

Original Article

Impact of Global Health Crisis and Lockdowns on Rural Livelihoods: A Cross-Sectional Analysis in Bangladesh.

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Corresponding Author*Abstract**

Background: The last pandemic threatened Bangladesh, and at the same time, a large number of its people were infected with the coronavirus. This pandemic and its subsequent dissemination negatively affected social, economic, and livelihood conditions worldwide, including in Bangladesh.

Objectives: This study aims to investigate the livelihood effects due to pandemic and lockdowns among the population living in rural Bangladesh.

Materials and Methods: This study utilized a descriptive cross-sectional method. Data was collected from the 639 beneficiaries of TMSS from four districts of Rajshahi and Rangpur namely Bogura, Gaibandha, Joypurhat and Naogaon. The duration of study was June 2020 to August 2020. Data was collected using pre-tested semi-structured questionnaire and analyzed using SPSS.

Results: Majority 94.2% of the respondents reported lockdown due to pandemic affected their livelihood. Regarding the extent of the effect, 35.5% mentioned fully affected, 48% moderately affected and 10.6% slightly affected. It also revealed that monthly salaried income of the respondents was significantly reduced during lockdown, dropping from 22% to 15% per month due to the economic impact and restrictions.

Keywords: Pandemic, Global health crisis, Lockdown, Impact, Livelihood, Socioeconomic status, Income reduction.

Introduction

The global coronavirus crisis brings catastrophe on all most every area of human life. Its impact is multifaceted. Almost every country experienced financial and health crisis due to it.¹ As of December 10, 2022, over 653 million confirmed cases and over 6.65 million deaths have been reported globally and for Bangladesh confirmed cases are 2.04 million and 29463 deaths.² Worldwide, billions of people were staying at home to minimize the transmission of the virus. Along with other countries, Bangladesh was adopting preventive measures, e.g., washing hands, social distancing, remote office activities, and mandatory lockdowns.³

Since then, the infections spread exponentially and the rate was highest in Asia with wider community-level

transmission. To stop the spread of this virus, there are lots of actions taken by the government like countrywide lockdowns, travel restrictions, hazard controls in the workplace, cancellation, and postponements of events, border enclosure, and screening at airports, etc.³ These kinds of preventive and control measures like lockdown hindered the normal flow of raw materials, products, and services, capital, which results in business and production shutdowns temporarily.³ This pandemic has led to acute global socioeconomic disruption such as extensive supply scarcity. By the beginning of June 2020, the pandemic had resulted in an increase of 68 million person-years spent in poverty and a loss of 4.3 million years of life across 150 nations.¹ People

experienced financial instability and mental stress as a result of shutting down daily activities.⁴ Preventing the outbreak of coronavirus, the Government of Bangladesh also declared 10 days of general holiday firstly on 22 March which is effective from 26 March later on the holiday was extended 2 more times to 30 May 2020.⁵ Community transmission, countrywide lockdown, loss of livelihood, fear of getting infection lead to the severe sufferings of poor and vulnerable communities in both urban and rural areas.⁶ In Bangladesh, the preventive and control measures have been found challenging to implement due to a lack of general awareness of this Global Health Crisis and the absence of a social safety net.⁶

With a nationwide shutdown of the transport system after the announcement on general holidays in desperate efforts to stop the spread of the coronavirus, Bangladesh has apparently locked down its 160 million people. After the announcement on the shutdown of offices with a 10-day general holiday from Mar 26, people had already headed home in villages and towns from major cities, including capital Dhaka that hosts more than 20 million people. The pressure became immense when the government suspended all transport services. The situation turned worse as desperate homebound people rushed to board buses and launches and packed to several times their capacity.⁷

In Bogura, a northern city of northern Bangladesh was under threat of the COVID-19 pandemic, and simultaneously, many citizens have been detected as coronavirus infection. Due to the COVID-19 pandemic, people have faced rare experiences where their normal livelihood was frozen. Evidence shows that 'earnings, transportation, treatment, movement, farming, business, and other Income Generating Activities (IGA) have been postponed for declared strict lockdown and quarantine since March 2020. And peoples' sufferings were beyond imagination and it may predict both urban and rural people have been in miserable situations that collapsed their basic needs, fully and partially. Considering this situation, this study was conducted to identify the impact of COVID-19 on the livelihood of the rural people in Northern Bangladesh.

Materials and Methods

Study Design

This study utilized community based descriptive cross-sectional design to assess the impact of Global Health Crisis on the livelihood of rural people in Northern Bangladesh applying a quantitative approach.

