Financial Hardship and Consumption Expenditure among Urban Slum-Dwellers During the COVID-19 Pandemic in Dhaka, Bangladesh: A Cross-Sectional Study

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Abstract

This study aimed to determine the financial hardship among the urban slum dwellers in Dhaka, Bangladesh. Financial hardship is the main obstacle to ensuring socio-economic quality of life. A total of 408 slum dwellers were selected using a multi-stage sampling technique from three big slum areas of Dhaka from March to April 2022. The results of the study revealed that there was a significant relationship between the objectives of this study during COVID-19. We found a significant relationship between financial hardship and monthly income during a pandemic and a change in consumption expenditure pattern and monthly income during a pandemic, which are both statistically highly significant. Moreover, we also found that the significant relationships between financial hardship and loss of work or job during a pandemic as a dummy and change in consumption expenditure pattern and loss of work or job during a pandemic as a dummy, which are both statistically significant. The model explains 37.31 percent of the variability in financial hardship, according to the R2 value is 37.31 percent and Adj-R2 value is 36.21 percent.

KeyWords: Slum-Dweller, COVID-19, Cross-section data, financial hardship, Bangladesh

JEL Classification: R10, R51, N95

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1. Introduction

1.1 Background of the Study

A novel coronavirus disease 2019 (COVID-19) was originally found and a reported outbreak began in December 2019 in Wuhan, China. As a pandemic, it expanded swiftly around the world in early March 2020, and the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-COV-2) virus's new format spread globally (WHO, 2021). The situation is worse in the global south, particularly in Bangladesh, where the average population density is 7.5 times that of China, where COVID-19 originated and expanded rapidly in late 2019 (Hossain et al., 2021). The administration allowed the lockdown to cease implicitly and then formally, despite an increasing COVID-19 burden. Bangladesh demonstrated an inability to maintain the lockdown required to limit the epidemic in this densely populated, low-income nation. Chronically unable has to enforce its power over local political elites, the state failed to ensure that aid was distributed fairly and quickly (Ali et al., 2021). Lockdowns and social distances were attempted to halt the spread of the disease but were either not maintained or were less successful than predicted. People need to trade and talk to each other to stay alive, but if safety precautions aren't taken, these things could put the lives of others in danger.

Urban informal settlements are increasing urban poverty during the COVID-19 epidemic. In Dhaka city, most of the impoverished migrate inside. Migrants are obliged to live in informal urban neighborhoods, and they don't get decent jobs. The living circumstances and health status of slum dwellers were one of the major challenges during the COVID-19 pandemic in slums throughout the world (Friesen & Pelz, 2020). Meanwhile, poverty in income and criminality in urban slums during the pandemic phase are important issues (Ahmed & Johnson, 2014). The income of slum residents is not secure and remained below poverty level during the COVID-19 outbreak (Friesen & Pelz, 2020). Bangladesh, however, has a record of poverty reduction halving in the last two decades. The country is quickly urbanizing due to remarkable growth, and immigration to urban areas has given rise to many slums and squatter settlements. In these settlements, the poverty rate is three times the average in Bangladesh (World Bank, 2019).

The COVID-19 epidemic has refocused attention on informal settlements and the planning and policy deficiencies that occur. The consequences for slum people's lives and livelihoods must serve as a lesson for future urban planning and development attempts (Patel & Shah, 2020). In COVID-19, around 80% of respondents reported a decrease in income, and a quarter reported losing their employment between March and June 2020. If the pandemic persists for an extended period, people living on low wages in urban areas will face food insecurity as a result of reduced income or job loss (Mandal et al., 2021). In reaction to the COVID-19 situation, India imposed one of the tightest lockdowns in the world. In locations surrounding Delhi, the lockdown had varying effects on employment by gender. According to estimates based on random-effects logistic regression models, the estimated likelihood of employment decreased from 0.88 to 0.57 for men and from 0.34 to 0.22

for women. Women lost more jobs than men. Their chances of getting a job dropped by 72%, while men's chances dropped by 40% (Desai et al., 2021).

