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Assessing the safety measures adopted by the rural people in accessing essential services during COVID-19: Study in selected villages of Bangladesh

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Assessing the safety measures adopted by the rural people in accessing essential services during COVID-19: Study in selected villages of Bangladesh

Abstract:

Rural accessibility and safety is a major issue during on-going pandemic. Every day, rural people have to access different essential places like educational institutions, health centers, workplaces, bazaars and markets, places out-side their villages for multiple purposes using different rural vehicles. Since rural people cannot stop accessing these essential places, it is necessary to assess the safety measures undertaken by them when they are using different transportation modes to reach their destination points. The study analyses the safety measures adopted by the rural people when they are accessing different places during pandemic and the safety measures undertaken by them during traveling. The data have been collected through convenient sampling of respondents from 157 villages after preparation of questionnaire and checklist and then analyzed. The findings reveal that rural people have to access places of work and market every week which are both within and outside their villages. They mainly access these places using shared vehicles during pandemic, even though they are aware that pandemic has spread in their respective upazilas. Though they wear face masks while traveling in the vehicles, the measures taken by the drivers and conductors are inadequate. Moreover, very inadequate safety measures are taken by the authority and sellers of bazars, which is alarming because the bazars are a hub and if proper safety measures are not adopted here, chances are high that COVID-19 positive cases might spread further in the rural areas.

Keywords: COVID-19, safety measure, rural, accessibility, transportation, modes, pandemic

1. Background:

Since November, 2019 cases of COVID-19 have been spreading all over the world. The virus was confirmed to have spread to Bangladesh in March 2020. The government declared lockdown in early March, 2020 throughout the country in order to control the spread of the virus. (COVID-19 pandemic in Bangladesh, 2020). But the virus has spread throughout the country due to a number of mismanagement issues like quarantining immigrants and it has spread in rural areas as well. The safety of rural people is a major concern because most of them are unaware of the consequences of the spread of the virus. Rural literacy rate is relatively lower compared to urban areas and so they are naturally less aware of the virus. The rural

people are accessing different places for accessing important services each day. If they do not adopt safety measures while moving from one place to another, it will be almost impossible to contain the virus in the rural areas.

Since adoption of safety measures is a relatively new concept for rural people and most are reluctant to follow the restrictions imposed on them, the study has been done:

1. To assess the condition of accessibility to different places (community gatherings, money transfer systems, courier offices, out-villages) during COVID-19
2. To know the precautionary measures that are followed by the rural people while going outside, especially in areas where lockdown was declared and COVID-19 has spread

The study will help to assess the measures adopted by rural people during the current pandemic situation when they are traveling in modes to access different places. The data has been collected through telephone survey which might not represent the actual scenario of the safety measures adopted in all places.

2. Related research work:

Poor access to transports and important destinations decelerate economic and social prosperity which in turn leads to poverty. (Starkey, Ellis, Hine, & Ternell, 1970). Good transport network is essential for accessing essential places and specially because of spread of Covid-19 pandemic, it is necessary to follow of safety measures in rural areas to access these services. It is suggested that mode sharing is no longer a good option for travelling because virus can be present on seats, door handles and can be transmitted from the driver as well. But since rural people are mostly poor, it is hard for them to adopt safety measure in vehicles and rider separate vehicles (Opu, 2020). In order to control the spread of the virus, Tirachini & Cats (2020) analyzed that for closed environments like public transportation vehicles, proper use of face masks has significantly reduced the probability of contagion.

This study can help in assessing the safety measures adopted by rural people of Bangladesh in transportation modes as no previous related studies on this topic has been done yet.

3. Study area profile:

The study areas consisted of all the divisions of Bangladesh. Figure 1 shows that data of selected villages were collected from 102 upazilas from 48 different districts. The upazilas surveyed had adequate number of educational institutions, health centers and work places. But

the village people had to move outside of their villages for purposes of work and market. So assessing the safety measures of the rural people of these places is essential.