Study Area

There are two divisions and 16 administrative districts in northern Bangladesh. Of these 16 Districts: Bogura, Gaibandha, Joypurhat, and Naogaon were purposively selected for data collection. These four Districts are located in the northern divisions of Rajshahi and Rangpur.

Study Period

The research was conducted on calendar year of 2020 when the country was under lockdown due to global health crisis.

Population and Recruitment Procedure

A face-to-face interview was conducted among the selected sample population. The study included Bangladeshi nationals aged 18 and above who were clients of the TMSS Health Care Center, which provides essential healthcare services to the community. Participants who were physically or mentally ill or declined to take part in the study were excluded.

Sample Size Determination

During the COVID pandemic lockdown, we estimated that 50% ($P=0.05$) of the population had access to livelihood, based on a representative sample of 384 with 95% confidence and 5% precision levels. Adjusting for the 1.5 design impact and the 20% nonresponse rate, the sample sizes were increased to 576 and 720, respectively. We selected 720 qualified participants from 4 districts (unequally distributed): Bogura (31.6%), Gaibandha (26.3%), Naogaon (24.5%), and Joypurhat (17.6%). After removing incomplete interviews, a total of 639 completed interviews were used for the study. The study utilized multistage sampling, with four randomly chosen

districts, two Upazilas from each district, and two union parishads from each Upazila, resulting in data collection from 16 union parishads.

Data Collection

The study used a pretested, semi-structured questionnaire for personal interviews, ensuring compliance with Bangladeshi government and WHO COVID guidelines. The principal investigator and supervisors monitored data accuracy and consistency daily.

Data Quality Assurance

The research objectives guided the design of the data collection instruments. The data collection and supervision team consisted of 13 registered nurses who received three days of training. A pretest was conducted with 10% of the sample in a rural area before the actual data collection. The interview was conducted in the native language for better comprehension. Research Investigators monitored the whole process.

Statistical Analysis

Data were entered, cleaned, and analyzed using SPSS software. Percentages, frequencies, charts, and cross-tabulations were used to describe the significant characteristics of respondents. Chi-Square and Pearson correlation (linear regression) analyses were done to observe any association and correlation among the variables.

Ethical Approval and Limitation

The Ethical Review Committee (ERC) of the TMSS Medical College (TMC) in Bogura, Bangladesh, approved the research protocol, questionnaire, consent statement, and ways to get informed consent. The ERC reference number is 2020/01 (30/04/2020). At the beginning of the interview, written consent was taken from the respondents after conveying that complete confidentiality of personal data would be strictly maintained. The interpretation of this study's findings should consider the time lag between data collection and publication, encompassing extensive data cleaning, rigorous validation processes, and article processing time, which may impact the immediacy of

the results given the dynamic nature of the global health crisis and its ongoing effects on rural livelihoods and policy landscapes.

Results

Socio-Economic and Demographic Information

Table 1 showed the majority of the participants were between 21 to 40 years old (72.6%), 59.5%, female, 92% Muslim, 89.8%, married and 80% lived in nuclear families. The most common educational qualification was primary education (26.8%), followed by junior school certificate (21.4%) and secondary school certificate (17.7%). The most common occupational status was housewife (46.3%), followed by service holder (21.4%) and business (11.9%). Only 0.8% of the participants were physicians/nurses/health workers. The majority of the participants had male family heads (90%) and medium-sized families (4-6 members) (62%). Educational qualification had a significant association with occupational status ($X^2=13.762$, $df=6$, $p=0.032$) and a moderate positive correlation with the age group of the respondents (Cramer's $V=0.344$). Occupational status had a significant association with educational qualification ($X^2=22.763$, $df=7$, $p=0.002$) and a moderate positive correlation with the age group of the respondents (Cramer's $V=0.441$).

Table-I: Socio-demographic characteristics of the participants (n=639)

Characteristics	Frequency	Percent	X ² Test	Linear Regress ion
Age Group				
<21	46	7.2	-	0.004 p=0.458
21-30	241	37.7		
31-40	223	34.9		
41-50	95	14.9		
51-60	24	3.8		
>60	10	1.6		
Gender				
Male	259	40.5	-	p=0.419
Female	380	49.5		
Religious Status				
Muslim	588	92.0	-	0.011 p=0.390
Hindu and Others	51	8.0		