COVID-19 has a plethora of consequences for individuals and the multi-sectoral economy. All sectors, including education and individuals/households, are negatively impacted, with the exception of the environment (Pan & Yue, 2021). Moreover, students' formal education and job-seeking unemployed people in diverse urban contexts in Bangladesh are affected by COVID-19 (Jones et al., 2021). In the COVID-19 pandemic, human stress elements such as financial difficulties, daily expenditure reductions, and the food crisis are all interrelated and lead to stress (Amit et al., 2021). Globally, the COVID-19 epidemic has exacerbated people's mental health and behavioral attitudes. Many countries, including Bangladesh, have found that the psychological toll of COVID-19 has led to a lot of suicides (Amit et al., 2021).

Most of the studies (Hossain et al., 2021; Friesen & Pelz, 2020; Ahmed & Johnson, 2014; Jones et al., 2021; and Amit et al., 2021) concentrate on determinants of financial hardship affecting slum dwellers in COVID-19 in Dhaka. Millions of impoverished people are unable to work as the epidemic threatens to overwhelm Bangladesh. This pandemic is likely to have a negative impact on many people's food and nutritional security in underdeveloped and developing countries, including Bangladesh (UN-Habitat & WFP, 2020; and Mandal et al., 2021). People who live in cities and are poor have lost their jobs, which has put them in deep poverty and kept them from getting food and basic health care (Banik et al., 2020).

1.2 Objectives of the Study

The current study discovered that financial hardship has an effect on a respondent's socioeconomic parameters such as the household's size, monthly income during COVID, changes in consumption expenditure, household member's sick with pandemics, loss of work or job during a pandemic, household member's education affected due to COVID, and access to health service during COVID. This project aims to investigate the significant drivers of financial hardship among slum residents in COVID-19 as well as monthly income during a pandemic, where loss of work or job during a pandemic is very high. With increasing urbanization, slum dwellings of all ages in Dhaka city are experiencing increasing financial hardship and a change in consumption expenditure pattern during COVID-19.

The objectives of the research are to:

(i) To identify the determinants of financial hardship among the urban slum dwellers during COVID-19 in Dhaka, Bangladesh?

(ii) To estimate the relationship between slum dwellers' financial hardship and consumption expenditure depending on monthly income and loss of work or job during pandemic time.

2. Literature Review

The definition of a slum is subjective and is based on various estimates of the slum population; the government of Bangladesh uses a contextual definition, while the international development community has two universal definitions (Patel et al., 2019). The floating population in Dhaka city is contingent upon coping and adaptive mechanisms based on socio-economic factors and mental fortitude. While their way of life is socially sustainable to a certain extent, their livelihood pattern is economically, politically, and ecologically unsustainable (Afrin & Islam, 2021).

Slum communities have attracted great attention due to their vulnerability to COVID-19 proliferation. To lessen economic suffering associated with containment measures and to reduce transmission risks, public health professionals across the cities of the Global South (Auerbach & Thachil, 2021). The Dharavi sector of Mumbai, India, is one of Asia's largest slums and one of the world's most densely populated places. The Dharavi community plays a critical role in containing the outbreak by implementing a 4-T approach of tracing, tracking, testing, and treating (Kaushal & Mahajan, 2021). COVID-19, which is still active, has infected millions of individuals worldwide. Millions of people in Indonesia are being forced into poverty during COVID-19, including 19.7 million new people who will fall into poverty, significantly reversing Indonesia's progress toward poverty alleviation (Suryahadi et al., 2020). With the exception of a few selected suburban slums, Nigeria's COVID-19 lockdown and physical distance programs overlooked the unique and deplorable conditions of the urban poor. Iwuoha and Aniche (2020) found that lockdown and physical isolation techniques have made the situation of Nigeria's very poor slum dwellers even worse.

