

Reflection of Customers' Preference for Offline Shopping amid Covid-19: A Post Vaccination Analysis in Bangladesh

Muhammad Abdus Salam¹, Sheikh Marufa Nabila², Tonmoy Dey¹, & Fatema Chowdhury³

¹ Department of Management Information Systems, Noakhali Science and Technology University, Noakhali-3814, Bangladesh

² Department of Social Work, Noakhali Science and Technology University, Noakhali-3814, Bangladesh

³ Independent Researcher, Dhaka, Bangladesh

Correspondence: Tonmoy Dey, Department of Management Information Systems, Noakhali Science and Technology University, Noakhali-3814, Bangladesh.

Received: March 14, 2022

Accepted: May 9, 2022

Online Published: May 12, 2022

doi:10.5539/ibr.v15n6p39

URL: <https://doi.org/10.5539/ibr.v15n6p39>

Abstract

The Covid-19 pandemic has created enormous challenges for civilization as almost every aspect of life, including food production, economic activities, health security, education, entertainment, and global exchange, is affected. Modern human civilization has never experienced such an outlandish situation before. Consequently, pandemic fear notably has influenced consumers' perception and buying behavior. This study aims at understanding consumers' shopping behavior after getting vaccinated and the mediation effect of vaccination on shoppers' perception to resume offline shopping during the covid-19 outbreak. Conducting an extensive field survey among different levels of adults in Bangladesh, using the Partial Least Square method, this research found that the pandemic fear is a minor factor in continuing offline shopping if a proper vaccination process is ensured. The findings of the study have momentous theoretical, methodological, and practical contributions to the research area and researchers will be able to understand how vaccination mediates the relationship between different social and economic dependent and independent variables.

Keywords: Covid-19, consumers' perception, post vaccination analysis, shopping behavior

1. Introduction

The way of consumers' behavior has been curving due to the pandemic situation, and it is high time to conduct research to understand the consumers' behavior to deal with the new normal situation (Wolf et al., 2020). The coronavirus pandemic has deranged our regular lifestyle and this pneumonia epidemic has a strong and influential upshot on all aspects of human lives (Salam et al., 2021; Y. Wang et al., 2022). The Covid -19 outbreak has taken millions of lives immediately and it has had extensive consequences on our business and economic activities (Hasanat et al., 2020). Wide-ranging research conducted by Maximova et al. (2022) based on 1340 students from 20 different schools located in a different province in Canada has shown that students' physical activity has been decreased, intended too late bed and late wake-up, longer screen time, and changed eating habit and lifestyle. Consequently, social scientists and public health experts work together to find the best policy to prevent the Covid-19 from spreading throughout the world (Harper et al., 2021). The novel Covid-19, an outbreak of pneumonia caused by SARS-CoV-2 and one of the most depletory outbreaks, was introduced in Wuhan, China in 2019 (Ciotti et al., 2020; Zhou et al., 2020). By the last week of January 2020, several control actions had been implied by the Chinese government, and by the end of February 2020, a semi-lockdown was declared in several provinces (He et al., 2021). On March 11 of the same year, the World Health Organization declares the Coronavirus wave a pandemic due to the huge destruction of human life and natural ecosystems in various ways (Bojdani et al., 2020; Shen et al., 2020).

Covid-19 pandemic fear has influential reverberation from both social and individual perspectives (Pilch et al., 2021). The covid-19 pandemic has created immense challenges for society in terms of production, financial economics, health security, personal property protection, and political decisions (Schimmenti et al., 2020). As a result of pandemic fear peoples' buying behavior has been affected by panic buying, and during this pandemic situation business all over the world has faced a noteworthy crisis (Islam et al., 2021). Several types of research

have shown that consumers buying trends are being deviated by pandemic fear and consumers' tendency to stock goods especially groceries and sanitization items has been increasing unusually and drastically compared to any other time in the previous year (Collinson, 2020; Naeem, 2021). Consumers' panic shopping sensitivity was positively manipulated by some influential factors such as approach, insufficiency, time demands, subjective norms, and apparent competition (Singh et al., 2021). Consumers who are afraid of Coronavirus may have comorbid sickness and anxiety, and stress is being increased because of pandemic fear (Martinez-Lorca et al., 2020). The covid-19 outbreak is a prime threat to society and this is doubtful and unremitting, and pandemic fear might be troublesome and continual (Mertens et al., 2020). According to Prentice et al. (2022), social media plays an extensive and significant role in shoppers' panic buying psychology.

Usually, consumers demand quality products or services at a good price and quality measures are critical to their satisfaction and usage (Burke, 2002; Dey et al., 2019, 2021). The usual buying trends have been disrupted by panic buying (Loxton et al., 2020; Turambi & Wuryaningrat, 2020). Pandemic fear has significantly influenced consumers' shopping behavior and buying trends (Ali, 2020). Therefore, governments should ensure far-reaching, evenhanded access and allocation of a COVID-19 vaccine to lessen causality as the pandemic situation is predicted to be continuing (Lazarus et al., 2020). According to Machida et al. (2021) perceived effectiveness of the vaccine and willingness to protect others may play an important role in the acceptance of the COVID-19 vaccine. The main causes of Covid-19 vaccination hesitancy are lack of confidence, doubtfulness, and satisfaction about the Covid-19 vaccine (Rutten et al., 2021). This empirical study intends to find out consumers' perceptions of shopping behavior after getting the Covid-19 vaccine. Because a lot of research has been conducted during the Covid-19 pandemic situation based on contemporary issues but it is important to analyze consumers' post-vaccination shopping perceptions and behavioral trends.

