Socio economic impact of COVID-19 among the general people in Bangladesh: A cross-sectional study in Rajshahi District

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Running Title: COVID-19's socioeconomic impact among the people in Bangladesh

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ABSTRACT

The COVID-19 pandemic has twisted the world of work upside down. It is having a theatrical effect on the jobs, livelihoods and well-being of workers and their families and on enterprises across the globe, particularly the small and medium sized. The aim of the study was to measure the socioeconomic impact of COVID-19 pandemic on the general people in Rajshahi district, Bangladesh. This cross-sectional study was conducted from August 10 to October 25, 2020. Data were collected with a semi-structured questionnaire from 391 adult respondents selected by using a mixed sampling technique. Frequency analysis, chi-square test, and logistic regression model were utilized in this study. SPSS (IBM, Version 22) was used for data analysis. 95% confidence interval and p-value<0.05 were accepted for statistical significance. Only 16.6% of the respondents' purchasing power had increased during pandemic period. Only 9.2% female subjects' purchasing power increased during pandemic period. Near about 6.5% and 6.8% higher level of educated and rural subjects' purchasing power increased in this reporting period respectively. Urban subjects had more likely of being increased purchasing power than the respondents of rural subjects (AOR=7.846, 95% CI: 4.170-14.763; p<0.001). The respondents with monthly family income of ≤16,000 BDT showed less chance of having increased purchasing power during COVID-19 than the subjects with monthly family income of ≥16,001 BDT (AOR=0.355, 95% CI: 0.192-0.655; p<0.001).

In this study it was revealed that a very few numbers of subjects had increased purchasing power during pandemic period in Bangladesh. The government of Bangladesh, policy makers and donor agencies should consider the findings and take immediate steps for improving purchasing power.

Keywords: Socio-economic, Impact, COVID-19, Rajshahi, Bangladesh.

INTRODUCTION

Worldwide, most of the people, properties, and wealth involved in the manufacture and preservation of urban life facilitate the spread of infectious disease and the emergence of pandemics. After appearing in China in late 2019, the first cases of COVID-19 were confirmed in Bangladesh and elsewhere in Asia. As per earlier research on virus spread has shown that socioeconomic and cultural factors at the separate, household and locality levels are important mechanisms for prevent community spread of the killer virus (Pitlik, 2020; López et al.2022; Baker et al.2022). The South Asian Association for Regional Cooperation (SAARC) countries comprises 3% of the world's area and home to 21% of the world's total population and comprising of eight nations Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka has experienced the wave of pandemic much later than Europe and America (Shaheen, 2013). COVID-19, is an acute respiratory disease that's affects the human lungs and the fundamentals source and disease expansion of this new virus are yet to be fully understood that necessitates preventive measures until effective treatment and vaccine are available (Lakhani et al.2020) . The Wuhan city of the Hubei Province in China is the first area where this disease broke out and spread speedily that resulting in an epidemic across the country, followed by a pandemic with increasing number of cases in different countries all over the world (Chen et al. 2021). The World Health Organization (WHO) declared a public health emergency in late January 2020 and announced it as a pandemic in March 2020 (Franchini et al. 2020). The government of Bangladesh and WHO make national infection prevention guideline for taking steps for prevention of COVID-19, With COVID-19, there is urgency for policymakers to understand and respond to the health needs of slum communities. Lockdowns for pandemic control have health, social and economic consequences. We consider access to healthcare before and during COVID-19 with those working and living in slum communities. (Ahmed, et al. 2020; Ahmed, et al 2020).

The government of Bangladesh and many private facilities have come out, although in late, to fight the fatal disease. The government of Bangladesh has declared locked down. Almost all the government and private facilities offices and educational institutions have been shut down. All press and electric and social media are campaigning for creating awareness among the people on prevention of the disease. But it is noticed that a large number of people are not following the government directives and preventive guidelines.

