Research article

Crisis perception and consumption pattern during COVID-19: do demographic factors make differences?

Shahedul Hasan [a,b,*], Md. Amanul Islam [c,d], Md. Bodrud-Doza [e]

[a] Department of Marketing, University of Dhaka, Dhaka, Bangladesh
[b] School of Entrepreneurship Development, Dhaka, Bangladesh
[c] Department of Peace and Conflict Studies, University of Dhaka, Dhaka, Bangladesh
[d] 60 Decibles, Inc., USA
[e] Climate Change Programme (CCP), BRAC, Dhaka, 1212, Bangladesh

A B S T R A C T

Background: Consumption patterns of people around the world have been tremendously affected due to the COVID-19 outbreak since December 2019. Previous studies validated the influence of both internal and external factors on consumer behaviour. However, due to the lack of empirical research, this study explored the influence of external factor such as COVID-19 on consumer purchase behaviour, economic and financial situation. In addition, the study investigated how crisis perception and consumption pattern vary due to demographic variables.

Methods: A convenience sampling technique was used and a total of 340 responses were collected from three countries, e.g., Bangladesh (n = 129), India (n = 122), and Pakistan (n = 89) using a structured questionnaire. The respondents rated the items, collected from relevant past studies, on a 5 point Likert scale ranging from highly disagree to highly agree.

Results: Exploratory factor analysis summarized all the measurement items into seven main factors from which two factors were removed due to low reliability. Except for the individual's financial situation, the overall mean values of the remaining factors were above 3.50 indicating a higher level of crisis perception and greater change in consumption patterns. Multivariate analysis of variance indicated that the factor scores were significantly different across countries, gender, education and income groups. In addition, Indian consumers were highly concerned and affected by COVID-19 followed by Pakistani and Bangladeshi consumers. In only one factor (e.g., an individual's financial situation), country and age had a significant interaction effect. Finally, the factors had significant difference among three categories of consumers (e.g., low, medium and high crisis perception). It indicates that consumers with higher crisis perception reported more behavioural changes due to COVID-19.

Conclusions: Therefore, more COVID-19 crisis perception leads to significant changes in consumption pattern and the financial situation of the consumers. This study will enable academicians, marketers and decision-makers to understand different facets of consumer behaviour in three contagious countries namely Bangladesh, India and Pakistan in South Asia.

1. Introduction

The world has come to a halt due to the crisis of coronavirus diseases-2019 (COVID-19). Started in December 2019 from Wuhan city of China, the pandemic has taken the world by storm (Fernandes, 2020). By April 2020, more than 0.5 million people were affected by COVID-19 and the rate is still ongoing (World Health Organization, 2020).

The perceived risk due to the crisis has the potential to affect individuals' behaviour during a pandemic is also apparent (Wise et al., 2020). The majority of citizens make intuitive risk judgments, typically called "risk perceptions", to assess the impact of any given risk (Slovic, 1987). Previously, the study of risk perception has been one of the methods by which people's opinions regarding hazardous activities, substances and technologies was examined (Slovic, 1987). According to Slovic (2000), people's feelings and cognitions about risk can be

* Corresponding author.
  E-mail address: shahedulhasan13@gmail.com (S. Hasan).

meticulously measured and can often be cogently predicted. In the context of COVID-19 induced health emergency, a very recent study investigated the public perception of health risk in Italy (Motta Zanin et al., 2020). According to Motta Zanin et al. (2020), initiatives of governments like lockdown and quarantine in response to the public health emergency may heavily intrude on the individual choices, daily habits and behaviours of citizens. COVID-19 has brought changes in consumers' behavioural patterns regarding consumption across the world (Fernandes, 2020). It has already caused changes to consumer behaviour and introduced long-lasting effects as well (Yendamuri et al., 2020). According to a survey by Global Web Index in the US and UK, 8 in 10 consumers have changed their behaviours because of the virus (Mander, 2020). Changes in people's lifestyles, buying behaviour and supply chain system of businesses result in new events, e.g., retailers are closing their doors, consumers are looking at products and brands through a new lens (Mander, 2020). Given the social distancing in new normal condition, consumer habits are getting used to the new environment and circumstances (Tam, 2020). Previously, Booth and Shepherd (1988) mentioned that factors such as culture and economy, consumer's personality, attitudes, values and emotions affected consumer's decision-making process. Vertinsky and Wehrung (1990; as cited in Krewski et al., 1995) argue that public perception of risk can influence public policy, market processes and individual behaviour. Steenkamp (1997) further added that biological, psychological, socio-demographical factors also affected consumer's buying decision (Steenkamp, 1997).

Consumer's choice behaviour can be described as deriving from utility maximization subject to a budget constraint (Varian, 1983). Consumer behaviour depends on both economic constraint and opportunity. Increases in the cost often influence the purchasing decision regarding the quality and quantity of food (Theodoridou et al., 2017). The consumer is the most elemental basis for any business organization, hence, their core behaviour is also of great importance and significance for a successful marketing experience and financial affluence (Mansoor and Jalal, 2011). According to Ahorsu et al. (2020), one unique feature of pandemic viral infections is the growing fear among the population. However, Motta Zanin et al. (2020) highlighted that the main feelings due to COVID-19 induced health emergency among the Italians were uncertainty and not fear (Motta Zanin et al., 2020). Chen et al. (2020; as cited in Ahorsu et al., 2020) argue that the huge uncertainty directly hurts consumers' willingness to consume when they feel unsafe and anxious, even with no imminent threat of economic security.