2. Literature Review

To understand consumers' compassion and business paradigm during the Covid-19 pandemic circumstances, even in the new normal situation, it is essential to conduct extensive research on several aspects (Mason et al., 2021; Ratneswaren, 2020). The international economy is radically damaged by the Coronavirus pandemic situation considering demand and supply effects and it is a great challenge for the stakeholders to alleviate the effect of this Covid-19 pandemic (Padhan & Prabheesh, 2021). The Coronavirus disease has created not only economy-related disasters but also medical related disasters (Susskind & Vines, 2020). Considering a variety of economic uncertainty indicators Altig et al. (2020) found that the global economic condition is totally unstable during this Covid-19 pandemic situation and most of the indicators are at the highest level of uncertainty on record. Economic inequalities have been escalating in many ways towards income and affluence because of the Coronavirus pandemic situation and the poor are suffering more as a result of hi-tech replacement (Murshed, 2022). During the Covid-19 pandemic situation business activities, particularly sales, activities, overall operation, and supply chain have been rattled (Meyer et al., 2022). However, consumers are more convenient with online shopping rather than take-out service and offline shopping mode during this pandemic situation (Truong & Truong, 2022). Consumers from several parts of the world have been discovered to have interacted in panic buying, causing a significant effect on business operations (Omar et al., 2021).

Mouratidis & Papagiannakis (2021) showed proof of how a wide range of physical involvements has been altered by the online activities due to Covid-19 illness and how people are adopting these things. Several contemporary researchers also found almost the same findings (Bryson & Andres, 2020; Golinelli et al., 2020). However, conducting a contemporary survey on shoppers' online purchasing trends during the Covid-19 outbreak Gao et al. (2020) found that the number of recognized Covid-19 cases influence shoppers buying behavior. Organizational partiality, supply chain integration, and adequate knowledge are more influential to e-commerce usage rather than Information Technology infrastructure and external pressure (Shahzad et al., 2020). Conducting two surveys regarding contemporary changes in the E-commerce industry Beckers et al. (2021) concluded that Coronavirus creates a huge opportunity to enhance the three components of online business convenience though due to dilettantism, regional retailers fail to retain significant market share.

People feel hesitant to accept the Covid-19 Vaccine for several reasons, and this tendency somehow accelerates the covid-19 outbreak situation (Troiano & Nardi, 2021). The study also suggested that doctors and healthcare-related professionals can help general people by providing necessary information about the vaccine. A vaccine-associated rushed outbreak is hardly ever confronted with in-vogue vaccines or viral illnesses (Haynes et al., 2020). The immediate response toward vaccine acceptance was low because people were trying to review more vaccine-related data before finalizing the decision (Shekhar et al., 2021). Reviewing thirty contemporary articles about Covid-19 Al-Amer et. al. (2022) reveals that people's intention in accepting the Covid-19 vaccine range was 27.7% to 93.3% during the first phase of the vaccine implementation period. Though in recent times,

conducting exploratory research in Botswana Tlale et al. (2022) found minimum risk sensitivity and the maximum acceptance rate of the Covid-19 vaccine. Also, Chinese people are found highly accepting of the Covid-19 vaccine (J. Wang et al., n.d.). Another investigative research was conducted by Lee et al (2022) among Bangladeshi adults and found that 79% of informants were interested to take the Covid-19 vaccine, and females, graduates, urbanites, people with good health, and 71-80 ages peoples are more interested to get the vaccine. The Covid-19 vaccine administration at the field level was started on February 07, 2021, in Bangladesh (World Health Organization, 2021).

Consequently, online shopping became very popular in Bangladesh during this virulent disease time. However, with a huge vaccination program among Bangladeshi citizens and a tendency to accept the new normal, offline shopping gets back to its previous scenario. But is the pace the same as before the pandemic? Studies have found that less preference for offline shopping has become a new normal (Chopra & Ligaraba, 2021). Is the scenario the same in the case of Bangladesh? The primary objective of this exploratory research is to find out the consumers' perception and behavior toward offline shopping after getting the Covid-19 vaccine.

3. Research Model and Hypotheses

This study aims at understanding the mediation effect of vaccination on customers' intention to resume offline shopping during this pandemic situation. The conceptual model proposed for the study (Figure 01) consists of three constructs- pandemic fear, vaccination, and the attitude of customers toward offline shopping.

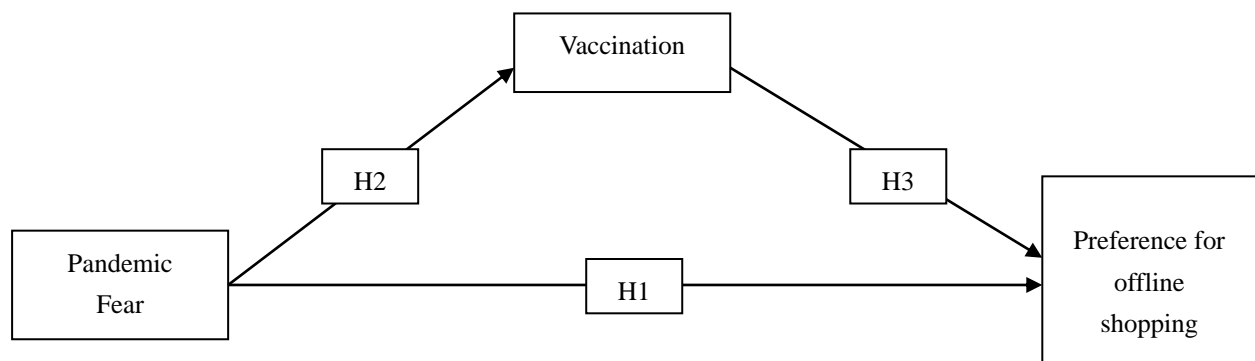


Figure 1. Research Model

Pandemic due to Covid-19 has changed the regular world into a more complicated one. Some changes are so unexpected that we have never imagined them to date. Along with many other new normals, customers' attitudes and buying behavior have also emerged as new shapes (Valaskova et al., 2021). And these changes to customers' economic activities are expected to become permanent after the pandemic (Zulauf et al., 2020). Consequently, less preference for offline shopping has become a new normal (Chopra & Ligaraba, 2021). People are more comfortable with online shopping at the present due to the physical and mental health-related anxieties caused by Covid-19 illness (Ali, 2020). Hence, we hypothesized-

