pandemic. Apart from this, the closure of educational institutions and financial crisis etc. were the reasons. But after the impact of the COVID-19 pandemic subsided and lockdown opened, the workers had to return to the metro-cities again due to non-availability of employment. A crisis always provides an opportunity for building back better. The pandemic crisis has not only challenged many notions like globalization, outsourcing and Global village but also reinvented the significance of Mahatma Gandhi's notion of Gram Swaraj. Gandhian notion of Gram Swaraj – a self-reliant village system, can provide an alternative to out-sourcing and as a global leader in the post COVID world order. Prime Minister (Mr. Narender Modi), in his address to the nation during the lockdown also emphasized on Gram Swaraj to become self-reliant and suggested that every Indian must become "vocal for local".

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