Studies on consumer behaviour in the context of economic crisis have concentrated in developed and developing countries. One-third of the worlds poor living in South Asia along with the highest population density has a mere 16% of the world's income per capita (Nayyar, 2020). According to a recent poll, 72% of the people said that their lives had been disrupted in some way by the coronavirus (Karson, 2020). It is affecting daily routines such as cancelling dinner, postponing vacation, or cancelling religious service. However, these findings are not the reports of holistic research in this study context. Instead, they present anecdotal evidence, such as the impact of the previous crisis on consumer behaviour in a particular country. Wen et al. (2005), analyzed the impacts of SARS on the consumer behaviour of Chinese tourists focusing on the sensitivity of consumers towards crises in making decisions concerning leisure travel. The survey indicates that SARS has greatly affected people's lives, work and travelling during the SARS period while the impacts on people's inclination to travel, the preference of leisure trips and concern of public hygiene vary. Generally speaking, the impacts of SARS are of a nature of paroxysm and time, and the decrease of travel and tourism was caused by a combination of internal motivation as well as external compulsory measures and travel bans (Wen et al., 2005). Voinea and Filip (2011) studied consumer behaviour in the context of global economic crisis, which turned out to be a financial crisis by showing that the recession has led the consumers to look for new landmarks and they became more economical, responsible and demanding (Voinea and Filip, 2011). Similarly, Tsourgiannis et al. (2014) sought to identify the factors

that affect consumers' purchasing behaviour towards food produced domestically in Greece during the economic crisis in 2008. Mansoor and Jalal (2011) studied the impact of the global business crisis on Bahraini consumers, investigating their perception of this problem and whether their consumption behaviour has been changed as a result of the crisis.

Studies on consumer behaviour in the context of COVID 19 mostly pertain to reports and newspapers. Besides, studies focusing on COVID-19 contexts are few. A recent study focused on how household spending is changed in an epidemic with the direct effect of COVID-19 in the context of the United States (Baker et al., 2020). Recently, Wise et al. (2020) studied changes in risk perception and protective behaviour due to the COVID-19 pandemic in the US context examining if individuals' perception of risk can predict the extent of protective behaviours. Similarly, social and cultural influences on behaviour, science communication, moral decision-making, leadership, and stress and coping in the setting of COVID 19 have been studied from a social and behavioural science perspective (Van Bavel et al., 2020). Most importantly, though there are several studies (Berry and Hasty, 1982; Kumar, 2014; Pratap, 2017; Sheth, 1977) regarding the influence of demographic factors on consumer behaviour, none of the studies are recent enough to relate to the pandemic setting.

In a world of economies connected by cross-border flows of goods, services, people, and financial capital, panic has distorted usual consumption patterns as well as the market system (Fernandes, 2020). Recent research has predicted some shifts in consumer behaviour since the pandemic is likely to be long-lasting (Arnold, 2020). The impacts of COVID-19 on consumer behaviour, in particular, have been little attended to and elaborated by scholars and practitioners (Fernandes, 2020; Baldwin and di Mauro, 2020). No empirical research has been found on changes in cross country consumption pattern due to COVID-19 crises perception.

Based on an empirical study and data analysis, this research aims at finding out if there are many faces of consumer behaviour given the impacts of COVID-19 on household consumption pattern and financial situation. Particularly, this study focused on a comparative analysis among three countries (e.g., Bangladesh, India and Pakistan) related to consumer's attitudes and behaviour in the purchasing of products and services during a pandemic.

The central research questions this study asks are as follows:

- What are consumers' subjective perceptions regarding crisis?
- Do consumption patterns during COVID-19 differ based on the extent of the perception among people in different countries?
- If consumption pattern differs, do demographic factors make any sense at all?

The result of this research can help decision-makers, marketer and managers to understand different facets of consumer behaviour in three contagious countries namely Bangladesh, India and Pakistan in South Asia.

2. Methods

2.1. Study measures

Relevant previous studies (Jasiulewicz, 2012; Wen et al., 2005) had been used to identify the measurement items of COVID-19 crisis perception, economic crisis perception, consumption and financial situation of consumers. To meet the aim of this study (i.e., relating crisis perception and consumption pattern with demographic factors during COVID-19), the online survey questionnaire was developed so that web-based self-completion can be performed by participants. The questionnaire consisted of two main parts. The first parts involved different demographic information of the respondents including country, gender, age, education, occupation, and income. The remaining part included the measurement items related to the study variables. The respondents rated the measurements items on a 5 point Likert scale ranging from highly disagree to highly agree.
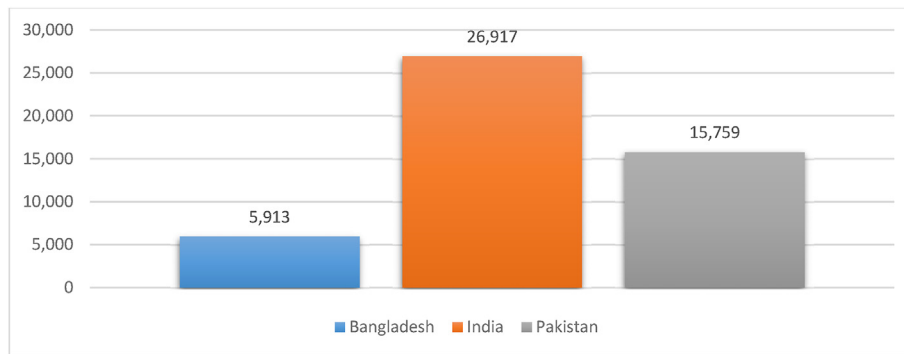
Figure 1. COVID-19 confirmed cases by the end of April 2020 (WHO, 2020).

2.2. Study area

To focus on consumer concern and explore behavioural changes as a consequence of COVID-19 pandemic, this study selectively limits the study sample to three neighbouring countries namely; Bangladesh, India and Pakistan. The mentioned countries not only share some extent of socio-cultural and religious interconnections, but also each of the three country competes with each other in the international market, geo-politics, production and trade. The three countries were one for more than a century and share a heritage of similar institutions, economies, peoples and even statistical systems (Papanek et al., 1991). Given the historical and political precolonial interconnection among these three neighbouring countries, it is evident that consumers' consumption decision among these countries is based on income ratio. It is found that consumers of these developing countries, like most of the SAARC countries, are unable to anticipate their future income in short term and seek to anticipate their future income in long term and make consumption decisions based on permanent income (Khan et al., 2015). During the pre-COVID-19 decades, India's economy has performed better than both Bangladesh and Pakistan. Pakistan was surpassed by Bangladesh in economic growth in 2006. Surprisingly, according to the latest update, India's per capita income has fallen below the per capita income of Bangladesh in COVID-19 year. This study also prioritized these three neighbouring countries because their cases have been growing steadily. The following chart shows the COVID-19 confirmed cases by the end of April 2020 as of April 27 (Bangladesh), April 26 (India), April 30 (Pakistan) (see Figure 1).