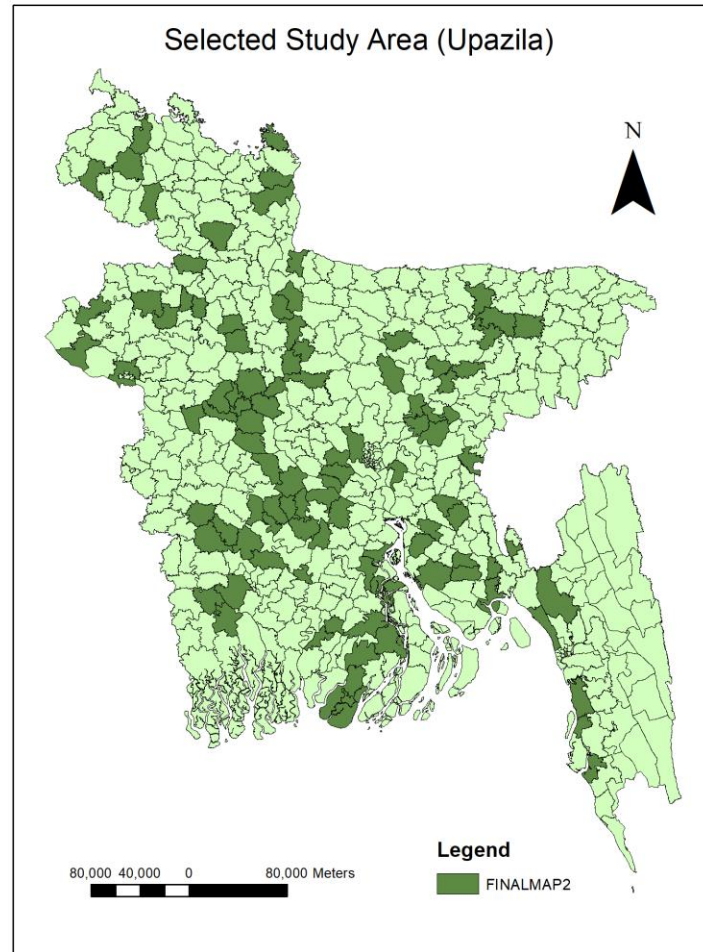


Figure 1: Map of the surveyed Upazilas of Bangladesh
(Source: Bangladesh Subnational Administrative Boundaries, 2013)

4. Methodology:

157 villages were selected through convenient sampling and the survey was conducted through telephone. Five households were selected by each surveyor and questionnaire data were collected in about two slots, and it took 50 minutes to collect information of each respondent. The checklist data were collected in the same way and it took about 25 minutes to collect each individual household data. Secondary data were used in understanding the current condition of the selected villages. Then all the surveyor's data were compiled in SPSS and the analysis was done using Tableau software.

5. Condition of Accessibility to different essential places during Covid-19

5.1 Educational Institutions accessibility:

The most accessible everyday places are educational institutions. This is because teachers, students and others normally have to access these places as part of their everyday professional duty. When pandemic spread in Bangladesh in March, the government of Bangladesh declared that all educational institutions should remain closed until declared to reopen again.

Data from 157 villages were collected and the table below shows the total number of educational institutions of those villages and the median number of those institutions.

Table 1: Distribution of educational institutions in 157 villages

Institution	Primary school	Secondary school	College	Madrasha
Total number	1740	488	132	554
Median number	11	2	1	3

Source: Telephone survey, 2020

Of all the institutions of Table 1, almost all the primary and secondary schools were closed. Six colleges and 11 madrasahs were open during the pandemic and the rest were closed too. This shows that most of the educational institutions of the villages were inaccessible during lockdown.

5.2 Health centre/clinic/hospital accessibility:

Total 336 clinics and 85 hospitals are present in the 149 villages, and the median number of clinics was found to be 2. On average, 129 clinics and hospitals were accessible and 3 were inaccessible during the pandemic (Source: Telephone survey). This shows that health care centres, clinics and hospitals were mostly accessible throughout the lockdown.

5.3 Workplace location and accessibility

In order to run the economy of rural areas, it is essential that workplaces remain open. When asked about the location and condition of accessibility to the workplaces, 137 respondents' data could be collected. People were involved in different professions and some had to go to places outside their villages to earn their living.

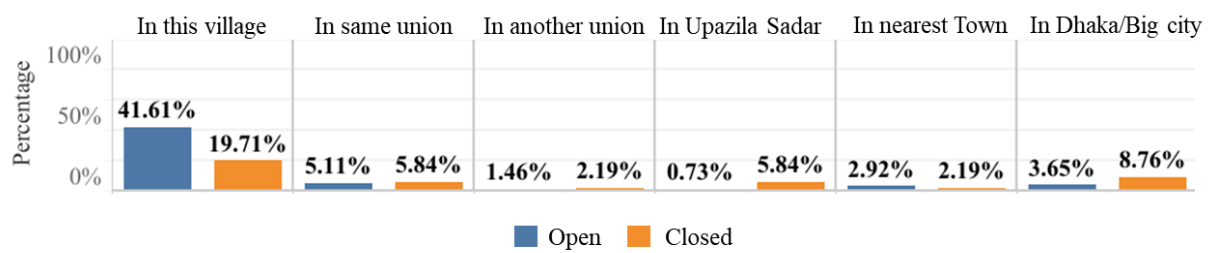


Figure 2: Workplace Location vs. Accessibility (Source: Telephone survey, 2020)

Figure 2 clearly depicts that the location of the workplace (62.32%) of most villagers is within their own villages. Dhaka or other big cities stand in the second place, i.e. (12.41%) workplaces of the villagers are in those places, and 10.95% workplaces are within the same union. Of these, the percentage of workplaces that were open (within the same villages) is higher than the closed ones. But the percentage of closed workplaces in all other places is higher than the open workplaces during the pandemic.