The COVID-19 pandemic has created a very high public health threat to the country as well as has severe socio-economic impact. Considering the perspective, we aimed to assess the socio-economic impact of COVID-19 among people in Rajshahi district, Bangladesh.

METHODS

Study design and population: It was a cross-sectional study and target area of study is Rajshahi district, Bangladesh. The district comprises of nine upazilas (sub districts) and a city corporation with 2,425.37sq.km area. A total of 25, 95,197 people reside in the district which constituted our study population (BBS. 2011).

Sample size determination: In Rajshahi District population is (25, 95,197), the following formula was used for determining the sample size calculation: $n = N/ (1+Nd^2)$, where n = required sample size, N= population size (25, 95,197), d = marginal error (0.05) [12, 13]. The formula provided that the minimum sample size of 398 would be sufficient for this study. In this study collected 392, 07 data were unable to provide their information so, our final sample size was 391.

Sampling: For better data collection in this study used multi stage random sampling was used to select the sample size. In the first stage, 3, out of 9 upazilas, and 1 out of 30 wards in the City were randomly selected by lottery. In the second stage, an average number of 100 people were selected purposefully from the selected upazilas and ward. But, during the survey in field level, 391 respondents were interviewed.

Data collection: The study data were collected from August, to October 30, 2020 using a semi-structured questionnaire. The following types of information were collected: (i) socio-demographic characteristics and (ii) knowledge on prevention of COVID-19 infection. Five fully trained and experienced field researchers collected data from the respondents by face-to-face interview maintaining the COVID-19 preventive guidelines of WHO.

Outcome variable: The outcome variable in our study is the knowledge on prevention of COVID-19. It was assessed based on answers of four components of one question. The question was: (a) Do you know how to prevent COVID-9? The answer of this question was (i) Have you increased your essential goods purchasing power during the pandemic period?

Independent variables: This study included theoretically pertinent socioeconomic and demographic factors as independent variables. In this study, we classified subject's age into two

groups: ≤32 years and ≥33 years, gender into two groups: male and female, marital status as married and unmarried, and occupational group was categorized into three groups such as business, service and others. Education was classified based on the formal education system in Bangladesh: Illiterate, primary education, secondary, and higher. Place of residence was categorized as rural and urban. Subject's family type was categorized as nuclear and joint. Respondent's monthly income was categorized as ≤16000 Bangladeshi Taka (BDT) or ≥16001 BDT.

Statistical analyses: This study conducted frequency distribution of participants' answers to items for purchasing power during COVID-19 pandemic period, and the chi-square test was used to investigate the association of purchase power among the socio-economic factors. Furthermore, binary logistic regression model was utilized to assess the effect of the associated factors on purchasing power measured regarding COVID-19.

Ethical Approval: This study ethical approval by Institute of Biological Science (IBSc) University of Rajshahi, Bangladesh. During data collection we received written consent from the subjects.

RESULTS

Table 1 shows the socio-economic and demographic profiles of the respondents. Of the total 391 respondents, approximately 54.5% were below ≤32 years of age and 69.6% were male. 19.2% were unmarried, and 67.5% respondents lived in the rural area. 9.7% subjects were illiterate 30.7% of the participants passed primary education level, 43.7% secondary level, and the remaining 15.9% had higher level of education. According to occupation, 26.6% of them were businessmen, 7.7% service holders, and 65.7% had others occupation. 52.2% subjects came from the nuclear family and 51.7% respondents had monthly family income of ≤16,000 BDT.

Table1. Socio economic and demographic profile of subjects

Variables	N	(%)	Variables	N	(%)
Age in years			**Education**		
≤32 years	213	54.5	Illiterate	38	9.7
≥33 years	178	45.5	Primary	120	30.7
Gender			Secondary	171	43.7
Male	272	69.6	Higher	62	15.9

Female	119	30.4	**Residence**		
Marital status			Urban	127	32.5
Unmarried	75	19.2	Rural	264	67.5
Married	316	80.8	**Type of family**		
Occupation			Nuclear	204	52.2
Business	104	26.6	Joint	187	47.8
Service	30	7.7	**Monthly family income**		
Others	257	65.7	≤16000 BDT.	202	51.7
			≥16001 BDT.	189	48.3

In Table 2, association of socioeconomic and demographic factors and purchase power measures was shown during COVID-19 pandemic period. Gender, occupation, education, residence, type of family and monthly family income was found to have statistically significant association ($p<0.005$).