2.3. Participant and procedure

A convenience sampling technique under non-probability sampling has been utilized in this study due to cost and time consideration. It is argued that good estimates of population characteristics may also be produced by non-probability sampling (Malhotra, 2010). Again, this study also prioritized these three neighbouring countries because their cases has been growing steadily in the region. The sample size was determined based on the guidelines of Hair et al. (2019) which is 200 and larger when the number of variables and the expected number of factors increases. Due to this COVID-19 pandemic, it was not possible to reach the respondents in person. So, an online survey had been run during the month of April, May and June 2020. The data were collected through a structured questionnaire constructed in google form. To limit the entry of non-sample participant, an introductory paragraph briefing the objective of the study and ethical issues of participating was attached to the beginning of the survey form. Finally, the survey questionnaire was shared with different Facebook groups as well as sent to potential participants through Facebook messenger, which was also applied in the past study (Hossain et al., 2020). A total of 340 responses were collected from three countries, e.g., Bangladesh (n = 129), India (n = 122), and Pakistan (n = 89). A flowchart describing the research methodology is presented in Figure 2.

2.4. Ethics

The study was accomplished by maintaining the ethical concerns of the research. This study was approved by the School of Entrepreneurship Development, Dhaka. While participants were being recruited, all the participants were apprised of the objective of the study. Prior to the collection of data, informed consent was taken from the participants with ensuring anonymity and confidentiality of data. The participants did not have any financial outcome by participating in the study.

2.5. Data analysis

Data collected through questionnaire were analyzed using the SPSS software tool version 21. Frequency distribution and percentile measures were used primarily for sample distribution. The measure of central tendency and dispersion statistics are two commonly used statistics for raw data explanation (Sheats and Pankratz, 2002). Moreover, the reliability of the scale items was established through the score of Cronbach's alpha coefficients. Data analyses specifically included demographic profiling of the respondents, coding the measurement variables used in this study, descriptive statistics and exploratory factor analysis. In
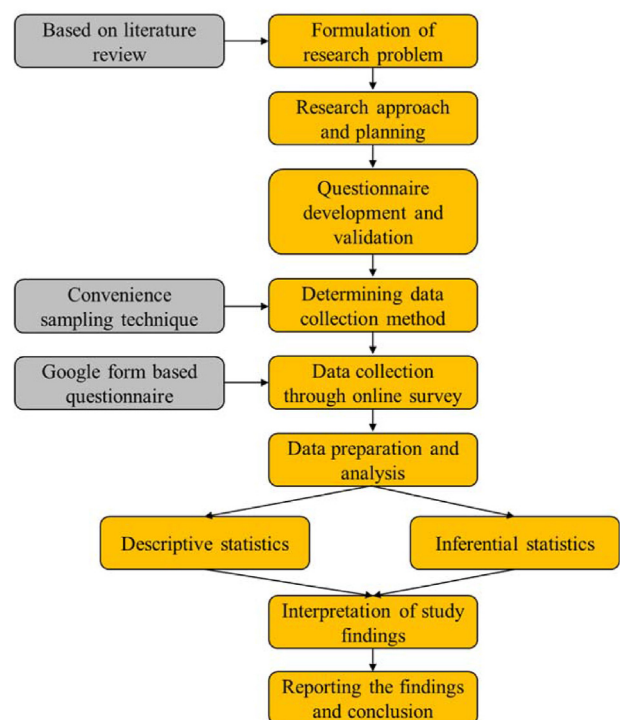

Figure 2. Research methodology flowchart.

addition, multivariate analysis of variance (MANOVA) was performed for measuring the variation of COVID-19 effects across different demographic factors.

3. Results and discussion

3.1. Respondents' profile

As illustrated in Table 1, the highest number of participants were from Bangladesh (37.9%) followed by India (35.9%) and Pakistan (26.2%). 36.5% of the participants were female and 63.5% of the participants were male. The frequency of age groups indicated that maximum respondents (60.6%) belonged to the age group between 21 and 30. The rest of the participants belonged to the age group of 31–40 (28.2%) followed by 41–50 (5.9%), below 20 (4.1%) and above 50 years (1.2%). The largest number of participants (57.6%) had an education background of post-graduate and above. The remaining participants were graduate (23.2%) followed by undergraduate (18.5%) and school goers (0.6%). Most of the participants were students (46.8%) followed by professionals (31.2%). Other participants were unemployed (10.3%), govt. official (9.7%) and entrepreneur (2.1%). Besides, the majority of the respondents had income below $400 (42.4%) followed by $401-$600 (23.2%). The rest of them had an income range of above $1000 (13.5%), $601-$800 (12.6%) and $801-$1000 (8.2%). These results are in line with Kushwaha and Agrawal (2015) where maximum Indian consumers had an income range between Rs 21000 and 30000 (282$ to 403$). Ashraf (2019) also found that 40% of respondents in Bangladesh had an income between 40,001 and 60,000 (472$ to 708$).

3.2. Exploratory factor analysis (EFA)

Exploratory factor analysis or EFA primarily aims to describe the underlying structure, pattern or relationship among a set of variables and summarize these large number of variables into a smaller set of factors or components (Hair et al., 2019).

EFA had been used in this study to identify the key factors associated with the items measuring COVID-19 crisis perception, economic crisis perception, household consumption and financial situation. Table 2 showed the outcome of factor analysis which had been conducted with the principal component method and promax rotation.