The analysis of the reconfiguration and regeneration of numerous disparities in homes and labor markets during the COVID-19 pandemic used a feminist political economics approach focusing on social reproduction. It is critical to examine socioeconomic relationships among diverse components of the local and global economies (Stevano et al., 2021). The COVID-19 pandemic has resulted in large death tolls, harmed people's health, disrupted markets and livelihoods, and had deep repercussions at home. In COVID-19, men had a greater overall infection rate and a higher fatality rate than women. However, women's comparatively high participation in industries most affected by lockdown orders has resulted in women experiencing greater job losses than males in a number of countries. Stay-at-home orders have resulted in a rise in unpaid care burdens, which disproportionately affect women (Kabeer et al., 2021). Investigating the socioeconomic repercussions of the COVID-19 epidemic threatens to undermine gender equality in paid and unpaid labour. Women undertake a disproportionate percentage of the unpaid care and homework required during lockdowns, and they lose their jobs at a faster rate than men. Additionally, deteriorating mental health appears to be a crucial issue disproportionately affecting women (Seck et al., 2021).

Socioeconomic vulnerability indices have a considerable effect on the amount of the force of infection in a variety of directions. Socioeconomic vulnerabilities also have a minor spatial spillover effect on neighboring subpopulations during the COVID-19 pandemic (Pekerti, 2021). Not only has the COVID-19 pandemic wreaked havoc on India's public health system, but it has also thrown the country into a grave socioeconomic crisis. The pandemic's prevalence in cities has undoubtedly exacerbated chronic anguish among the urban poor who live in slums. To investigate the physical, social, and economic variables that contribute to the slum dwellers' sensitivity to COVID-19 (Ghosh et al., 2020).

Poverty has boosted the expansion of the urban population and there are considerable disparities between rural and urban poverty indices in Bangladesh, whereas the rural poor still want the fundamental necessities (Chowdhury & Mukhopadhaya, 2016). The major risk factors contributing to the COVID-19 pandemic outbreak rates have generated precarious employment, poverty, inadequate healthcare challenges, and socio-economic crisis in Bangladesh (Islam et al., 2020, and Rahman et al., 2021). Social inequality is well recognized as a risk factor for COVID-19 infection, prompting the most susceptible people to take precautionary measures. The COVID-19 infection was definitely identified as a concern by homeless people, although the experience of the homeless grouped it with numerous others. The general population's lockdown had a significant influence on the survival systems of populations living in the most remote areas, with frightening numbers of people without access to water or food. 77% of homeless individuals indicated serious financial challenges (Allaria et al., 2021).

The household livelihood security (HLS) indicators in two urban slum settlements in Bangladesh include economic, food, health, education, and empowerment. Obviously, the HLS domains are obviously interconnected (Akter & Rahman, 2017). Slums indicate that unhealthy housing and sanitation, lack of pure drinking water, education opportunities, and medical facilities hamper the quality of life (Stiglitz et al., 2009; McNamara et al., 2016, and Khan et al., 2021). Urban slum dwellers are the most vulnerable group of food-insecure households in Dhaka city (Bhattacharjee & Sassi, 2021). The determinants of the food calorie gap represent the three pillars of food security (food availability, access, and utilization). According to UN-Habitat (2018), slum dwellers are deprived of the social and economic benefits of urbanisation, which is hindering Sustainable Development Goals (SDG)-11.

The research reveals a series of critical factors for designing and implementing mobilisation operations in impoverished urban settlements in COVID-19. In Bangladesh, we understand urban planning and land ownership of slum dwellers in an informal, formal, and legal way (Suykens, 2017). Urban infrastructure is a plan to convert informal shelters into formal shelters for slum dwellers in Dhaka, Bangladesh (Birtchnell et al., 2019). The high density of living quarters, the enormous number of people per dwelling, and the absence of sufficient sanitation are all reasons why work in slums is limited. Data on slum dwellers and their health status is either lacking or

limited to specific regions. We propose that one of the most significant challenges in addressing the COVID-19 pandemic in the context of slum life is the dearth of data on population size, living conditions, and health status (Friesen & Pelz, 2020).

The study begins with a review of the research on financial hardship among urban poor people in Dhaka, Bangladesh, during COVID-19, with a particular emphasis on the obstacles posed by socioeconomic determinants in such circumstances: financial hardship during pandemic; monthly income during COVID; change in consumption expenditure pattern; household size; household members sick with pandemic symptoms; loss of work and job during pandemic; household member's education affected due to COVID; and access to health services during COVID.