H1: *Pandemic fear influences customers' preference for offline shopping*

Vaccination, along with protective measures, is considered a vital frontier to the spread of Covid-19 (Kumar, 2020; Molaei et al., 2021). The belief that vaccine is effective against the virus, anxiety about personal and family protection, pregnancy, and old age are the outcomes of pandemic fear and all of these have influenced the tendency of the common people to accept vaccination for the safety purpose across the world at a large scale (Kwon et al., 2010; Myers & Goodwin, 2011; Pilch et al., 2021). The higher rate of Coronavirus vaccine acceptance is also the result of convictions that the vaccine lessens Covid-19 related anxieties, and health-related fears (Bendau et al., 2021). Thus, we hypothesized the following relationship-

H2: *Pandemic fear influences the urge for vaccination*

While in our conceptual model, vaccination is supposed to influence customers' attitudes toward offline shopping. People who are vaccinated are more confident enough to get back to their regular social life (Rodrigues & Plotkin, 2020). Thus, we hypothesized the following relationship-

H3: *Vaccination influences customers' preference for offline shopping*

To understand the post-vaccination situation in case of continuing offline shopping again, vaccination is supposed to mediate the relationship between pandemic fear and customers' attitude toward offline shopping. Therefore, we hypothesized-

H4: Vaccination mediates the relationship between pandemic fear and customers' preference for offline shopping

4. Methodology

4.1 Questionnaire and Data Collection

Adopting validated measurement items from the previous studies a structured questionnaire was developed for data collection. Measurement items under each construct used for data collection and analysis are presented in table 1.

Table 1. Constructs and Measurement items

| Constructs | Items | | Sources |
|---------------------------------|-------|--|---|
| Pandemic Fear | PF1 | I feel fear upon facing the Covid-19 pandemic. | (Chatterjee et al., 2019; Tran, 2021) |
| | PF2 | I feel dreadful upon facing the Covid-19 pandemic. | |
| | PF3 | I feel afraid upon facing the Covid-19 pandemic. | |
| Vaccination | VA1 | Vaccine is effective | (Luyten et al., 2019; Sarathchandra et al., 2018) |
| | VA2 | The vaccine is important for my health | |
| | VA3 | Getting the vaccine is an effective way to protect me from Covid-19. | |
| Preference for Offline Shopping | POF1 | I am sure it was the correct decision to visit the shopping mall. | (Kwon et al., 2010) |
| | POF2 | I am happy with my decision to visit shopping at the mall. | |
| | POF3 | My decision to visit the shopping mall was a wise one. | |

The structured questionnaire was developed in the English language with the suggestions of the experts. The first part of the questionnaire was equipped to gather respondents' quantitative data and demographic information. While the second and the last part of the questionnaire consists of measurement items. All the responses were unruffled using a five-point Likert measurement scale (Armstrong, 1987). We have sent the questionnaire through email to the respondents from different areas in Bangladesh who are already vaccinated. We have obtained participants' email addresses from the vaccination database of the Directorate General of Health Services under the Ministry of Health and Family Welfare in Bangladesh. As we have used structural equation modeling (SEM) for data analysis, 270 data were collected considering the amount as the average sample size as per the recommendation of Kline (2016).

4.2 Data Analysis

After the initial screening of 23 unengaged data, 247 data were given as input to SmartPLS for further data analysis. Unengaged data were cleaned based on the standard deviation method in Microsoft Excel. SmartPLS is widely recommended software for model validation, and hypothesis testing using the Partial Least Square method (Hair Jr et al., 2021).

5. Results

5.1 Demographical Information

According to the demographic information of the respondents, presented in table 02, the majority of respondents were male (72.87%). People between 19-28 age ranges were in majority with a portion of 45.34%. Moreover, most of the participant is employed (64.78%) and belongs to the urban area (75.71%).

Table 2. Demographical Information

| Variable | | Frequency | Percentage |
|----------------|---|-----------|------------|
| Gender | Male | 180 | 72.87% |
| | Female | 67 | 27.13% |
| | Other | 0 | 0% |
| Age | ≤18 | 12 | 4.86% |
| | 19-28 | 112 | 45.34% |
| | 29-38 | 90 | 36.44% |
| | 38≥ | 33 | 13.36% |
| Employment | Unemployed | 31 | 12.55% |
| | Self-employed | 56 | 22.67% |
| | Employed | 160 | 64.78% |
| Area of Living | Urban Area (Metropolitan, town, Municipal area) | 187 | 75.71% |
| | Rural Area | 60 | 24.29% |

5.2 Measurement Model

For Cronbach's alpha (CA) and the composite reliability (CR), values more than or equal to 0.70 are considered acceptable (Hair et al., 2006). All the CA and CR values represented in table 03 are above the acceptable range, therefore the constructs in the model are internally reliable. Values of Average Variance Extracted (AVE), denotes the concurrent validity of the model. And for AVE values greater than 0.50 can be accepted (Hair Jr et al., 2021). All the AVE values represented in table 03 are above the acceptable range, therefore the model has convergent validity also. Finally, the discriminant validity of the model was measured by the Heterotrait-Monotrait ratio of correlations (HTMT). In the case of HTMT, discriminant validity can be regarded as established if HTMT values are less than 0.90 (Henseler et al., 2015). According to table 04, all the HTMT values are less than 0.90 and therefore the constructs in the model have discriminant validity also.