Characteristics	Frequency	Percent	X ² Test	Linear Regress ion
Marital Status				
Single	48	7.5	-	0.004 p=0.457
Married	574	89.8		
Divorced	3	.5		
Widowed	11	1.7		
Separated	3	.5		
Educational Qualification				
Illiterate	62	9.7	X ² = 13.762 df=6 p=0.032	0.089 p=0.012
Primary	171	26.8		
Junior School Certificate	137	21.4		
Secondary School Certificate	113	17.7		
Higher Secondary Certificate	67	10.5		
Honors	60	9.4		
Masters and above	29	4.6		
Occupational Status				
Service Holder	137	21.4	X ² =22.763 df=7 p=0.002	-
Physician/Nurse/H ealth Worker	5	0.8		
Business	76	11.9		
Farming	43	6.7		
Day Labor	20	3.1		
Unemployed	15	2.3		
Housewife	296	46.3		
Student	33	5.2		

Impact of Pandemic on Livelihood

This study analyzed how impact COVID-19 on people's livelihoods with respect to various considerations including income, food-taking, treatment, transportation, and others. Majority 94.20% (602) respondents' livelihoods were affected due to the COVID-19 lockdown.

Impact on Households' Livelihood

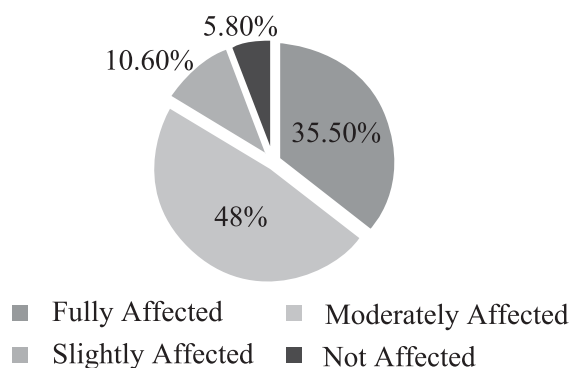


Figure 1: Impact of households' livelihoods due to the Pandemic

Regarding the severity of the impact of COVID-19 on livelihood (Figure 4.2.2), 48% of the respondents stated their livelihood was moderately affected, 32.2% stated fully affected, 10.6% stated slightly affected and 2.8% stated their livelihood was not affected by COVID-19.

Table II: Major Source of Income of Respondent's household before and after the onset of Global Health Crisis

Income (BDT)	Before COVID		After COVID	
	n	%	n	%
Salary	140	21.9	92	14.9
Daily /Casual Laborer	122	19.1	101	12.8
Agriculture /Livestock	214	33.2	203	31.8
Own Business	112	17.2	99	12.2
Others Profession	44	6.9	43	6.7
Support from Family/Relatives /Friends	2	0.8	26	4.1
Social Safety -net	0	0.0	47	7.4
No Income	2	0.3	22	3.9
Total	639	100	639	100

Table II reported highest percentage of the respondents (33.2%) relied on agriculture or livestock before the onset of COVID-19, and 31.8% as after onset of COVID-19. Other income categories (salary, daily labor, and own business) contributed 20 percent.

Table III: Monthly income of Respondent's Household before and after Lockdown

Income (BDT)	Before Lockdown		After Lockdown		Changes	
	n	%	n	%	n	%
<10000	184	28.8	428	67.0	+244	+38.2
10001-20000	266	41.6	166	26.0	-100	-12.6
20001-30000	113	17.7	32	2.0	-81	-12.7
30001-40000	40	6.3	06	0.9	-34	-2.4
40001-20000	26	4.1	02	0.8	-21	-3.3
>20000	10	1.6	02	0.3	-06	-1.3
Total	639	100.0	639	100.0		
Average Income	19236.00 BDT		10638.00 BDT		-8898.00 BDT	

Table III illustrated before lockdown, the majority 41.6% of respondents' household monthly income was between BDT 10001–BDT 2000, whereas after lockdown, 67% of respondent's households' monthly income became below BDT1000.00. The mean difference of incomes before and during lockdown is statistically significant ($t=12.033$, $p=0.000$).



Figure 2: Experiencing the Problems due to the Lockdown

Figure 2 represented majority 88.7% of respondents have experienced an income drop due to this pandemic, and 7% of respondents lost their jobs. The status of losing livelihood were 34.7%, 29.1%, and 22.7% respectively.