3. Materials and Methods

3.1 Study Participants

The purpose of the study is to examine the financial hardship among the urban slum dwellers of Bangladesh. Identification of slums by their socioeconomic characteristics can only be made available from primary sources. To depict the urban scenario of the country, the primary data has been collected from the capital of Bangladesh, Dhaka, which is the second fastest growing megacity in the world (United Nations, 2012). The population of Dhaka increases by half a million each year, a rate that would result in a population of almost 24.33 million by 2025 (UN-Habitat 2016). According to the Slum Census Report-2014, slums house 28.89 percent of Dhaka City Corporation's total population, with 22.29 percent in Dhaka North City Corporation (DNCC) and 6.60 percent in Dhaka South City Corporation (DSCC). There are 1,644 slums with 135,340 households and a population of 499,011 under Dhaka North City Corporation (DNCC) and 1,755 slums with 40,591 households and a population of 147,056 in Dhaka South City Corporation (DSCC). Of the 3,399 slums in Dhaka city, 237 are big slums (100 or more households).

3.2 Data Collection Procedures

For this study, three big slum areas (Rail Line slums from TT para to Malibag from DSCC; Korail slum and Begunbari slum from DNCC) were selected purposefully, as big slums reflect the scenarios better and are convenient for the field workers (travel time, security, etc.) to collect data. The sample households were selected randomly, and a sample size of 408 has been determined. Both qualitative and quantitative data were collected using a structured questionnaire from the household heads, or in the absence of a head, the second-significant member of the family was interviewed. The interviews were taken in March and April 2022.

3.3 Statistical Analysis

The model expresses a qualitative endogenous variable as a function of several exogenous variables, both qualitative and quantitative (Gujarati et al., 2009). A linear regression model can be used to determine the causes of financial hardship among the slum dwellers in Dhaka, Bangladesh. Statistical analysis was carried out using the Minitab package (version 17). The percentage and

cumulative percentage of slum characteristics were calculated whenever applicable. The direction and the strength of the relationship between the explanatory variables and endogenous variables are determined by the sign of the coefficient and the significance of *t-statistic*. The expected sign of explanatory variable coefficients is positive or negative, respectively. The error term is assumed to be random and serially independent, having a zero mean with finite variance. To verify the validity of the model, the a–priori expectation criterion is used, which is based on the signs and magnitudes of the coefficients of the variables under investigation. Chi-squared was used to explore the bivariate correlation between the relationship between slum dwellers' financial hardship and consumption expenditure, which depends on monthly income and loss of work or job during pandemic time. A p-value of less than 0.05 indicates that the results are statistically significant at the 5% level of significance.

4. Results and Discussions

4.1 Classification and Measurement

The current study investigated the financial hardship for consumption expenditure of urban slum dwellers in Bangladesh during the pandemic. The factors influencing the quality of life of urban slum dwellers that experienced financial hardship due to the COVID-19 pandemic are shown in Table 1. The participants were considered slums by their characteristics, and the primary data was collected from the capital of Bangladesh, Dhaka.

Table 1. Determinants of Financial Hardship among the Urban Slum Dwellers

Characteristics	Category	Frequency (n)	Percent (%)	Cumulative percentage
Financial hardship during pandemic	Increased	143	35.05	35.05
	Remaining the same	108	26.47	61.52
	Decreased	157	38.48	100.00
Monthly income during COVID	Less than Tk.5,000	117	28.68	28.68
	Tk. 5,001 – Tk. 10,000	115	28.19	56.86
	Tk. 10,001 – Tk. 15,000	104	25.49	82.35
	Tk. 15,001 – Tk. 20,000	72	17.65	100.00
Change in consumption expenditure pattern	Very slow	10	2.45	2.45
	Slow	108	26.47	28.92
	Fast	161	39.46	68.38
	Very fast	129	31.62	100.00
Households size	less than 3	112	27.45	27.45
	4-6 members	89	21.81	49.26
	7 & above	207	50.74	100.00
HH members sick with pandemic symptoms	None	200	49.02	49.02
	1 – 2 times a year	195	47.79	96.81
	More than 3 times a year	13	3.19	100.00
Loss of work/job during pandemic	No	249	61.03	61.03
	Yes	159	38.97	100.00
HH members education affected due to COVID	No	244	59.80	59.80
	Yes	164	40.20	100.00
Access to health service during COVID	No	276	67.65	67.65
	Yes	132	32.35	100.00