Table 3. Measurement Model

| Constructs | CA | CR | AVE |
|---------------------------------|-------|-------|-------|
| Pandemic Fear | 0.809 | 0.912 | 0.840 |
| Vaccination | 0.758 | 0.891 | 0.803 |
| Preference for offline shopping | 0.752 | 0.888 | 0.799 |

Table 4. Heterotrait-Monotrait

| Constructs | Pandemic Fear | Vaccination | Preference for offline shopping |
|---------------------------------|---------------|-------------|---------------------------------|
| Pandemic Fear | | | |
| Vaccination | 0.072 | | |
| Preference for offline shopping | 0.750 | 0.074 | |

5.3 Hypothesis Testing

Table 05 shows the relationship between Pandemic Fear to Preference for offline shopping ($\beta=0.013$, $t=0.217$, and $p=0.828$), Pandemic Fear to Vaccination ($\beta=0.231$, $t=4.278$, and $p=0.000$), and Vaccination to Preference for offline shopping ($\beta=0.121$, $t=2.814$, and $p=0.005$). The result shows that p-values are less than 0.05 for all hypothesized relationships excluding the relationship between Pandemic Fear to Preference for offline shopping. Hence, hypotheses H2, and H3 are accepted and H1 is rejected at a 5% level of significance.

Table 5. Results of Hypothesis Testing

| Hypothesized Relationships | Beta | Standard Error | t-value | p-value |
|---|-------|----------------|---------|---------|
| Pandemic Fear \rightarrow Preference for offline shopping | 0.013 | 0.060 | 0.217 | 0.828 |
| Pandemic Fear \rightarrow Vaccination | 0.231 | 0.054 | 4.278 | 0.000 |
| Vaccination \rightarrow Preference for offline shopping | 0.121 | 0.043 | 2.814 | 0.005 |

5.4 Mediation Analysis

For understanding the post-vaccination effect on customers' intention toward online shopping, a mediation analysis has been conducted using a Sobel test (Sobel, 1982). According to the test result, the indirect relationship between pandemic fear and customers' preference for offline shopping is significant ($p<0.05$). Hence, hypothesis H4 is accepted. Besides vaccination has a complete effect as the direct relationship between pandemic fear and customers' preference for offline shopping was insignificant.

Table 6. Sobel Test Result

| Test Statistic | Standard Error | p-value |
|----------------|----------------|---------|
| 2.351 | 0.012 | 0.019 |

6. Discussions

The study found the relationship between pandemic fear and preference for offline shopping as insignificant and therefore hypothesis H1 was rejected. It indicates that pandemic fear does not solely influence the shopping preference of the customers. Although during the Covid-19 pandemic, people have more or less altered their shopping preferences due to the health risks associated with direct contact in offline shopping (Aryani et al., 2021) and (Nguyen et al., 2021). However, due to the conveniences like faster delivery, quality, reliability, and accuracy issues offline shopping is still the best choice among the people irrespective of pandemic fear (Espinoza et al., 2021). Moreover, vaccination for Covid-19 ensures social safety and individual protectiveness (Zhu et al., 2021). Those, who are already vaccinated, went back to their habituated social and economic activities irrespective of the pandemic situation (Dauby, 2020; Rodrigues & Plotkin, 2020). Our findings also indicate that people for ensuring health safety prefers vaccinations and they are most enthusiastic to take vaccines for personal and social protection as hypothesis H2 and H3 were accepted. The findings were justified more strongly when the mediation effects of vaccination were examined and hypothesis H4 was accepted. The results of mediation analysis show that vaccination completely mediates the relationship between pandemic fear

and customers' preference for offline shopping in a positive way (as in the presence of a mediator, the relationship between independent and dependent variables was found positively significant). This means epidemical fear cannot retain a customer in continuing offline shopping if the proper vaccination process is ensured.

7. Implications

The findings of the study have significant theoretical, methodological, and practical contributions in the research area regarding the Covid-19 pandemic, especially from the economic and social perspectives. This study is focused on the impact of vaccination on consumers' offline shopping preference amid Covid-19 in the case of Bangladesh and with the best knowledge of the authors, this is the first attempt made in this regard in Bangladesh perspective. Therefore theoretically, future research on the Covid-19 pandemic and related sub-areas would be benefitted from the literature and findings of the current study. This study confirms the reliability and validity of the constructs and empirically examined the mediation effect of vaccination between the pandemic fear and offline shopping preference. Methodologically, this mediation analysis approach would be directional to future research in understanding how vaccination mediates the relationship between different social and economic dependent and independent variables. Researchers from developing countries like Bangladesh can use the methodology to examine the impact of different socio-economic issues throughout the epidemical situation. This study has some practical contributions also. Financiers and business firms can get insights into the impact of vaccination in designing their future value delivery models. Policymaking authorities will be able to understand the emergence of mass vaccination if they want to get common people back to their habituated social and economic standard of living despite pandemic anxiety.