This shows that most respondents worked within their own villages and those places remained open during the pandemic. The workplaces outside their village, especially in Upazila Sadar, in Dhaka or other big cities had remained closed. This is maybe because these are central places and have high chances of spreading the disease and so they preferred to remain close during this time.

5.4 Frequency of holding of Community gatherings:

It is very common for villagers to hold religious programs, marriage programs and sports events in normal times. But during pandemic, it is required that these programs are held less than normal to maintain safety.

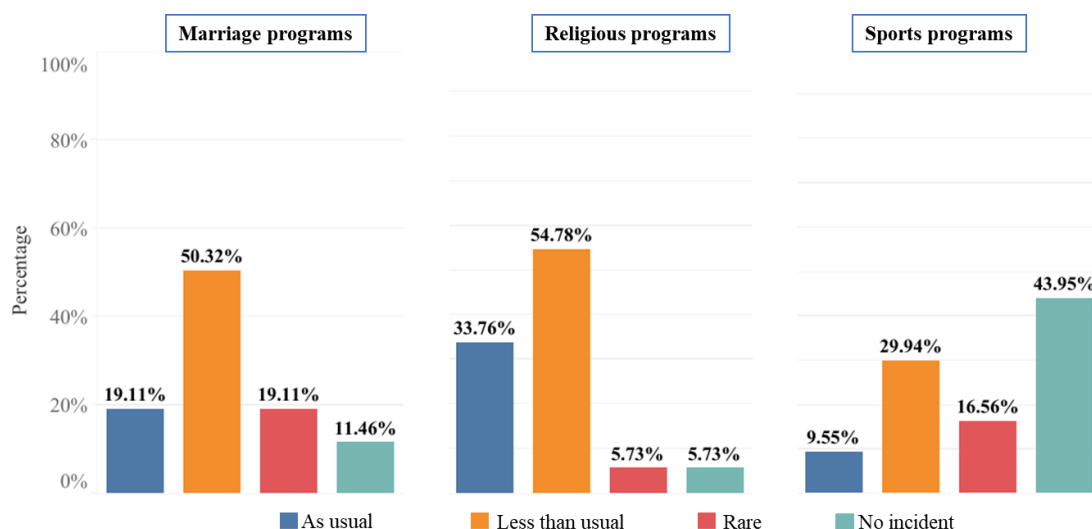


Figure 3: Situation of Community events during lockdown (Source: Telephone survey, 2020)

From Figure 3, we see that during lockdown, most of the common events were held less than usual times. In case of Religious gatherings, 33.76% programs were held as usual. This means that when it comes to saying prayers, people barely cared about safety issues. Least number of sports programs were held and situation of having no sports program is highest during the lockdown.

5.5 Local market accessibility:

Local markets were mainly accessed by walking. The median distance of local market of 152 villages is found to be 1 km and the median walking time to these markets is 15 min. This means that these markets are close to the residents of the respondents and can be accessed within a very short time without having to use vehicles.

5.6 Available Money transfer system in the villages:

Money transferring is needed for rural people, especially for those who have to take loan or live from money sent by relatives living in other areas. During lockdown, these systems are to be evaluated to see if the rural people had to go to banks to transfer cash or they had the opportunity to do so through mobile banking.

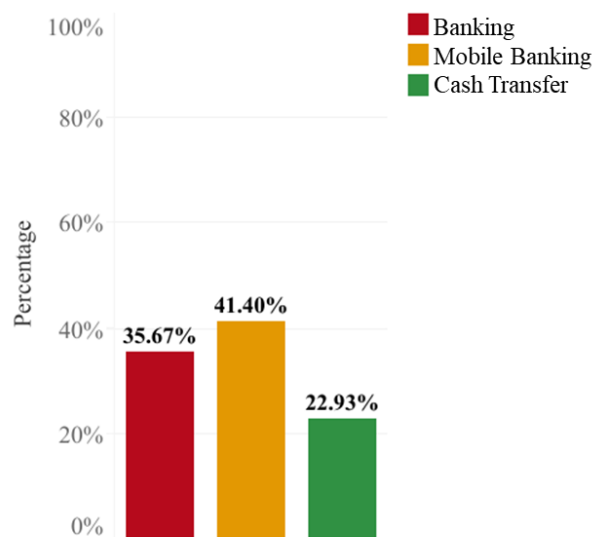


Figure 4: Money transfer system available during COVID-19 (Source: Telephone survey, 2020)

From Figure 4 we can see that, of the first most chosen money transfer systems, mobile banking is mostly chosen, followed by banking and cash transfer. That is, people preferred sending money through Bkash, Rocket and other mobile banking to transfer money during this time.

But 35.67% transfers took place through banks which means, people did visit the banks during the lockdown.