Total number of respondents, N=408

To better understand whether the world is on track to eliminate extreme poverty and how specific countries are faring, it is necessary to assess progress on a regular basis. In 2020, the COVID-19 pandemic stopped worldwide poverty reduction progress for the first time in a generation. Bangladesh's governments and their development partners collaborate to alleviate poverty. Although it is commonly viewed as a lack of material resources, poverty is closely linked to all aspects of a person's life; the world's poor are more likely to be malnourished, have less access to services such as education, electricity, sanitation, and healthcare, and are more susceptible to conflict and climate change. Understanding poverty is so essential for comprehending how civilizations might advance.

According to the World Bank, to aggregate and compare poverty rates across nations, poverty levels that represent each nation's actual standard of living are utilized. The extreme poverty line of $1.90 per day, which matches the value of national poverty lines in several of the world's poorest nations, is frequently referred to as the extreme poverty line. Since 2017, the World Bank has also

tracked poverty at $3.20 per day, which is the typical poverty line for lower-middle-income countries, and $5.50 per day, which is the typical poverty line for upper-middle-income countries. Major occupations of household heads among slum dwellers are *Riksha* Puller, maid or home servant, garment worker, day laborer, *hawker,* and small businessman, which account for most of the employment and only a few are service holders. The study examined 35.05% of slum dwellers' feelings that financial hardship increased during pandemic time, 26.47% seemed to remain the same, and 38.48% seemed to decrease. Moreover, during COVID, 28.68% of slum dwellers' monthly income was less than TK.5, 000 (or $1.90) per day; 28.19% of slum dwellers' monthly income was from TK.5,001 to TK.10,000 (or from $1.91 to $3.20) per day; 25.49% of slum dwellers' monthly income was from TK.10,001 to TK.15,000 (or from $3.20 to $5.50) per day; and 17.65% of TK. 15,001 and above (or $5.50 and above) per day. Because slum dwellers are mostly employed in informal and trivial jobs, their employment and income are irregular. The current study also investigates the causes of irregular employment and the frequency of work or job changes.

Migrant households are living in slums, and their consumption patterns, food expenditure and non-food expenditure, vary frequently due to financial hardship. Regarding consumption patterns, 2.45% of slum dwellers felt that the change in consumption expenditure pattern was very slow; 26.47% seemed that slow; 39.46% seemed that fast; and 31.62% seemed that very fast. Population density is very high in our country. People feel financial hardship due to slow economic activity during COVID-19. A large number of households had a miserable life during the pandemic. Another characteristic of the household is its size. Evidence from that table shows that 27.45% of slum dweller households' size is below 3 or 3 below members. Among the slum dwellers, 21.81% of families are ideal-size families, with 4-6 members. This scenario is better than the national average household size of 5.19 people in 2000 and 4.53 people in 2010 (BBS, 2000, 2015). Most of the slum (50.74%) families are big families with 7 members or more members. In terms of 49.02% of slum household members being sick with pandemic symptoms; 47.79% of slum household members being sick once or twice a year; and 3.19% of slum household members being sick more than 3 times a year. The result of having a big family is that more people in the family work, which gives them empowerment and brings in more money for the family.

During the COVID-19 pandemic, some people lost their jobs or works because of the lockdown of the country. During those times, not only industrial activities but also all types of business activities gradually slowed, with some even coming to a halt for a few days. On those days, 38.97% of slum workers had no work, and 61.03% of slum workers had work. During the pandemic, education suffers greatly. All levels of education, including primary, were stopped due to the fast spread of COVID. In particular, slum children were especially affected, and some were not interested in attending school because of financial hardship. From this study, I found that 40.20% of slum household members feel that their education is affected due to COVID, and 59.80% of slum household members feel that their education is affected but they try to recover. Though health care service providers are available in the vicinity of most slums in Dhaka city, the majority of slum

dwellers have limited access to health care services. There are mainly four types of health care service providers in urban areas in Bangladesh: public hospitals, community clinics, private hospitals, private practitioners, and local quacks (or *Kabiraj*). Importantly, most of the families had priority for health service demand during pandemic time. In response to a question regarding the health services slum dwellers receive, it is found that 67.65% of slum household members feel that they had no access to health services during COVID, but 32.35% of slum household members say that they had access to health services.