3.2.1. Common method bias (CMB) test

According to Bagozzi and Yi (1988), the bias in the dataset induced by something outside of the measurements but which may affect the response is termed as common method bias. To illustrate, a single data collection method (e.g., online survey) in survey research may generate systematic response bias inflating or deflating the responses (Akter, 2015; Dupuis et al., 2017). To determine any presence of CMB, this study used Harman's single factor test due to its simplicity and straightforward nature (Malhotra, 2010). Harman's single factor test assesses whether one single factor explains the majority of the variance. CMB will be an issue if the variance explained by a single factor exceeds 50% (Ouellette and Wood, 1998; Dupuis et al., 2017). The results showed that total variance was explained by a single factor was that 24.997% which was well below the recommended threshold and thus, CMB was not a major issue in this research.

3.2.2. Testing appropriateness of EFA

There should be sufficient correlations among the measurement items in order to proceed with EFA. Bartlett test of sphericity is a measure used to test the presence of inter items' correlations. In the current study, the significance of Bartlett's test of sphericity was less than 0.000 ($p < 0.001$) indicating rejection of the null hypothesis that the items are not correlated. In addition, the measure of sampling adequacy (MSA), ranging from 0 to 1, is used to enumerate correlations among the variables and appositeness of EFA (Hair et al., 2019). The general guidelines for MSA involve 0.80 or above, meritorious; 0.70 or above, middling; 0.60 or above, mediocre; 0.50 or above, miserable; and below 0.50, unacceptable (Hair et al., 2019). The study found a Kaiser-Meyer-Olkin measure of sampling adequacy value of 0.846 which is meritorious in this case. The communalities value ranging from 0.40 to 0.70 is acceptable for a sample size of at least 200 (Hair et al., 2019). In this study, all the items had commonalities above 0.40 and thus, acceptable. An eigenvalue greater than 1 has been suggested to determine the number of factors (Hair et al., 2019), hence, seven main factors were detected and the total variance explained was 59.206%. The factors identified by EFA were labelled as individual's financial situation, entertainment and outdoor expense, business and additional expense, economy, expensive consumption, crisis perception and service expense. Except for crisis perception, all the measurement items related to the factors were adopted from Jasiulewicz (2012). The COVID-19 crisis perception items and labelling were adopted and adjusted from Wen et al. (2005).

3.2.3. Reliability analysis

Cronbach's alpha value is widely used for the reliability assessment of each factor or construct (George, 2011). The greater value of Cronbach's alpha ensures the internal continuity of the constructs (Nunnally, 1978). The Cronbach's alpha value should be 0.60 or above for higher reliability

Table 1. Demographic characteristics of the respondents.

Category	Frequency (n)	Percent (%)
Country		
Bangladesh	129	37.9
India	122	35.9
Pakistan	89	26.2
Total	340	100.0
Gender		
Female	124	36.5
Male	216	63.5
Total	340	100.0
Age		
Below 20	14	4.1
21–30	206	60.6
31–40	96	28.2
41–50	20	5.9
Above 50	4	1.2
Total	340	100.0
Education		
School level	2	.6
Undergraduate	63	18.5
Graduate	79	23.2
Post-graduate and above	196	57.6
Total	340	100.0
Occupation		
Student	159	46.8
Entrepreneur	7	2.1
Govt. official	33	9.7
Professional	106	31.2
Unemployed	35	10.3
Total	340	100.0
Income		
Below $400	144	42.4
$401-$600	79	23.2
$601-$800	43	12.6
$801-$1000	28	8.2
Above $1000	46	13.5
Total	340	100.0

(Hair et al., 2019). However, factor 5 (i.e., impact on expensive consumption) and 7 (i.e., impact on service expense) showed very low Cronbach's alpha values of 0.39 and 0.34, respectively. Therefore, these two factors were discarded and the remaining five factors deemed reliable for further analyses.

3.3. Descriptive statistics

Table 3 illustrated minimum, maximum, mean and standard deviation of the factors that were extracted from EFA. Before determining the descriptive statistics of the factors, a composite mean score was calculated using all the items in a particular factor. Central tendency statistics and dispersion statistics are two commonly used statistics for raw data explanation. Methods of central tendency include as mean, median, and mode of the data and range, variance, and standard deviation are used to measure dispersion. Mean or average value, a measure of central tendency, is popularly used to indicate the centre of distribution and the standard deviation is used to see how the data have deviated from the mean (Malhotra, 2010).

The results indicated that COVID-19 crisis perception had the highest mean value (M = 4.45) followed by entertainment and outdoor expense (M = 4.21), business and the additional expense (M = 3.91), economy (M = 3.89) and individual's financial situation (M = 2.74).

3.4. Multivariate analysis of variance (MANOVA)

Multivariate analysis of variance (MANOVA) is defined as a dependence technique used to assess group differences for two or more continuous dependent variables simultaneously based on a set of categorical independent variables (Hair et al., 2019). MANOVA plays role in non-experimental designs such as survey research with the definition of proper categorical groups (e.g., gender) and assessment of statistical difference on any number of metric variables (Hair et al., 2019). Analysis of variance (ANOVA) and t-test can be used to assess differences among groups in only one variable. However, as this study contains multiple variables (5 valid factors), analysis of variance (ANOVA) and t-test cannot be applied. Thus, MANOVA suits this study properly.

In this study, the metric dependent variables were the five factors identified in EFA and the categorical independent variables were the demographic factors, e.g., country, gender, age, education, occupation and income.

3.4.1. MANOVA across country

First of all, MANOVA was used to assess the mean difference of five factors among the three countries, e.g., Bangladesh, India and Pakistan. The test of homoscedasticity assumption using Levene's test and Box's M test for equality of the covariance matrices showed a non-significant result which indicated that the homoscedasticity assumption was met. The four most commonly used multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root) indicated that the factors had a highly significant difference (0.000) among the three countries. As shown in Table 4, tests of between-subjects effects showed that the three countries had significant differences in two factors, e.g., entertainment and outdoor expense, individual's financial situation. However, the three countries did not have significant differences in the remaining three factors.

Boxplot is used to graphically display a metric variable's distribution for different categories or groups of a categorical variable (Hair et al., 2019). In this study, factor scores were metric variables and country with three categories (e.g., Bangladesh, Pakistan and India) was a categorical

Table 2. Results of exploratory factor analysis.