5.7 Courier service accessibility:

Of the total available data of 98 villages, the median travel time to reach courier offices during lockdown was 30 min and the median distance is 4 km. So it can be said that median speed of reaching the courier offices was about 0.13 km/min during the lockdown. It also means that the courier offices are mostly located far away from the respondents' homes and that they needed to access those through vehicles.

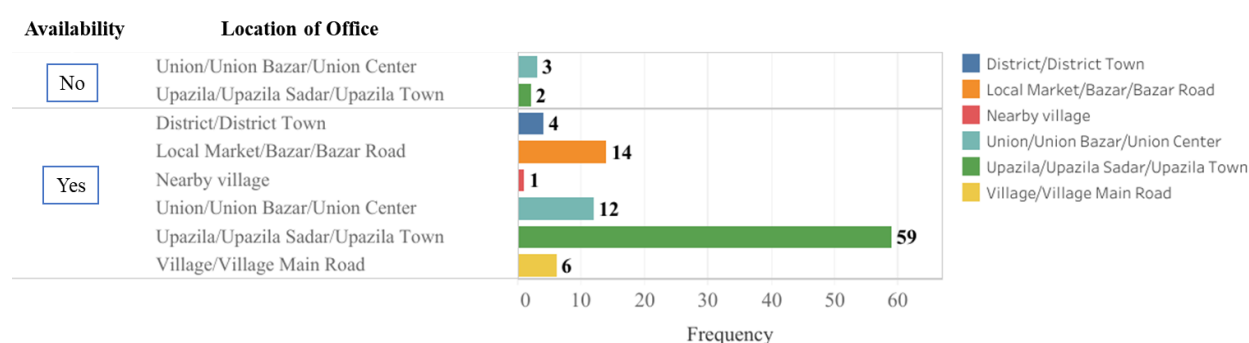


Figure 5: Courier service availability during COVID-19 and the location of the courier offices (Source: Telephone survey, 2020)

From figure 5, we can see that most courier offices were accessible during lockdown. Majority of the offices are located in the Upazila or are in the Upazila Sadar and Upazila towns. Some of the offices are also located beside local market or bazar or bazar roads and at the union bazar or union centres.

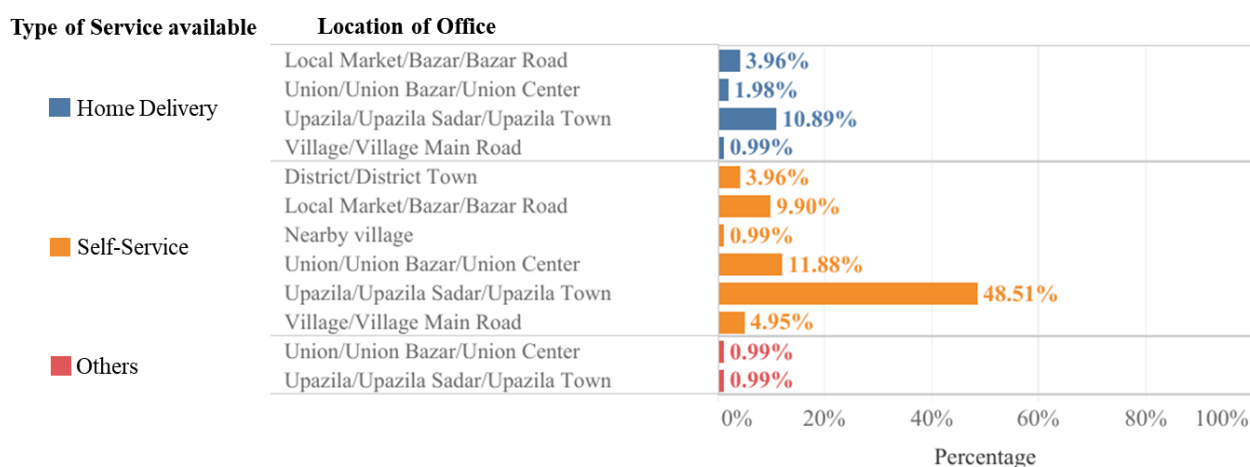


Figure 6: Type of Courier service available during COVID-19 based on their respective locations (Source: Telephone survey, 2020)

When it comes about the type of service provided by the courier offices, it is seen from figure 6 that most people had to access the services by themselves. That is, majority people had to travel to Upazila Sadar/ Upazila Towns and Union Center/Union Bazars during the lockdown to access the courier services. Some Upazila/ Upazila Town did have provision of home delivery, but their percentage is a lot less than self-service.