8. Conclusion

Comparatively dormant or weakened components of a specific organism (antigen) are incorporated into the vaccine which boosts an immune reaction within the human body (World Health Organization, 2020). Though vaccine amplifies people's confidence reducing infection through defensive activities is more sustainable than short-term vaccine security (Hossain et al., 2022). Very few researches are available on the covid-19 post-vaccination effect on consumers' buying behavior. Among them, almost none of the research is based on South Asian consumers' perceptions of offline shopping after getting vaccinated. This exploratory research found that only pandemic fear does not responsible for consumers' buying preferences during the pandemic period. Also, people want to get back to their regular life and they believe that the vaccine ensures personal health safety. So, they are passionate to receive the vaccine for their personal and social security. Moreover, analyzing the mediation effect it is found that, pandemic fear might not be a troublesome factor in continuing offline buying trends if the proper vaccination process is ensured. Our proposed model will help to understand consumers' buying trends after being vaccinated.

Reference

- Al-Amer, R., Maneze, D., Everett, B., Montayre, J., Villarosa, A. R., Dwekat, E., & Salamonson, Y. (2022). COVID-19 vaccination intention in the first year of the pandemic: A systematic review. *Journal of Clinical Nursing, 31*(1-2), 62-86. <https://doi.org/10.1111/jocn.15951>
- Ali, B. J. (2020). Impact of COVID-19 on Consumer Buying Behavior toward Online Shopping in Iraq. *Economic Studies Journal, 18*(42), 267-280.
- Altig, D., Baker, S., Barrero, J. M., Bloom, N., Bunn, P., Chen, S., ... Gregory, T. (2020). Economic uncertainty before and during the COVID-19 pandemic. *Journal of Public Economics, 191*, 104274. <https://doi.org/10.1016/j.jpubeco.2020.104274>
- Armstrong, R. L. (1987). The midpoint on a five-point Likert-type scale. *Perceptual and Motor Skills, 64*(2), 359-362. <https://doi.org/10.2466/pms.1987.64.2.359>
- Aryani, D. N., Nair, R. K., Hoo, D. X. Y., Hung, D. K. M., Lim, D. H. R., Chew, W. P., ... Amey, D. (2021). A study on consumer behaviour: Transition from traditional shopping to online shopping during the COVID-19 pandemic. *International Journal of Applied Business and International Management (IJABIM), 6*(2), 81-95. <https://doi.org/10.32535/ijabim.v6i2.1170>
- Beckers, J., Weekx, S., Beutels, P., & Verhetsel, A. (2021). COVID-19 and retail: The catalyst for e-commerce in Belgium? *Journal of Retailing and Consumer Services, 62*, 102645. <https://doi.org/10.1016/j.jretconser.2021.102645>
- Bendau, A., Plag, J., Petzold, M. B., & Ströhle, A. (2021). COVID-19 vaccine hesitancy and related fears and anxiety. *International Immunopharmacology, 97*, 107724. <https://doi.org/10.1016/j.intimp.2021.107724>

- Bojdani, E., Rajagopalan, A., Chen, A., Gearin, P., Olcott, W., Shankar, V., ... Lynn, E. D. (2020). COVID-19 pandemic: impact on psychiatric care in the United States. *Psychiatry Research*, 289, 113069. <https://doi.org/10.1016/j.psychres.2020.113069>
- Bryson, J. R., & Andres, L. (2020). Covid-19 and rapid adoption and improvisation of online teaching: curating resources for extensive versus intensive online learning experiences. *Journal of Geography in Higher Education*, 44(4), 608-623. <https://doi.org/10.1080/03098265.2020.1807478>
- Burke, R. R. (2002). Technology and the customer interface: what consumers want in the physical and virtual store. *Journal of the Academy of Marketing Science*, 30(4), 411-432. <https://doi.org/10.1177/009207002236914>
- Chatterjee, S., Gao, X., Sarkar, S., & Uzmanoglu, C. (2019). Reacting to the scope of a data breach: The differential role of fear and anger. *Journal of Business Research*, 101, 183-193. <https://doi.org/10.1016/j.jbusres.2019.04.024>
- Chopra, K., & Ligaraba, N. (2021). Consumer Shopping Evaluation in New Normal using Grounded Theory Approach. *Solid State Technology*, 64(2), 1362-1367.
- Ciotti, M., Ciccozzi, M., Terrinoni, A., Jiang, W. C., Wang, C. B., & Bernardini, S. (2020). The COVID-19 pandemic. *Critical Reviews in Clinical Laboratory Sciences*, 57(6), 365-388. <https://doi.org/10.1080/10408363.2020.1783198>
- Collinson, P. (2020). Panic buying on wane as online shopping takes over, says bank. *The Guardian*, 30.
- Dauby, N. (2020). Societal impact of vaccination: beyond individual protection. Renewed interest following COVID-19 pandemic? *Revue Medicale de Liege*, 75(S1), 170-175.
- Dey, T., Saha, T., Salam, M. A., & Roy, S. K. (2019). Relationship between service quality and user satisfaction: An analysis of ride-sharing services in Bangladesh based on SERVQUAL dimensions. *Journal of Noakhali Science and Technology University (JNSTU)*, 3(1), 37-47. Retrieved from <https://journal.nstu.edu.bd/index.php/sj/article/view/9>
- Dey, T., Salam, M. A., & Saha, T. (2021). Evaluation and analysis of user satisfaction of ride-sharing service: an assurance and empathy in Bangladesh perspective. *Canadian Journal of Business and Information Studies*, 3(2), 22-28. <https://doi.org/10.34104/cjbis.021.022028>
- Espinoza, M. C., Ganatra, V., Prasanth, K., Sinha, R., Montañez, C. E. O., Sunil, K. M., & Kaakandikar, R. (2021). Consumer Behavior Analysis on Online and Offline Shopping During Pandemic Situation. *International Journal of Accounting & Finance in Asia Pasific (IJAFAP)*, 4(3), 75-87. <https://doi.org/10.32535/ijafap.v4i3.1208>
- Gao, X., Shi, X., Guo, H., & Liu, Y. (2020). To buy or not buy food online: The impact of the COVID-19 epidemic on the adoption of e-commerce in China. *PloS One*, 15(8), e0237900. <https://doi.org/10.1371/journal.pone.0237900>
- Golinelli, D., Boetto, E., Carullo, G., Nuzzolese, A. G., Landini, M. P., & Fantini, M. P. (2020). How the COVID-19 pandemic is favoring the adoption of digital technologies in healthcare: a literature review. *MedRxiv*. <https://doi.org/10.1101/2020.04.26.20080341>
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications. <https://doi.org/10.1007/978-3-030-80519-7>
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate Data Analysis* (6th ed.). Pearson Education.
- Harper, C. A., Satchell, L. P., Fido, D., & Latzman, R. D. (2021). Functional fear predicts public health compliance in the COVID-19 pandemic. *International Journal of Mental Health and Addiction*, 19(5), 1875-1888. <https://doi.org/10.1007/s11469-020-00281-5>
- Hasanat, M. W., Hoque, A., Shikha, F. A., Anwar, M., Hamid, A. B. A., & Tat, H. H. (2020). The impact of coronavirus (COVID-19) on e-business in Malaysia. *Asian Journal of Multidisciplinary Studies*, 3(1), 85-90.
- Haynes, B. F., Corey, L., Fernandes, P., Gilbert, P. B., Hotez, P. J., Rao, S., ... Arvin, A. (2020). Prospects for a safe COVID-19 vaccine. *Science Translational Medicine*, 12(568), eabe0948. <https://doi.org/10.1126/scitranslmed.abe0948>
- He, M., Xian, Y., Lv, X., He, J., & Ren, Y. (2021). Changes in body weight, physical activity, and lifestyle during