Factors	Measurement Items	Factors						
		1	2	3	4	5	6	7
Impact on individual's financial situation	I used all of my savings	.809						
	I sell my valuable material resources	0.77						
	I need to take the loan/credit from friends/banks	0.76						
	I ask my family, relatives, friends for help	0.66						
	I ask for help to social institutions	0.63						
Impact on entertainment and outdoor expense	Limiting meals outside the home		0.79					
	Reducing expenditure on entertainment (cinema, theatre, etc.)		0.79					
	Cancelling holiday trips		0.78					
	Reducing expenditure on the barber, beautician, gym		0.59					
	I drastically reduce my expenditures		0.59					
Impact on business and additional expense	Resigning additional medical insurance/paid medical care			0.77				
	Reducing paid extracurricular activities for small children			0.77				
	The loan and credit application refusals by banks			0.64				
	Limiting paid services in house and surroundings (repair services, flat cleaning, garden care, etc.).			0.61				
	Less profit for entrepreneurs/businesses			0.55				
	Dismissal and unemployment increase			0.42				
Impact on economy	A decline in the value of money (inflation)				0.83			
	Higher prices on the market				0.79			
	Property value decline (stock exchange shares, savings, real estate, etc.)				0.66			
Impact on expensive consumption	Choosing public transport instead of private transport (car, bike etc.)					0.65		
	Purchasing cheaper foods/Choosing cheaper offer					0.60		
	Reducing expensive durable goods purchases					0.44		
COVID-19 crisis perception	I am aware of global COVID-19 crisis						0.83	
	COVID-19 has greatly affected my work and life.						0.67	
Impact on service expense	Reducing consumption of electricity, gas and water							0.84
	Resigning loan/credit taking							0.36
	Eigen value	22.77	12.60	6.45	4.72	4.49	4.18	3.99
	Cronbach alpha's	0.82	0.76	0.76	0.73	0.39	0.57	0.34

Table 3. Descriptive statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
1. COVID-19 crisis perception	340	1.00	5.00	4.4500	.79387
2. Impact on economy	340	1.00	5.00	3.8931	.86105
3. Impact on business and additional expense	340	1.00	5.00	3.9132	.73410
4. Impact on entertainment and outdoor expense	340	1.00	5.00	4.2088	.78784
5. Impact on individual's financial situation	340	1.00	5.00	2.7353	1.11151

variable. As illustrated in Figure 3, the mean values showed that COVID-19 highly affected the entertainment and outdoor expense of Indian consumers (M = 4.3180) followed by Pakistan (M = 4.2966) and Bangladesh (M = 4.0450).

In addition, Figure 4 showed that COVID-19 highly affected the individual's financial situation of Indian consumers (M = 3.0213) followed by Bangladesh (M = 2.7581) and Pakistan (M = 2.3101).

3.4.2. MANOVA across country and gender

MANOVA was used to assess the mean difference of five factors between male and female. The multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root) indicated that the factors had a highly significant difference among three countries and gender (male and female). There was no significant interaction between country and gender. It indicates that differences among the three countries did not differ or interact based on gender (e.g., male or female). In other words, the difference in factor scores among countries was not significantly moderated by gender. This result is supported by the study of Mobley and Kilbourne (2013) who found that there was no significant interaction between gender and country regarding environmental intentions.

As shown in Table 5, tests of between-subjects effects showed that the three countries had significant differences in two factors as before, e.g., entertainment and outdoor expense, individual's financial situation. In addition, an individual's financial situation significantly varied between male and female.

3.4.3. MANOVA across country and age

MANOVA was used to assess the mean difference of five factors among age groups. Due to low participants, the age groups 'below 20' and 'above 50' were discarded before analysis. The multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root) indicated that the factors had a highly significant difference among the three countries. In addition, there was no significant difference across age. As shown in Table 6, tests of between-subjects effects showed that the three countries had significant differences in two factors, e.g., impact on entertainment and outdoor expense and individual's financial situation. The interaction was significant for one factor, e.g., the individual's financial situation. It indicates that differences among the three countries differ or interact based on age groups. In other words, the variation of the individual's financial situation among the three countries is different across different age groups. The result is consistent with Sierminska and Takhtamanova (2012).

3.4.4. MANOVA across country and education

MANOVA was used to assess the mean difference of five factors among education groups. Due to low participants, the education group 'school level' was discarded before analysis. The multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root) indicated that the factors had a highly significant difference among the three countries. In addition, there was no significant difference across education and no interaction between country and education. It indicates that differences between the three countries did not differ or interact based on education groups. In other words, the difference in factor scores among countries was not significantly moderated by education. As shown in Table 7, tests of between-subjects effects showed that the three countries had significant differences in one factor, e.g., the individual's financial situation. In addition, the impact on entertainment and outdoor expense significantly varied across different education groups.

3.4.5. MANOVA across country and occupation

MANOVA was used to assess the mean difference of five factors among occupation groups. Due to low participants, the occupation group 'entrepreneur' was discarded before analysis. The multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root) indicated that the factors had a highly significant difference among the three countries. In addition, there was no significant difference across occupation and no significant interaction between country and occupation. It indicates that differences among the three countries did not differ or interact based on occupation. In other words, the difference in factor scores among countries was not significantly moderated by occupation. However, only Roy's Largest Root showed that the interaction was significant. As shown in Table 8, tests of between-subjects effects showed that the three countries had significant differences in one factor, e.g., impact on individual's financial situation.
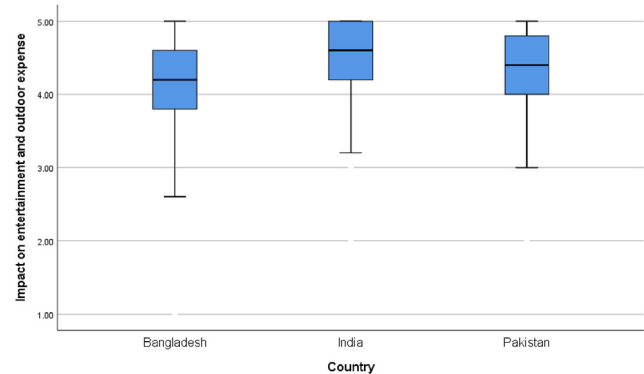
Figure 3. Impact on entertainment and outdoor expense across countries.