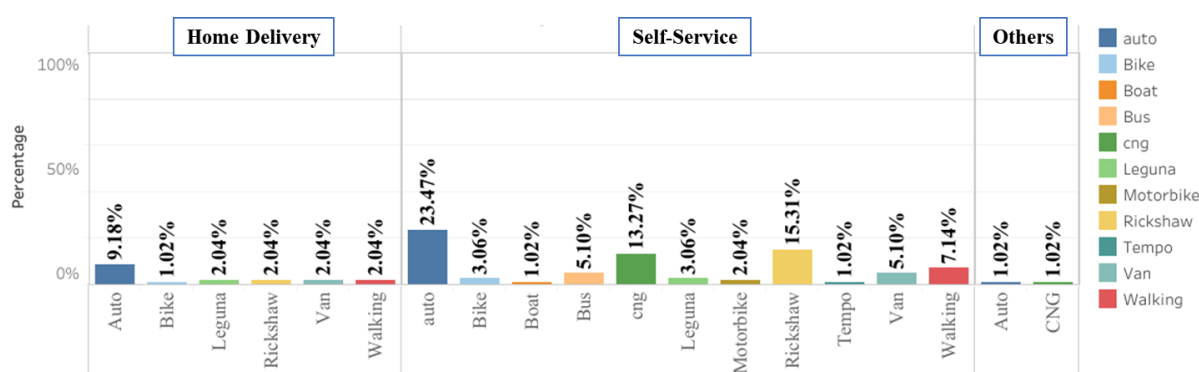


Figure 7: Type of Courier service available during COVID-19 and Types of modes used to reach respective offices (Source: Telephone survey, 2020)

Since people had to get services from courier offices by themselves, it is important to know the type of modes they were using to access the offices. It is seen from Figure 7 that home-delivery, self-services were mostly made with Autos, CNGs, Rickshaws and by walking to the offices. It can be later seen from the analysis that people mostly shared autos and CNGs. So their accessibility to these offices using shared vehicles will prove that they are not very aware about their safety issues.

5.8 Weekly out-village accessibility for different purposes:

Of the available 62 respondent's data who made out-village movements during the pandemic, the median travel time to reach different places using different modes was found to be 23.5 min. This means, that people had to use to modes to go their desired locations.

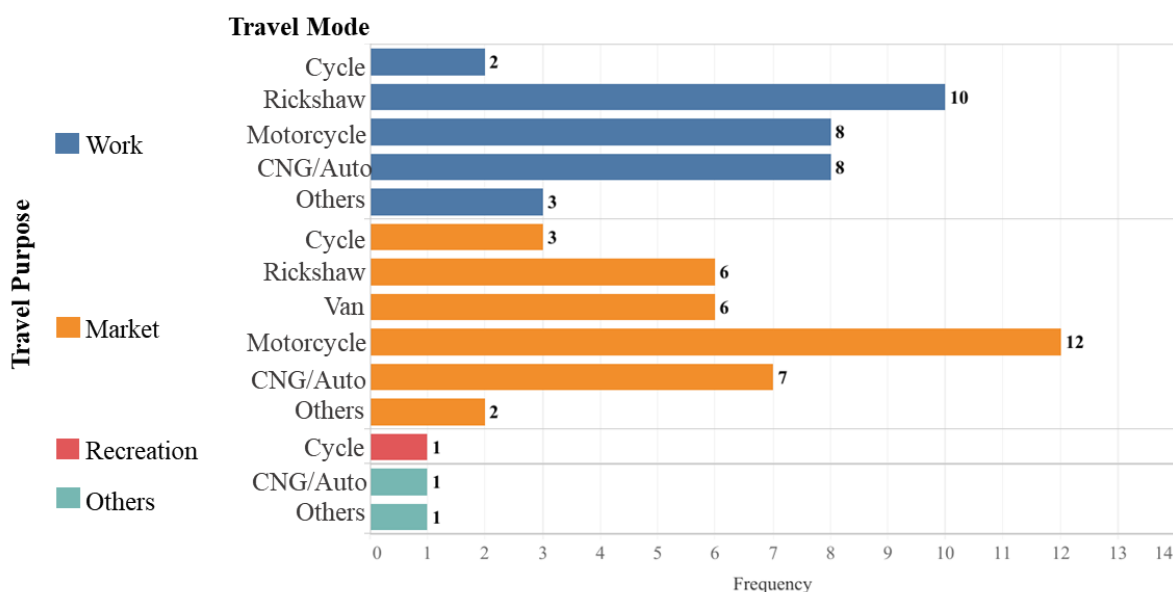


Figure 8: Weekly Out-village movement of respondent for different purposes using different modes (Source: Telephone survey, 2020)

It is seen from Figure 8 that most of the out-village trips made during lockdown were for the purpose of Market and Work. When people went to work, most of the trips were made by Rickshaw, Motorcycle and Auto/CNGs. When people went to Markets, they mostly used Motorcycle, CNG/Auto, Rickshaw and Van. So this implies that the modes Motorcycle, Rickshaw, CNG/Auto, and Vans were mostly used to make out-village trips for the purposes of work and market.

6. Precautionary measures followed by rural people while travelling in the Upazilas where COVID-19 has spread

6.1 Adoption of Personal safety measures

6.1.1 While traveling:

In order to assess the awareness level of village people, it is necessary to know the personal measures taken by the rural people when they travel in different modes. From the data obtained, we analyze the different measures followed by the people.