- the semi-lockdown period after the outbreak of COVID-19 in China: an online survey. *Disaster Medicine and Public Health Preparedness*, 15(2), e23-e28. <https://doi.org/10.1017/dmp.2020.237>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hossain, M. E., Islam, M. S., Rana, M. J., Amin, M. R., Rokonuzzaman, M., Chakroborty, S., & Saha, S. M. (2022). Scaling the changes in lifestyle, attitude, and behavioral patterns among COVID-19 vaccinated people: insights from Bangladesh. *Human Vaccines & Immunotherapeutics*, 1-9. <https://doi.org/10.1080/21645515.2021.2022920>
- Islam, T., Pitafi, A. H., Arya, V., Wang, Y., Akhtar, N., Mubarik, S., & Xiaobei, L. (2021). Panic buying in the COVID-19 pandemic: A multi-country examination. *Journal of Retailing and Consumer Services*, 59, 102357. <https://doi.org/10.1016/j.jretconser.2020.102357>
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). The Guilford Press.
- Kumar, V. (2020). Understanding the complexities of SARS-CoV2 infection and its immunology: A road to immune-based therapeutics. *International Immunopharmacology*, 88, 106980. <https://doi.org/10.1016/j.intimp.2020.106980>
- Kwon, Y., Cho, H. Y., Lee, Y. K., Bae, G. R., & Lee, S. G. (2010). Relationship between intention of novel influenza A (H1N1) vaccination and vaccination coverage rate. *Vaccine*, 29(2), 161-165. <https://doi.org/10.1016/j.vaccine.2010.10.063>
- Lazarus, J. V., Ratzan, S., Palayew, A., Gostin, L. O., Larson, H. J., Robin, K., ... El-Mohandes, A. (2020). Hesitant or not. A Global Survey of Potential Acceptance of a COVID-19 Vaccine. *MedRxiv. Eri{c{s}}im*, 16. <https://doi.org/10.1101/2020.08.23.20180307>
- Lee, C., Holroyd, T. A., Gur-Arie, R., Sauer, M., Zavala, E., Paul, A. M., ... Rupali, J. L. (2022). COVID-19 vaccine acceptance among Bangladeshi adults: Understanding predictors of vaccine intention to inform vaccine policy. *Plos One*, 17(1), e0261929. <https://doi.org/10.1371/journal.pone.0261929>
- Loxton, M., Truskett, R., Scarf, B., Sindone, L., Baldry, G., & Zhao, Y. (2020). Consumer behaviour during crises: Preliminary research on how coronavirus has manifested consumer panic buying, herd mentality, changing discretionary spending and the role of the media in influencing behaviour. *Journal of Risk and Financial Management*, 13(8), 166. <https://doi.org/10.3390/jrfm13080166>
- Luyten, J., Bruyneel, L., & van Hoek, A. J. (2019). Assessing vaccine hesitancy in the UK population using a generalized vaccine hesitancy survey instrument. *Vaccine*, 37(18), 2494-2501. <https://doi.org/10.1016/j.vaccine.2019.03.041>
- Machida, M., Nakamura, I., Kojima, T., Saito, R., Nakaya, T., Hanibuchi, T., ... Shigeru, I. (2021). Acceptance of a COVID-19 Vaccine in Japan during the COVID-19 Pandemic. *Vaccines*, 9(3), 210. <https://doi.org/10.3390/vaccines9030210>
- Martinez-Lorca, M., Martinez-Lorca, A., Criado-Álvarez, J. J., Armesilla, M. C., & Latorre, J. M. (2020). The fear of COVID-19 scale: Validation in spanish university students. *Psychiatry Research*, 293, 113350. <https://doi.org/10.1016/j.psychres.2020.113350>
- Mason, A. N., Narcum, J., & Mason, K. (2021). Social media marketing gains importance after Covid-19. *Cogent Business & Management*, 8(1), 1870797. <https://doi.org/10.1080/23311975.2020.1870797>
- Maximova, K., Khan, M. K. A., Dabravolskaj, J., Maunula, L., Ohinmaa, A., & Veugelers, P. J. (2022). Perceived changes in lifestyle behaviours and in mental health and wellbeing of elementary school children during the first COVID-19 lockdown in Canada. *Public Health*, 202, 35-42. <https://doi.org/10.1016/j.puhe.2021.10.007>
- Mertens, G., Gerritsen, L., Duijndam, S., Salemink, E., & Engelhard, I. M. (2020). Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders*, 74, 102258. <https://doi.org/10.1016/j.janxdis.2020.102258>
- Meyer, B. H., Prescott, B., & Sheng, X. S. (2022). The impact of the COVID-19 pandemic on business expectations. *International Journal of Forecasting*, 38(2), 529-544. <https://doi.org/10.1016/j.ijforecast.2021.02.009>
- Molaei, S., Dadkhah, M., Asghariazar, V., Karami, C., & Safarzadeh, E. (2021). The immune response and