Table IV: Monthly Expenditure of Respondent's Household before and after the onset of COVID-19

Expenditure (BDT)	Before Lockdown		After Lockdown		Changes	
	n	%	n	%	n	%
<2000	66	10.3	114	17.8	+42	+7.2
2001-10000	219	34.3	277	43.3	+28	+9.0
10001-12000	126	24.4	108	16.9	-48	-7.2
12001-20000	82	13.3	88	13.8	+03	+0.2
20001-22000	23	8.3	28	4.4	-22	-3.9
22001-30000	36	2.6	13	2.0	-23	-3.6
>30000	24	3.8	11	1.7	-13	-2.1
Total	639	100	639	100.0		
Average Expenditure	12298 .00 BDT		11428.00 BDT		-4140 BDT	

Table IV: According to the table, the average monthly expenditure of the respondents before COVID-19 was 12298 BDT, and this study discovered there was a decrease from BDT 12298 to BDT 11428 of average monthly expenditure among respondents. However,

there are seven categories namely expenditure (BDT) <2000, 2001-10000, 10001-12000, 12001-20000, 20001-22000, 22001-30000, and >30000 by which monthly expenditure of respondent's household before and after the onset of lockdown and pandemic has been measured. The table showed there was a significant amount decrease of monthly expenditure by the respondents. The mean difference of expenditures before and during COVID-19 is statistically significant ($t=6.103$, $p=0.000$).

Discussion

Developing nations, already burdened by inadequate infrastructure, limited education, and widespread poverty, limited access to service⁸ face severe consequences from the pandemic which include rising joblessness, reduced earnings for day laborers, greater food scarcity, exhaustion of savings and aid resources, and disruptions to market systems,⁹ among various other impacts.¹⁰ 94.2% (602) of the respondents stated that they had problems with their livelihood during the lockdown period of COVID-19 pandemic. Similarly, a study was done by Paul et al. stated that 94.1% of their respondents mentioned having problems with their livelihood during the COVID-19 pandemic.¹¹ The difference between these two studies was, Paul study only included lower-income groups in society, whereas this study included almost all income groups in society. In addition, some research delineated that COVID-19 had significant and heterogenous effects on livelihood outcomes.¹²⁻¹⁴ Agricultural production and share of production sold were reduced, especially for rice crops. Furthermore, dietary diversity and education expenditure were reduced among all the respondents. Households primarily affected by fear of sickness had significantly lower agricultural production.¹²

A study done in Iran reported 34.81% of the households have faced lower impacts of COVID-19, relatively. 41.29% of them have faced moderate impacts, and 23.9% of the households have faced higher impacts than other groups.¹⁵ Similarly, this study found that 35.5% of the respondents' livelihoods were fully affected by COVID-19, 48% were

moderately affected, 10.6% were slightly affected, and 2.8% of the respondents stated they had no effects on their livelihood during COVID-19 lockdowns. Whereas the study by Paul found that 83% had a high to extreme impact on their livelihood due to COVID-19. Again, this finding differs from the present findings as Paul's study only includes lower-income groups of society.¹²

Before pandemic and lockdown, salaried income of the respondents was 21.9%, but after the onset of pandemic it became 14.9% due to losing jobs, and income from own business was 17.2% which became 12.2% due to losing businesses. Before lockdown the income category having no income was 0.3% which became 3.9% due to people losing jobs and businesses. According to the study by Ahmed & Kalam, during the temporary job loss due to the lockdown for two months estimated is between 12 to 17 million.⁷ One study conducted in Chittagong during lockdown showed about 29.33% of the respondents lost their jobs and 20.67% changed their occupations, about 80% of the daily workers became unemployed.¹⁶ Not only in Bangladesh, study from India showed, the Narayanpur districts in Chattisgarh experienced 13.4% income loss and 40% having no sufficient foods¹⁷ due to access to food systems, market access for agricultural commodities, food and nutritional security, labour availability and migration.⁹

Before lockdown average household monthly below BDT 10000.00, was 28.8% (n=184) of the respondents and during lockdown it became 67.0% (n=428). This indicates a significant amount of decrease in monthly income due to lockdown. The study was done in Chittagong showed 90% of the respondents claimed their income level had decreased, and many of them jobless, whereas a significant portion of the respondents said that their salaries had been reduced. Only the income level of the shop owners (2.6%) increased (Md. Abdul Fatah et al 2022).¹⁶ The present study also showed 88.7% of the respondents had experienced an income drop and 7% of respondents had lost their jobs (Figure 4.2.3). The monthly expense of the households depends on the monthly income. As the monthly income decreased, the expenses also

decreased during the COVID Lockdown. Some studies identified that pandemic negatively affected livelihoods had a strong influence on predicting mental health issues.^{13, 18}

Conclusion

To control the spread of the disease Government implicated lockdowns, which leads to financial instability among the mass people. Though Government and NGOs took the initiative to support the needy by distributing relief. Unfortunately, it was not enough to address the situation due to the unpredicted global health crisis. Lessons learned from the challenges of COVID-19 pandemic, Governments and other stakeholders should apply the learnings to address future pandemics and global or national health crises by taking the required precautions. A more effective approach might involve developing intervention that focus on cognitive restructuring techniques or enhancing cognitive coping strategies.

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