Table 2. Association between purchase status during COVID-19 pandemic and socio economic and demographic factors

Variables	Yes, 65 (16.6%)	p-value	Variables	Yes, 65 (16.6%)	p-value
Age		0.701	**Education**		0.001
≤32 years	34(16.0)		Illiterate	11(28.8)	
≥33 years	31(17.4)		Primary	31(25.8)	
Gender		0.010	Secondary	19(11.1)	
Male	54(19.9)		Higher	4(6.5)	
Female	11(9.2)		**Residence**		0.001
Marital status		0.613	Urban	47(37.0)	
Unmarried	11(14.7)		Rural	18(6.8)	
Married	54(17.1)		**Type of family**		0.006
Occupation		0.010	Nuclear	44(21.6)	
Business	27(26.0)		Joint	21(11.2)	

Service	03(10.0)	**Monthly family income**			0.001	
Others	35(13.6)	≤16,000 BDT.		21(10.4)		
		≥16,001 BDT.		44(23.3)		

Statistically significant associated factors were considered as independent variables in the binary logistic regression analysis. The findings were presented in Table 3. It was demonstrated that the male subjects were more likely to have increased purchase power during COVID-19 pandemic than the subjects of female (AOR=2.459, 95% CI: 1.083-5.585; p<0.005). Businessmen had more likelihood of being purchasing power increased than the respondents of others occupation (AOR=2.192, 95% CI: 1.152-4.171; p<0.005). Urban subjects had more likely of being purchasing power increased than the respondents of rural subjects (AOR=7.846, 95% CI: 4.170-14.763; p<0.001). The respondents with monthly family income of ≤16,000 BDT showed less chance of having increase purchasing power of COVID-19 than the subjects with monthly family income of ≥16,001 BDT (AOR=0.355, 95% CI: 0.192-0.655; p<0.001).

Table 3: Effect on purchase status during COVID-19 pandemic and socio economic and demographic factors.

Variables	B	S.E.	p-value	Adjusted odds ratio (AOR)	95% C.I. for AOR	
					Lower	Upper
Gender						
Male [R] vs female	0.900	0.419	0.032	2.459	1.083	5.585
Occupation						
Business [R] vs service	0.651	0.823	0.429	1.917	0.382	9.614
Business [R] vs others	0.785	0.328	0.017	2.192	1.152	4.171
Education						
Illiterate [R] vs primary	-0.278	0.373	0.456	0.758	0.365	1.572
Illiterate [R] vs secondary	0.449	0.424	0.290	1.567	0.682	3.600
Illiterate [R] vs higher	1.173	0.653	0.073	3.233	0.898	11.635
Residence						

Urban [R] vs rural	2.060	0.323	0.001	7.846	4.170	14.763
Type of family						
Nuclear [R] vs joint	0.522	0.334	0.119	1.685	0.875	3.244
Monthly family income						
≤16,000 [R] vs ≥16,001 BDT.	-1.037	0.313	0.001	0.355	0.192	0.655