4.2 Regression Analysis

In Bangladesh, a linear regression model was adopted to ascertain the major determinants that influenced the quality of life of urban slum dwellers. The effect of a household's size, monthly income during COVID, change in consumption expenditure, households' members sick with pandemics, loss of work or job during a pandemic, households' members' education affected due to COVID, and access to health services during COVID does have a significant impact on the financial hardship of slum dwellers during the COVID-19 pandemic. From statistical analysis, it was found that 95 percent of confidence intervals of all variables' p-values are statistically significant.

Table 2. Regression Analysis: Factors Influenced Financial Hardship of Urban Slum Dwellers

Variables	**Coefficients**	**SE Coef**	**95% CI**	**T-Value**	**P-Value**
Constant	3.35	0.17	(3.008, 3.692)	19.24	0.00
Households size	-0.12	0.04	(-0.1966, -0.0396)	-2.96	0.00
Monthly income during COVID	-0.07	0.03	(-0.1375, -0.0062)	-2.15	0.03
Change in consumption expenditure	-0.38	0.03	(-0.4332, -0.3201)	-13.10	0.00
HH members sick with pandemics	0.12	0.06	(0.0016, 0.2420)	1.94	0.05
Loss of work/job during pandemic	0.18	0.07	(0.0463, 0.3210)	2.63	0.00
HH members education affected due to COVID	0.14	0.07	(0.0022, 0.2809)	2.00	0.04
Access to health service during COVID	0.16	0.07	(0.0125, 0.3035)	2.13	0.03

In an under-developed country, poor people wish to have more children due to financial dependency. They think that increasing family size means they are financially solvent. All other things being equal, decreasing the household's size by an extra member leads to an expected increase in financial hardship of slum dwellers of 12 percent during pandemic time, which (t-value is 2.96, $p < 0.01$) is statistically highly significant.

Most importantly, during COVID-19, a decrease in monthly income of less than TK. 5,000 results in an expected increase in financial hardship of slum dwellers of 7% during pandemic time

(t-value is 2.15, $p < 0.05$). The study found that the change in consumption expenditure pattern in a pandemic time is different from the change in consumption expenditure pattern in other times. Consider that changes in consumption expenditure patterns can be very slow, slow, fast, and very fast. During the pandemic, the slow decrease in consumption expenditure pattern leads to an expected 38 percent increase in the financial hardship of slum dwellers, which (t-value is 13.10, $p < 0.01$) is statistically highly significant (t-value is 13.10, $p < 0.01$). On the contrary, increasing households' members' sick with pandemics by an extra member leads to an expected increase in financial hardship of slum dwellers of 12 percent during pandemic time, which (t-value is 1.94, $p < 0.10$) is statistically significant.

As the dummy variable shows, during the COVID-19 pandemic, some people lost their jobs or works because of the lockdown of the country. The coefficient of job loss during a pandemic is 18%, indicating that job loss during a pandemic is likely to cause financial hardship. Here 18 percent more than without pandemic time, which (t-value is 2.63, $p < 0.01$) is statistically highly significant. Moreover, the coefficient of households' members' education affected due to COVID is 14 percent, suggesting that education affected by COVID-19 is expected to cause financial hardship. Where14 percent more than without COVID-19, which (t-value is 2.00, $p < 0.05$) is statistically moderate significant. Furthermore, the coefficient of access to health service during COVID-19 is 16 percent suggesting that access to health service during COVID is expected to financial hardship 16 percent more than without pandemic time, which (t-value is 2.13, $p < 0.05$) is statistically moderate significant.

This regression analysis suggests that slum dwellers feel financial hardship during COVID-19. The R2 value is 37.31 percent and the Adj-R2 value is 36.21 percent, which indicates that the model explains 37.31 percent of the variability in financial hardship. This value makes goodness of fit in models with a dichotomous regressand seem more important than it is.