Table 4. Tests of between-subjects effects.

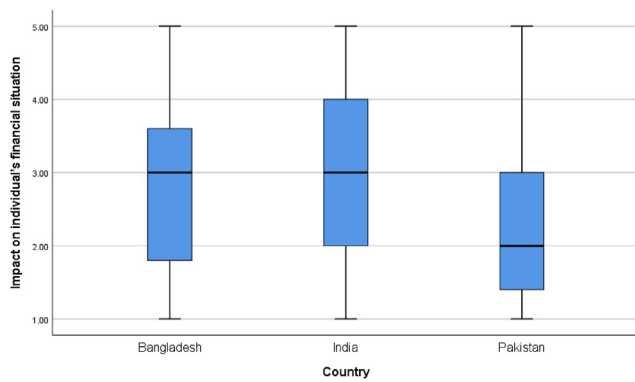| Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Country	COVID-19 crisis perception	.969	2	.484	.767	.465
	Impact on economy	1.434	2	.717	.967	.381
	Impact on business and additional expense	.446	2	.223	.413	.662
	Impact on entertainment and outdoor expense	5.605	2	2.802	4.611	.011
	Impact on individual's financial situation	26.137	2	13.069	11.215	.000

Figure 4. Impact on individual's financial situation across countries.

3.4.6. MANOVA across country and income

MANOVA was used to assess the mean difference of five factors among income groups. The multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root) indicated that the factors had a highly significant difference among the three countries. There was no significant difference across income and no significant interaction between country and income. It indicates that differences

among the three countries did not differ or interact based on income groups. In other words, the difference in factor scores among countries was not significantly moderated by income. However, only Roy's Largest Root showed that the interaction was significant. As shown in Table 9, tests of between-subjects effects showed that the three countries had significant differences in one factor, e.g., impact on individual's financial situation. In addition, the impact on an individual's financial situation was significantly different across income groups.

3.4.7. MANOVA across COVID-19 perception

The responses of COVID-19 perception were categorized into three groups, e.g., low, medium and high. MANOVA was performed to compare across these three groups regarding the four factors, e.g., impact on the economy, impact on business and additional expense, impact on entertainment and outdoor expense and impact on individual's financial situation. The multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root) indicated that the factors had a highly significant difference among the three categories. As shown in Table 10, tests of between-subjects effects showed that three categories had significant differences in three factors, e.g., impact on the economy, impact on business and additional expense, impact on entertainment and outdoor expense at $p < 0.05$ level. In addition, the impact on an individual's financial situation also significantly varied across three categories at $p < 0.10$ level.

Table 5. Tests of between-subjects effects.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Country	COVID-19 crisis perception	.753	2	.377	.594	.553
	Impact on economy	1.167	2	.584	.782	.458
	Impact on business and additional expense	.540	2	.270	.497	.609
	Impact on entertainment and outdoor expense	3.787	2	1.894	3.098	.046
	Impact on individual's financial situation	27.427	2	13.713	12.085	.000
Gender	COVID-19 crisis perception	.000	1	.000	.001	.980
	Impact on economy	.002	1	.002	.003	.958
	Impact on business and additional expense	.490	1	.490	.902	.343
	Impact on entertainment and outdoor expense	.171	1	.171	.280	.597
	Impact on individual's financial situation	11.861	1	11.861	10.453	.001
Country * Gender	COVID-19 crisis perception	.768	2	.384	.605	.547
	Impact on economy	.527	2	.263	.353	.703
	Impact on business and additional expense	.511	2	.256	.471	.625
	Impact on entertainment and outdoor expense	.442	2	.221	.362	.697
	Impact on individual's financial situation	1.119	2	.560	.493	.611

Table 6. Tests of between-subjects effects.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Country	COVID-19 crisis perception	.070	2	.035	.061	.941
	Impact on economy	1.590	2	.795	1.106	.332
	Impact on business and additional expense	.953	2	.476	.915	.402
	Impact on entertainment and outdoor expense	5.217	2	2.609	4.303	.014
	Impact on individual's financial situation	21.019	2	10.509	9.193	.000
Age	COVID-19 crisis perception	.155	2	.077	.135	.874
	Impact on economy	.942	2	.471	.655	.520
	Impact on business and additional expense	.239	2	.119	.229	.795
	Impact on entertainment and outdoor expense	1.067	2	.534	.880	.416
	Impact on individual's financial situation	1.135	2	.567	.496	.609
Country * Age	COVID-19 crisis perception	.455	4	.114	.199	.939
	Impact on economy	1.498	4	.375	.521	.720
	Impact on business and additional expense	2.414	4	.604	1.159	.329
	Impact on entertainment and outdoor expense	2.467	4	.617	1.017	.398
	Impact on individual's financial situation	13.050	4	3.262	2.854	.024

Table 7. Tests of between-subjects effects.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Country	COVID-19 crisis perception	1.946	2	.973	1.565	.211
	Impact on economy	1.316	2	.658	.890	.412
	Impact on business and additional expense	.137	2	.068	.130	.878
	Impact on entertainment and outdoor expense	2.021	2	1.010	1.748	.176
	Impact on individual's financial situation	14.692	2	7.346	6.230	.002
Education	COVID-19 crisis perception	.784	2	.392	.631	.533
	Impact on economy	1.352	2	.676	.915	.402
	Impact on business and additional expense	1.068	2	.534	1.012	.365
	Impact on entertainment and outdoor expense	4.175	2	2.087	3.611	.028
	Impact on individual's financial situation	1.826	2	.913	.774	.462
Country * Education	COVID-19 crisis perception	.775	4	.194	.312	.870
	Impact on economy	1.867	4	.467	.631	.640
	Impact on business and additional expense	1.100	4	.275	.521	.720
	Impact on entertainment and outdoor expense	2.642	4	.661	1.143	.336
	Impact on individual's financial situation	3.560	4	.890	.755	.555

As illustrated in Figure 5, the mean values showed that those who had low perception on COVID-19 thought that economy, business and additional expense, entertainment and outdoor expense, individual's financial situation are affected less than those who had medium and high perception on COVID-19.