- immune evasion characteristics in SARS-CoV, MERS-CoV, and SARS-CoV-2: Vaccine design strategies. *International Immunopharmacology*, 92, 107051. <https://doi.org/10.1016/j.intimp.2020.107051>
- Mouratidis, K., & Papagiannakis, A. (2021). COVID-19, internet, and mobility: The rise of telework, telehealth, e-learning, and e-shopping. *Sustainable Cities and Society*, 74, 103182. <https://doi.org/10.1016/j.scs.2021.103182>
- Murshed, S. M. (2022). Consequences of the Covid-19 pandemic for economic inequality. In *Covid-19 and international development* (pp. 59-70). Springer. https://doi.org/10.1007/978-3-030-82339-9_5
- Myers, L. B., & Goodwin, R. (2011). Determinants of adults' intention to vaccinate against pandemic swine flu. *BMC Public Health*, 11(1), 1-8. <https://doi.org/10.1186/1471-2458-11-15>
- Naeem, M. (2021). Do social media platforms develop consumer panic buying during the fear of Covid-19 pandemic. *Journal of Retailing and Consumer Services*, 58, 102226. <https://doi.org/10.1016/j.jretconser.2020.102226>
- Nguyen, M. H., Armoogum, J., & Nguyen Thi, B. (2021). Factors affecting the growth of e-shopping over the covid-19 era in hanoi, vietnam. *Sustainability*, 13(16), 9205. <https://doi.org/10.3390/su13169205>
- Omar, N. A., Nazri, M. A., Ali, M. H., & Alam, S. S. (2021). The panic buying behavior of consumers during the COVID-19 pandemic: Examining the influences of uncertainty, perceptions of severity, perceptions of scarcity, and anxiety. *Journal of Retailing and Consumer Services*, 62, 102600. <https://doi.org/10.1016/j.jretconser.2021.102600>
- Padhan, R., & Prabheesh, K. P. (2021). The economics of COVID-19 pandemic: A survey. *Economic Analysis and Policy*, 70, 220-237. <https://doi.org/10.1016/j.eap.2021.02.012>
- Pilch, I., Kurasz, Z., & Turska-Kawa, A. (2021). Experiencing fear during the pandemic: validation of the fear of COVID-19 scale in Polish. *PeerJ*, 9, e11263. <https://doi.org/10.7717/peerj.11263>
- Prentice, C., Quach, S., & Thaichon, P. (2022). Antecedents and consequences of panic buying: The case of COVID-19. *International Journal of Consumer Studies*, 46(1), 132-146. <https://doi.org/10.1111/ijcs.12649>
- Ratneswaren, A. (2020). The I in COVID: the importance of community and patient involvement in COVID-19 research. *Clinical Medicine*, 20(4), e120. <https://doi.org/10.7861/clinmed.2020-0173>
- Rodrigues, C., & Plotkin, S. A. (2020). Impact of vaccines; health, economic and social perspectives. *Frontiers in Microbiology*, 11, 1526. <https://doi.org/10.3389/fmicb.2020.01526>
- Rutten, L. J. F., Zhu, X., Leppin, A. L., Ridgeway, J. L., Swift, M. D., Griffin, J. M., ... Jacobson, R. M. (2021). Evidence-based strategies for clinical organizations to address COVID-19 vaccine hesitancy. *Mayo Clinic Proceedings*, 96(3), 699-707. <https://doi.org/10.1016/j.mayocp.2020.12.024>
- Salam, M. A., Saha, T., Rahman, M. H., & Mutsuddi, P. (2021). Challenges to Mobile Banking Adaptation in COVID-19 Pandemic. *Journal of Business and Management Sciences*, 9, 101-113. <https://doi.org/10.12691/jbms-9-3-2>
- Sarathchandra, D., Navin, M. C., Largent, M. A., & McCright, A. M. (2018). A survey instrument for measuring vaccine acceptance. *Preventive Medicine*, 109, 1-7. <https://doi.org/10.1016/j.ypmed.2018.01.006>
- Schimmenti, A., Billieux, J., & Starcevic, V. (2020). The four horsemen of fear: An integrated model of understanding fear experiences during the COVID-19 pandemic. *Clinical Neuropsychiatry*, 17(2), 41.
- Shahzad, A., Hassan, R., Abdullah, N. I., Hussain, A., & Fareed, M. (2020). COVID-19 impact on e-commerce usage: An empirical evidence from Malaysian healthcare industry. *Humanities & Social Sciences Reviews*, 8(3), 599-609. <https://doi.org/10.18510/hssr.2020.8364>
- Shekhar, R., Sheikh, A. B., Upadhyay, S., Singh, M., Kottewar, S., Mir, H., ... Pal, S. (2021). COVID-19 vaccine acceptance among health care workers in the United States. *Vaccines*, 9(2), 119. <https://doi.org/10.3390/vaccines9020119>
- Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the COVID-19 pandemic on firm performance. *Emerging Markets Finance and Trade*, 56(10), 2213-2230. <https://doi.org/10.1080/1540496X.2020.1785863>
- Singh, G., Aiyub, A. S., Greig, T., Naidu, S., Sewak, A., & Sharma, S. (2021). Exploring panic buying behavior during the COVID-19 pandemic: a developing country perspective. *International Journal of Emerging Markets*. <https://doi.org/10.1108/IJOEM-03-2021-0308>

- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology*, 13, 290-312. <https://doi.org/10.2307/270723>
- Susskind, D., & Vines, D. (2020). The economics of the COVID-19 pandemic: an assessment. *Oxford Review of Economic Policy*, 36(Supplement_1), S1-S13. <https://doi.org/10.1093/oxrep/graa036>
- Tlale, L. B., Gabaitiri, L., Totolo, L. K., Smith, G., Puswane-Katse, O., Ramonna, E., ... Samuel, K. (2022). Acceptance rate and risk perception towards the COVID-19 vaccine in Botswana. *PloS One*, 17(2), e0263375. <https://doi.org/10.1371/journal.pone.0263375>
- Tran, L. T. T. (2021). Managing the effectiveness of e-commerce platforms in a pandemic. *Journal of Retailing and Consumer Services*, 58, 102287. <https://doi.org/10.1016/j.jretconser.2020.102287>
- Troiano, G., & Nardi, A. (2021). Vaccine hesitancy in the era of COVID-19. *Public Health*, 194, 245-251. <https://doi.org/10.1016/j.puhe.2021.02.025>
- Truong, D., & Truong, M. D. (2022). How do customers change their purchasing behaviors during the COVID-19 pandemic? *Journal of Retailing and Consumer Services*, 67, 102963. <https://doi.org/10.1016/j.jretconser.2022.102963>
- Turambi, R. D., & Wuryaningrat, N. F. (2020). Panic buying perception in Walian Satu Sub-District, Tomohon City. *International Journal of Applied Business and International Management (IJABIM)*, 1-7. <https://doi.org/10.32535/ijabim.v0i0.870>
- Valaskova, K., Durana, P., & Adamko, P. (2021). Changes in consumers' purchase patterns as a consequence of the COVID-19 pandemic. *Mathematics*, 9(15), 1788. <https://doi.org/10.3390/math9151788>
- Wang, J., Jing, R., Lai, X., Zhang, H., Lyu, Y., Knoll, M. D., & Fang, H. (n.d.). Acceptance of COVID-19 vaccination during the COVID-19 pandemic in China. *Vaccines (Basel)*, 8(3), 482. <https://doi.org/10.3390/vaccines8030482>
- Wang, Y., Wu, Y., & Chen, X. (2022). Improvement and Software Realization of Residential Area Landscape Design and Protection System Based on the New Coronavirus Epidemic. *International Conference on Cognitive Based Information Processing and Applications (CIPA 2021)*, 390-396. https://doi.org/10.1007/978-981-16-5854-9_49
- Wolf, L. J., Haddock, G., Manstead, A. S. R., & Maio, G. R. (2020). The importance of (shared) human values for containing the COVID-19 pandemic. *British Journal of Social Psychology*, 59(3), 618-627. <https://doi.org/10.1111/bjso.12401>
- World Health Organization. (2020). *How do vaccines work?* Www.Who.Int. Retrieved from https://www.who.int/news-room/feature-stories/detail/how-do-vaccines-work?gclid=CjwKCAiAg6yRBhBNEiwAeVyL0JQuYlyXCHzhoUP9xY1D5Jo7DTNcO667SizEFjgZ6IM1_Q53ZPstDBoCGskQAvD_BwE
- World Health Organization. (2021). *COVID-19 Vaccination: WHO supports an effective campaign in Bangladesh while strengthening vaccine roll-out preparedness for Rohingya.* Www.Who.Int. Retrieved from <https://www.who.int/bangladesh/news/detail/20-05-2021-covid-19-vaccination-who-supports-an-effective-campaign-in-bangladesh-while-strengthening-vaccine-roll-out-preparedness-for-rohingya>
- Zhou, P., Yang, X. L., Wang, X. G., Hu, B., Zhang, L., Zhang, W., ... Zheng, L. S. (2020). A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*, 579(7798), 270-273. <https://doi.org/10.1038/s41586-020-2012-7>
- Zhu, W., Zou, H., Song, Y., Ren, L., & Xu, Y. (2021). Understanding the continuous vaccination of the COVID-19 vaccine: an empirical study from China. *Human Vaccines & Immunotherapeutics*, 1-10. <https://doi.org/10.1080/21645515.2021.2013080>
- Zulauf, K., Wagner, R., & Cechella, F. S. (2020). Changed Buying Behavior in the Corona Pandemic: Perceived Risk and its Effects. *CLAV 2020*.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).