4.3 Chi-Square Test

Table 3 illustrates the comparison of slum dwellers that had different monthly incomes during the pandemic. In this study based on BBS (2015), participants by chi-square test had different types of monthly income of less than TK.5, 000; from TK.5, 001 to TK.10, 000; from TK.10, 001 to TK.15, 000; and TK.15, 001 and above.

Table 3. The Relationship between Financial Hardship and Consumption Expenditure with Monthly Income During Pandemic

Variables	**Monthly income during COVID**				χ^2 **value (p-value*)**
	Less than Tk.5,000; n (%)	Tk. 5,001 – 10,000; n (%)	Tk. 10,001 – 15,000; n (%)	Tk. 15,001 – 20,000; n (%)	
Financial hardship during pandemic (n=408)					Pearson: 42.79 (0.00)
Increased	36(31.3)	53(50.9)	18(15.4)	36(50.0)	
Remaining the same	30(26.1)	16(15.5)	46(39.3)	16(22.2)	LR: 44.89 (0.00)
Decreased	49(42.6)	35(33.6)	53(45.3)	20(27.8)	
Change in consumption expenditure pattern (n=408)					Pearson: 46.75 (0.00)
Very fast	2(1.70)	5(4.80)	2(1.70)	1(1.40)	
Fast	30(26.2)	16(15.4)	46(39.3)	16(22.2)	
Slow	51(44.3)	35(33.6)	54(46.2)	21(29.2)	LR: 48.67 (0.00)
Very slow	32(27.8)	48(46.2)	15(12.8)	34(47.2)	

*p-value 0.01 <1% is considered highly significant; 0.05 <5% is moderate significant; and 0.10<10% is low significant.

The present study showed that there was a significant difference between the objectives of this study regarding financial hardship during a pandemic and the change in consumption expenditure pattern. In this regard, financial hardship increased 31 percent among those earning less than TK. 5000, remained constant at 26 percent, and decreased 43 percent. Whose income range is Tk. 5,001 –10,000 financial hardship increased 51 percent, remaining same 15 percent, and decreased 34 percent. Whose income range is Tk. 10,001 –15,000 financial hardship increased 16 percent, remaining same 39 percent, and decreased 45 percent. Whose income range is Tk. 15,001 –20,000 financial hardship increased 50 percent, remaining same 22 percent, and decreased 28 percent. There was a significant association between financial hardship and monthly income during the pandemic, as the Pearson chi-square statistics was 42.79 (p-value < 0.01), and the Likelihood ratio (LR) statistics is 44.89 (p-value < 0.01), which is both statistically highly significant.

In addition, there was a significant association between changes in consumption expenditure pattern and monthly income during the pandemic. In this regard, for those whose income is less than TK. 5000, the change in consumption expenditure pattern is very fast at 2 percent, fast at 26 percent, slow at 44 percent, and very slow at 28 percent. Whose income ranges from Tk. 5,001 to Tk. 10,000 changes in consumption expenditure pattern very fast at 5 percent, fast at 15 percent, slow at 34 percent, and very slow at 46 percent. Whose income ranges from Tk. 10,001 to Tk. 15,000 changes in consumption expenditure pattern very fast at 2 percent, fast at 39 percent, slow at 46 percent, and very slow at 13 percent. Whose income ranges from Tk. 15,001 to Tk. 20,000 changes in consumption expenditure pattern very fast at 1 percent, fast at 22 percent, slow at 30 percent, and very slow at 47 percent. There was significant association between change in consumption expenditure pattern with monthly income during pandemic, as the Pearson chi-square

statistics is 46.75 (p-value < 0.01), and Likelihood ratio (LR) statistics is 48.67 (p-value < 0.01), which is both statistically highly significant.

Table 4. The Relationship between Financial Hardship and Consumption Expenditure with the Loss of Work or Job During a Pandemic

Variables	**Loss of work/job during pandemic**		χ^2 **value**
	No; n (%)	Yes; n (%)	**(p-value*)**
Financial hardship during pandemic (n=408)			Pearson: 11.23 (0.08)
Increased	89(35.7)	54(33.9)	
Remaining the same	72(28.9)	36(22.7)	LR: 13.06 (0.04)
Decreased	88(35.4)	69(43.4)	
Change in consumption expenditure pattern (n=408)			Pearson: 7.84 (0.06)
Very fast	9(3.70)	1(0.70)	
Fast	72(28.9)	36(22.6)	LR: 6.99 (0.07)
Slow	92(36.9)	69(43.4)	
Very slow	76(30.5)	53(33.3)	

*p-value 0.01 <1% is considered highly significant; 0.05 <5% is moderate significant; and 0.10<10% is low significant.