Although coronavirus cases have not been increased rapidly, the economy is suffering mostly among the countries of South Asia (Fliegauf and Ayres, 2020). Consumer behaviour is also rapidly changing and adapting as the world system adjusts to a new normal with social distancing, working from home and meeting virtually (www.ET-BrandEquity.com, 2020a, b). The primary objective of the study was to identify consumers' perception of crisis and changes in consumption patterns and financial situation. When the feeling of insecurity and anxiety grows, uncertainty hurts consumers' attitudes of consuming (Chen et al., 2020). Therefore, this study assumed to have different levels of crisis effects across consumers based on the extent of perceptions. It's important to consider the different demographic factors like country, gender, age, education, occupation and income. This research also investigated the differences in crisis effects across consumers with different crisis perceptions, e.g., low, medium and high.

To accomplish the study, first of all, exploratory factor analysis (EFA) was performed in order to summarize the measurement items related to this research. A total of seven main factors were identified from which two factors (e.g., impact on expensive consumption and impact on service expense) were discarded due to low reliability values. The overall

mean values of the remaining five factors, e.g., COVID-19 crisis perception, impact on the economy, impact on business and additional expense, impact on entertainment and outdoor expense and impact on individual's financial situation showed that, except individual's financial situation, all mean values were above 3.50. It indicated that people of these three countries had a high level of COVID-19 crisis perception and their consumption patterns had been changed due to the pandemic situation. During the economic crisis in Poland, Jasiulewicz (2012) investigated that majority of the consumer were aware of the crisis. In addition, due to the crisis, the consumers reduced their consumption level (e.g., consumption of expensive items, pleasures etc.) and their household consumption, financial situations were affected by that economic crisis.

Multivariate analysis of variance (MANOVA) was utilized to compare factor means across different demographic factors (e.g., country, gender, age, education, occupation and income). The results indicated that three countries (e.g., Bangladesh, India and Pakistan) had significant differences in two factors, e.g., entertainment and outdoor expense, individual's financial situation. The COVID-19 pandemic is influencing the way people consume media and entertainment (www.ET-BrandEquity.com, 2020a, b). Therefore, the countries that invest more in the entertainment industry have proportionate effects of the pandemic. According to a recent source, the events and entertainment industry in India that employs 60 million people has come to a standstill following the national lockdown (www.ETBrandEquity.com, 2020a, b). In Asia and Europe, COVID-19 has caused significant disruptions on overall expenses

Table 8. Tests of between-subjects effects.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Country	COVID-19 crisis perception	1.550	2	.775	1.269	.282
	Impact on economy	1.894	2	.947	1.309	.272
	Impact on business and additional expense	1.036	2	.518	.995	.371
	Impact on entertainment and outdoor expense	2.810	2	1.405	2.476	.086
	Impact on individual's financial situation	16.050	2	8.025	6.920	.001
Occupation	COVID-19 crisis perception	2.881	3	.960	1.573	.196
	Impact on economy	1.987	3	.662	.916	.434
	Impact on business and additional expense	.872	3	.291	.558	.643
	Impact on entertainment and outdoor expense	4.077	3	1.359	2.394	.068
	Impact on individual's financial situation	1.921	3	.640	.552	.647
Country * Occupation	COVID-19 crisis perception	6.255	6	1.042	1.708	.119
	Impact on economy	6.456	6	1.076	1.487	.182
	Impact on business and additional expense	3.515	6	.586	1.125	.347
	Impact on entertainment and outdoor expense	3.216	6	.536	.944	.463
	Impact on individual's financial situation	7.270	6	1.212	1.045	.396

Table 9. Tests of between-subjects effects.

| Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Country	COVID-19 crisis perception	.765	2	.383	.596	.552
	Impact on economy	.652	2	.326	.438	.646
	Impact on business and additional expense	.132	2	.066	.120	.887
	Impact on entertainment and outdoor expense	2.216	2	1.108	1.837	.161
	Impact on individual's financial situation	11.856	2	5.928	5.342	.005
Income	COVID-19 crisis perception	2.849	4	.712	1.110	.352
	Impact on economy	3.976	4	.994	1.336	.256
	Impact on business and additional expense	1.726	4	.432	.782	.538
	Impact on entertainment and outdoor expense	3.264	4	.816	1.353	.250
	Impact on individual's financial situation	15.301	4	3.825	3.447	.009
Country * Income	COVID-19 crisis perception	1.157	8	.145	.225	.986
	Impact on economy	4.560	8	.570	.766	.633
	Impact on business and additional expense	1.178	8	.147	.267	.976
	Impact on entertainment and outdoor expense	5.846	8	.731	1.211	.291
	Impact on individual's financial situation	10.423	8	1.303	1.174	.314

Table 10. Tests of between-subjects effects.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
COVID-19 perception	Impact on economy	31.863	2	15.932	24.463	.000
	Impact on business and additional expense	18.822	2	9.411	19.354	.000
	Impact on entertainment and outdoor expense	12.649	2	6.325	10.778	.000
	Impact on individual's financial situation	6.357	2	3.179	2.597	.076

percentage declining to about 7% by March 2020 (Kogan, 2020). It is plausible to argue from this study that the three countries did not have significant differences in the remaining three factors (e.g., COVID-19 crisis perception, impact on the economy, impact on business and additional expense), perhaps because of their socio-cultural, political and economic homogeneity. Pennings et al. (2002) also found a significant difference among consumer from three countries (e.g., United States, Germany and the Netherlands) regarding consumers' risk attitudes, perceptions and reactions. Decision-makers need to be conscious of these cross-cultural differences in order to explore how consumers' reactions to crisis vary across countries.