N. B.: B-Coefficient; S. E-Standard Error; AOR- Adjusted Odds Ratio; CI- Confidence Interval: R-Reference

DISCUSSION

The present survey was conducted at the initial phase of the COVID-19 outbreak in Bangladesh. Rajshahi is the fast-growing industrialized divisional head quarter. This city is famous for education and silk and recognized as a clean city in Bangladesh. COVID-19 pandemic and resulting lockdown have rapidly influenced everyone's life and habits, affecting the psychological health of people worldwide. Most of the female subjects were suffering miserable life during COVID-19 pandemic. Due to COVID-19 most of the commercial institutes were open in a very limited ways and female were also under pressure psychologically and almost similar results were found in Italian population (Robillard et al. 2020). Distinguishing these hostile collateral effects of the COVID-19 pandemic lockdown is critical in avoiding depreciation of weight control efforts among youths afflicted with excess adiposity. Depending on situation, these untoward lockdown effects may have a lasting impact on a child's or adolescent's adult adiposity level. Purchasing power of most of service holder subjects decreased due to lock down; goods supply was inadequate, so goods prices was very high similar to the results found in others population (Barnes, D. F., & Floor, W. M. 1996). In this study, it was observed that purchasing power of higher educated people decreased during COVID-19 pandemic. Even before the pandemic, higher education faced growing scrutiny about its role in contributing to severe societal equity gaps that afflict black and Latino Americans, as well as Native Americans and other historically underserved groups(Mayo, S. K., Malpezzi, S., & Gross, D. J. 1986). The most rural subjective economic depends agriculture and animal based heavily affected farms are those that are dependent on seasonal/migrant labour or sales, notably fruit and vegetable production, horticulture and

garden nurseries; those which have diversified into out of the home goods and services, selling direct to the public visitor attractions, farm shops); and those reliant upon non-farm household income sources affected by COVID-19. In several European countries, the situation is complicated by the high proportion of seasonal and migrant farm workers who are undeclared and work in the grey and black economy (Samers, M. 2004). This study observation most of joint family members were family income were decreased so they enable to purchase good and others materials. As the lockdown and COVID-19 pandemic affect production, goods price increased but their income was limited purchase power was decreased similar results were found in this study businesses and sectors are being impacted in several ways. Demand and supply side effects have significant knock-on impacts on all sectors, with a decline in any one firm's turnover having reverberations for linked and allied businesses and their associated households. On the demand side, we can roughly divide effects into: goods and services consumed in the home (meals cooked at home, television subscription packages, domestic heating, etc.), goods and services consumed out of the home (cafés, restaurants, hotels and hospitality, bars, leisure centres, gyms, soft plays, museums, countryside attractions, public transport, educational facilities, theatres and arts venues, etc.), and goods and services traded between businesses. The immediate economic impact during the disease diffusion phase will be greatest for those firms (and their supply chains) unable to provide their produce or services to personal or business consumers other than within their own business premises (Samers, 2004).

Strengths: The strength of this research is that it is the first study to analyze the socio economic impact of COVID-19 among the general people in Rajshahi district Bangladesh. The standardized questionnaire format was carefully developed to ascertain accurate information from the subjects. The interviewers were trained up, and the fieldworks was monitored during the survey by the principal authors of this study. The data contained a low proportion of missing information. The study can be generalized to other areas in Bangladesh because similar characteristics exist all over the country. This study also identified some factors regarding socio economic impact of COVID-19 pandemic through some sophisticated statistical tools and techniques.

Limitations: This study had some limitations. The sample size was small and not nationally representative. For the study design (cross sectional study), we could not look into any change in the people's socio-economic impact of COVID-19 measures. We did not consider all the

components of socio-economic impact analysis in COVID-19 pandemic. Further studies are needed.

Conclusions: This study revealed that a very few number of subjects had been able to increase purchasing power during pandemic period in Bangladesh. The government of Bangladesh, health policy makers and donor agencies should consider the findings and take immediate steps for improving purchasing power. The government of Bangladesh, labor, commerce, food ministry, policy makers and donor agencies should consider these findings while promulgating and implementing principles and guidelines for control and prevention of COVID-19 in Bangladesh and take necessary steps for improving purchasing power of the people.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

MMK designed the study. MMR collected data and conducted the data analysis, and wrote the manuscript. FBM and MK made critical revisions of the manuscript. All authors read and approved the final version of the manuscript.

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