Table 4 illustrates the comparison of slum dwellers that lost their jobs or jobs during the pandemic in study participants by chi-square test between those who lost their work or jobs during the pandemic and those who did not lose their work or jobs during the pandemic. According to Pearson, chi-square tests perform goodness-of-fit tests (Gujarati et al., 2009). The goodness-of-fit evaluation for binary specifications according to loss of work or job during a pandemic is shown in Table 4.

This table showed that there was a significant difference between the objectives of this study regarding financial hardship and loss of work or job during a pandemic. In this regard, among those who did not lose their job or work during the pandemic, financial hardship increased by 36 percent, remained the same at 29 percent, and decreased by 35 percent. On the other hand, those who lost their jobs or were laid off during the pandemic's financial hardship increased by 34 percent, remained the same at 23 percent, and decreased by 43 percent. There was a significant association between financial hardship and loss of work or job during the pandemic, as the Pearson chi-square statistics was 11.23 (p-value < 0.10), which is statistically low significant, but the Likelihood ratio (LR) statistics was 13.06 (p-value < 0.05), which is statistically moderately significant.

In addition, there were no losses of work or jobs during the pandemic, and the consumption expenditure pattern was very fast at 4 percent, fast at 29 percent, slow at 37 percent, and very slow at 30 percent. On the contrary, who's losses of work or job during pandemic changes in consumption expenditure pattern is very fast at 1 percent, fast at 23 percent, slow at 43 percent, and very slow at 33 percent. There was a significant association between the change in consumption expenditure pattern and the loss of work or job during the pandemic, as the Pearson chi-square statistics is 7.84 (p-value < 0.10), and the Likelihood ratio (LR) statistics was 6.99 (p-value < 0.10), which is both statistically significant.

5. Concluding Remarks

The majority of urban slum dwellers' financial hardship depends on not only their monthly income during a pandemic but also on other factors. This study aimed to determine the financial hardship among the urban slum dwellers in Dhaka, Bangladesh. With increasing urbanization, slum dwellings in Dhaka city are experiencing increasing financial hardship and monthly income, and a change in consumption expenditure pattern with monthly income during a pandemic, where loss of work or job during a pandemic is very high. Slum people are highly deprived of basic education and access to health services during COVID. During a pandemic, sick household members have a negative impact on their ability to work or find work. A total of 408 slum dwellers were selected using a multi-stage sampling technique from three big slum areas (Rail Line slums from TT para to Malibag from DSCC; Korail slum and Begunbari slum from DNCC) from March to April 2022. Statistical analysis was performed by Minitab, version 17. We found significant relationship between financial hardship and monthly income during pandemic (χ^2 =42.79, $p < 0.01$; and LR=44.89, $p < 0.01$), and change in consumption expenditure pattern with monthly income during pandemic (χ^2 =46.75, $p < 0.01$; and LR=48.67, $p < 0.01$), which is both statistically highly significant. In addition, we also found significant relationship between financial hardship with loss of work or job during pandemic (χ^2 =11.23, $p < 0.10$; and LR=13.06, $p < 0.05$), and change in consumption expenditure pattern with loss of work or job during pandemic (χ^2 =7.84, $p < 0.10$; and LR=6.99, $p < 0.10$), as the Pearson chi-square statistics is 7.84 (p-value < 0.10), and Likelihood ratio (LR) statistics is 6.99 (p-value < 0.10), which is both statistically low significant. This regression analysis suggests that slum dwellers feel that financial hardship during the COVID-19. With an R2 value is 37.31 percent and Adj-R2 value is 36.21 percent, indicate that the model explains 37.31percent of the variability in financial hardship. Government should be taken to combat the miserable situation and take an initiative to support the social safety net that influences socio-economic life. Moreover, sustainable quality of life will contribute to the growth of gross domestic product (GDP).

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