However, the findings reveal that, overall, Indian consumers were more highly concerned and affected by COVID-19 compared to people from two other counties such as Pakistan and Bangladesh. According to the CFR update of 30 April 2020, "Indian citizens largely took the stay-at-home orders seriously" (Fliegauf and Ayres, 2020). Only the individual's financial situation significantly differed across gender and income groups. Interestingly, the gender disparity in COVID-19 cases (79 percent in Pakistan, and 68 percent in Bangladesh) across the region is also evident (Fliegauf and Ayres, 2020). In addition, only entertainment and outdoor expense significantly varied across different education groups. Nevertheless, consumers' consumption and the financial situation did not differ across age, education, occupation and income in all other factors. This was evident from the findings that, in only one factor (e.g., an individual's financial situation), country and age had an interaction effect. There was no interaction effect between country and gender, country and age, country and education, country and occupation, country and income in all factors.

According to Amalia and Ionut (2011), correlations can be found among the perception of the risks, the risk-generating situation aversion and the change of consumers' behaviour in nowadays economic crisis. As consumer behaviour depends on risk perception of any given environment, this study assumed that, on the basis of the extent of crisis or risk perception, consumer behaviour can be categorized and predicted. With this hypothesis, MANOVA was performed to compare means of four

factors (e.g., impact on the economy, impact on business and additional expense, impact on entertainment and outdoor expense and impact on individual's financial situation) across three groups (e.g., low, medium and high crisis perception). The results indicated that the factors had a highly significant difference between the three categories. In addition, the mean values are higher for those who perceived the COVID-19 crisis highly compared to those who perceived the COVID-19 crisis by a medium or low level. Therefore, more COVID-19 crisis perception leads to significant changes in consumption pattern and the financial situation of the consumers. The findings from this study are comparable with the past studies related to various past crises and consumer behaviour. Voinea and Filip (2011) found that recession leads to a strong economic and social impact on consumers by changing new consumer buying behaviour. Mansoor and Jalal (2011) identified changing trends in consumer behaviour due to the global business crisis. These changes include reallocation of luxury and necessary consumptions, the decline in savings, a tendency to pay less for higher-priced products or to substitute products with other products.
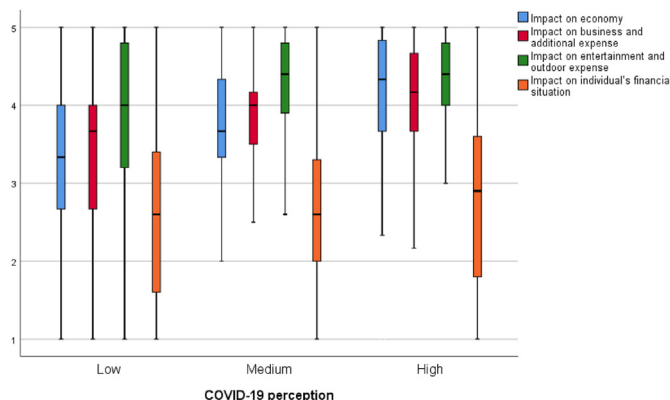
Figure 5. Factor means across perception categories.

3.5. Study limitations

This study has the limitation of convenience sampling and subjective selection of the samples due to the pandemic. Due to the pandemic situation, the data were collected only through the online platform (i.e., Facebook) and thereby, the respondents who were not available at Facebook remained excluded from the study. Moreover, the study only focused on subjective answers of participants with their subjective perceptions and awareness. Another major limitation of the study was the sample size of 340 from three countries, e.g., Bangladesh (n = 129), India (n = 122), and Pakistan (n = 89). The sample size was comparatively low and non-homogeneous as the online survey was the sole option during the spread of COVID-19. Despite the limitations, this study provided important insights into consumer behaviours which are important for international business and economy.

4. Conclusions

Consumers in South Asia, particularly in Bangladesh, India and Pakistan have many cross-matching prospects as these three neighbouring countries are not only historically interconnected but also more integrated into the context of cross border business and culturally influenced in the era of media and globalization. Consumer's attitudes, behaviours, perceptions depend on a myriad of factors like socio-cultural, economic and political, regional and geo-specific issues. Amid crisis, most importantly, consumer behaviour depends on the extent of perceptions of crisis by the consumer rather than any other issues. According to the findings of the study, on the basis of demographic factors, crisis perceptions may be varied and consumer behaviour also changes accordingly. Older people estimate the risk of COVID-19 less significantly than younger people and men are less concerned about COVID-19 than women (Gerhold, 2020). According to the findings of this study, amid COVID-19, people of these three countries have had a variance in the level of COVID-19 crisis perception and accordingly their consumption patterns had been changed due to the perception of the pandemic situation. This study supports the study of Slovic (2000) as he argues that "riskiness" is determined by several subjective factors, including dread, controllability, and unknown or delayed effects. This study also corresponds with Slovac's study on risk perception when he argues that People's risk perception differ from the professional judgments of experts (Slovic, 2000). Thus, this study suggests that policymakers, stakeholders and marketers should consider risk perceptions not only from the expert level but also from the root level when deciding for consumers amid COVID-19. This study has come up with the conclusion that the consumers in these three countries (e.g., Bangladesh, India and Pakistan) have significant differences in two factors, e.g., entertainment and outdoor expense, individual's financial situation. The previous study assumingly studied that the intentions to change the financial situation are typically influenced by the existing resource flexibilities, constraints and the human perceptual factors like income adequacy, locus of control, intention to change the family financial situation and so on (Danes and Rettig, 1993). Such findings put forwards valuable insights for businesses, traders, local and international goods producers and policymakers to make consumer-oriented decisions among these three countries. Most importantly, the findings reveal that Indian consumers were more highly concerned and affected by COVID-19 compared to people from two other counties (e.g., Pakistan and Bangladesh). This suggests that, though India has an economic and political hegemony in South Asia, it requires more strong initiatives to combat COVID-19 not only from a health emergency perspective but also from business and economic perspectives. This study adds to the COVID-19 literature with a particular focus on consumer behaviour. Contributing to the study of consumer traits amid COVID-19, this study makes potential hints in making effective marketing decisions and business strategies with a better understanding of consumption and production prospects.

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