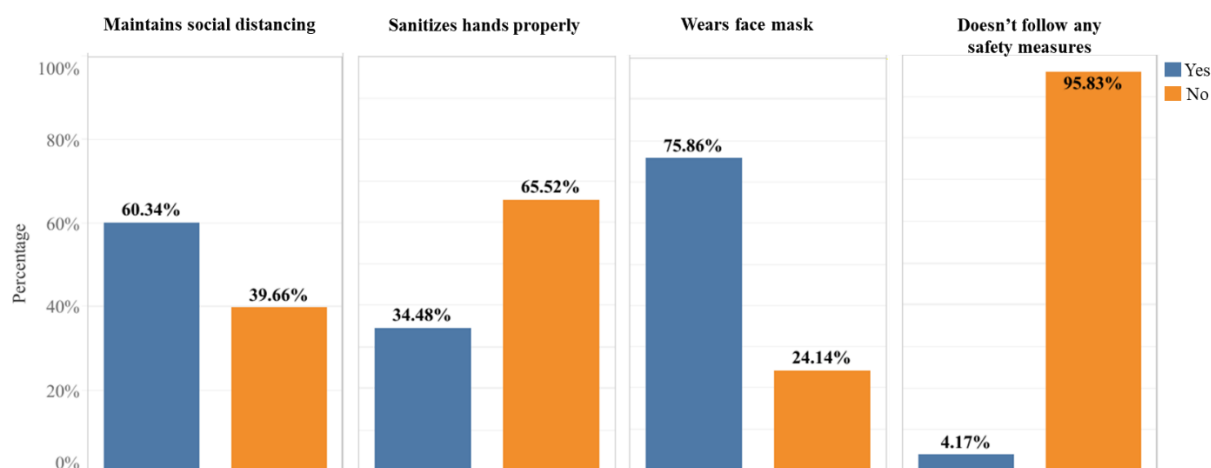


Figure 9: Maintenance of personal safety measures while travelling in upazilas where COVID-19 virus has spread (Source: Telephone survey, 2020)

Figure 9 shows that the most common safety measure taken while traveling in the vehicles was by wearing face masks. Secondly, they maintained social distance inside the vehicles. Hand sanitization was not done in most cases and 95.83% people said that they followed some sort of safety measures while traveling. It is to be mentioned that these precautions were taken in villages of the Upazilas where COVID-19 patients were found. But the rural people were not found to be maintaining adequate safety measures other than wearing face mask inside the vehicles which might be because the respondents' were not very aware of the virus themselves.

6.1.2 Sharing of vehicles while traveling:

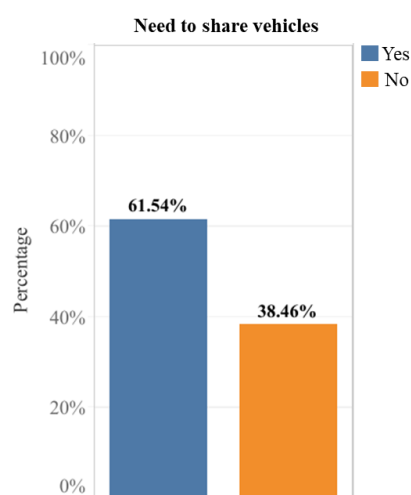


Figure 10: Need to share vehicles in villages where COVID-19 has spread

Figure 10: Need to share vehicles in vehicles where COVID-19 has spread (Source: Telephone survey, 2020)

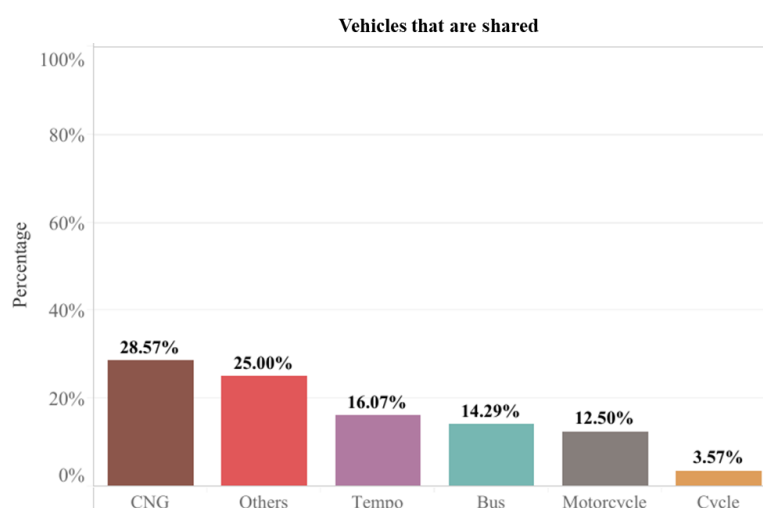


Figure 11: Vehicles that are shared in villages where COVID-19 has spread

Figure 11: Vehicles that are shared in villages where COVID-19 has spread (Source: Telephone survey, 2020)

From figure 10, it is clear that 61.54% respondents said that they had to share vehicles while traveling. Of the shared vehicles, they had to share CNG mostly, followed by other rural vehicles available in the villages, and then Tempo and Bus. It should be noted that CNG, Tempo and other rural vehicles are small and people have little scope to maintain social distancing inside those while traveling. So from the above situation, it can be said that people are not personally very aware of the virus despite that it had spread in their respective upazilas and were still sharing compact vehicles while traveling and not adopting adequate safety measures.

6.2 Safety measures adopted by people at essential places and vehicles:

6.2.1 At Bazars

One of the everyday most accessed places is bazars for the rural people. Most of the time, rural bazars are held two days a week. It is important to know the safety measures taken at these bazars in order to know the precautionary measures taken by the rural people.

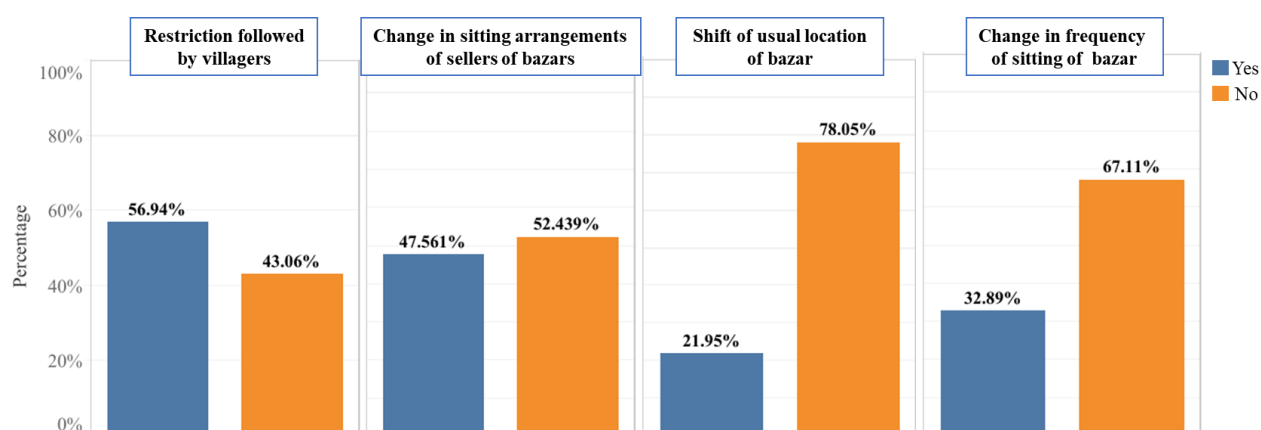


Figure 12: Percentage change of different conditions of bazar in Upazilas where COVID-19 virus has spread (Source: Telephone survey, 2020)

Figure 12 shows the change in different conditions of the bazar during the pandemic. The data were collected for villages of the upazilas where COVID-19 had spread. When restriction was declared in the bazars, 56.94% rural people followed the restrictions. But only 47.56% of sellers of bazars changed their sitting arrangements in the bazars. Also, 78.05% bazars were held at their usual places during the COVID-19, i.e. only 21.95% bazars changed their location. When it came to change in percentage of frequency of sitting of bazars, it is found that 67.11% bazars were held the number of times they used to be held before. Only 32.89% bazars changed their weekly sitting frequency during the pandemic.

This analysis means that rural village people followed safety measures while going to the bazars. But the authority and sellers of bazars were not very concerned about the spread of the virus. So the precautionary measures taken from their side are very less.

6.2.2 *By co-passengers of shared vehicles:*

In order to prevent the spread of the virus, it is essential that the safety measures are undertaken by co-passengers of shared vehicles as well. From Figure 13, it is seen that 86.21% co-passengers took partial safety measures according to the respondents. Only 6.9% people took either full or no measures.

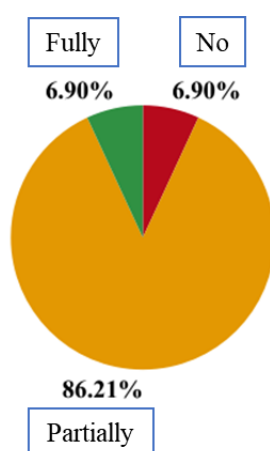


Figure 13: Safety measures taken by co-passengers in Upazilas where COVID-19 virus has spread (Source: Telephone survey, 2020)

6.2.3 *By drivers and conductors of different modes:*

The drivers and conductors of different modes were found to mostly wear masks in the villages of the upazilas where COVID-19 had spread. Above 80% of the villagers didn't undertake measures like disinfecting vehicles after every trips, they allowed passengers without masks too and riders were not sanitized before they entered the vehicles. 60% of the drivers didn't ensure that social distance was maintained between the passengers. Also, most drivers didn't limit the number of passengers inside their vehicles.

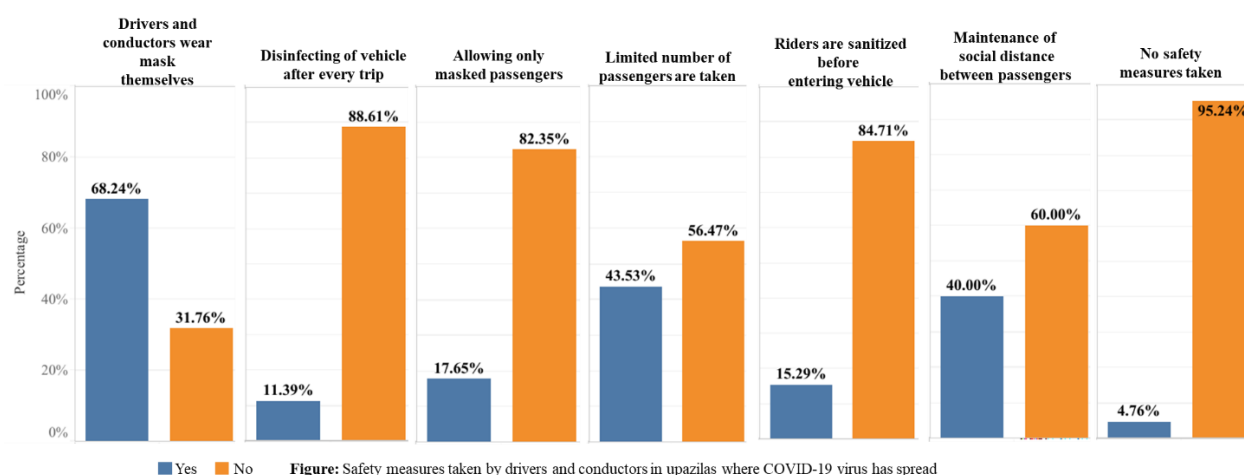


Figure 14: Safety measures taken by drivers and conductors in upazilas where COVID-19 virus has spread (Source: Telephone survey, 2020)

This means, that the drivers and conductors were aware of the virus and they maintained personal safety measures themselves but they didn't ensure that the passengers maintained those, even though COVID-19 cases were found in their upazilas. This maybe because they wanted to take in more passengers willingly or didn't bother about other people's safety. Also, this is maybe because of the authority not being very active in maintaining the safety in bazars.

7. Major findings from the study

The analysis of the data shows that almost all educational institutions remained close during lockdown, but the health centers were open. Most respondents worked within their villages and most of those remained open during this time. Marriage programs and religious programs were held less than usual times but people still went to religious gatherings. People mostly preferred mobile banking over other two systems during the lockdown, but some did go to banks too. Most courier services were accessible too but most of them were located in Upazila or Upazila Sadars or Upazila Towns. These places were accessed mostly using autos, CNGs and rickshaws and the service was mostly self-service. Most respondents went outside their villages weekly during the lockdown for market and work mostly and they used motorcycles, rickshaw, CNG/auto and vans to go there.

The second part of the analysis shows that the most common personal safety measure followed was wearing of face mask and maintaining of social distance while travelling. Most of the respondents had to share vehicles and they mostly shared CNGs, Tempos and other rural vehicles. At bazars, above 50% of villagers were found to follow the restrictions but safety measures were inadequately taken by the sellers and authorities of the bazars. Within vehicles, co-passengers mostly maintained partial safety measures and the drivers and conductors mostly

wore masks themselves. But they were not careful about maintaining adequate safety of the passengers of the vehicle.

8. Conclusion

COVID-19 positive cases are still being found every day in our rural areas. The analysis of the report indicate that other than educational institutions, rural people are accessing their everyday essential places like health centers, workplaces, bazars, banks, courier offices like before though at a much lower frequency. This is because rural people of our country are mostly poor and they do not have much savings. During pandemic, they are accessing these places using shared modes which is a matter of concern because, COVID-19 spreads through close contact of people. The analysis further shows that CNGs and Tempos are shared modes which are actually smaller in dimension than big vehicles like buses. So if they are sharing these vehicles regularly, even though they know COVID-19 positive cases have been found in their upazilas, this might spread the virus more in their villages.

It has been found from the analysis that respondents while traveling in modes and drivers of vehicles wore mostly masks as part of their precautionary measures. But limited number of passengers and social distancing is not maintained within the vehicles. Besides, the scenario of bazar indicate that buyers are trying to maintain safety measures but the sellers or authority are not very active. This should be taken into serious consideration if the spread of the COVID-19 is to be controlled in the rural areas. The vehicles that are shared should be sanitized properly and drivers should be made more aware of the situation. If needed, local government can take initiative to continue investigating the vehicles at regular intervals to ensure that proper precautionary measures are taken within the vehicles so that rural people can continue accessing their everyday essential places safely.

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