



THE ROLE OF PERCEIVED SEVERITY AND ANTICIPATED REGRET IN PREDICTING PANIC BUYING BEHAVIOR

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ABSTRACT

This study developed a structural model to explore the relationship among psychological factors such as perceived severity (Stimulus) and anticipated regret (Organism) to panic buying (response). To empirically test the proposed model, data was collected from 540 respondents from five cities in Pakistan. Structured equation modeling was employed to analyze the data through (PLS-SEM). This study finds that the perceived severity positively influences panic buying. Moreover, anticipated regret acts as a mediator between the perceived severity and the panic buying. The study follows a cross-sectional design. In future longitudinal design can help to gain more understanding of the panic buying of consumers. Further information and health belief factors can be examined in future studies. Cross-country and cultural perspectives can give more insights about consumption behavior.

KEYWORDS: Perceived Severity, Anticipated regret, grocery stores and Panic buying

1. INTRODUCTION

Recently, the world has experienced a health crisis that profoundly impacted the world across multiple domains. The pandemic emerged in March 2020 and caused a global health crisis and a dramatic economic downturn in 2020 (Loxton et al., 2020). People around the world have experienced the pandemic which dramatically impacted the world economy and as a result, people's behavior has been also influenced and changed. Research on COVID-19 will provide insights into behavioral changes, such as herd mentality, unusual purchase intentions, and investment decisions, as it is the first widely researched modern pandemic.

According to Miri et al., (2020), the outbreaks affected human behavior, especially consumer behavior. The extremely unnecessary buying of household items and perishable goods has created a negative response in the community when these excessively purchased goods are left to waste, and others cannot possibly get them for their consumption (Vázquez-Martínez et al., 2021). The toiletries, rice, eggs, bread, beans, cheese, and frozen food items are some essentials that went out of stock as shoppers bought them uncertain in time. Very unusual wholesale customer activities were observed in March 2020, such as grabbing food items and toilet paper (Miri et al., 2020). In addition, areas affected by pandemics that cause unemployment, uncertainty, and recession usually continue to have severe behavioral impacts. The pandemic has changed the behavior of consumers in multiple ways specifically in buying grocery items and personal care products. Increased international media communication and access to information may increase contagion, leading to increased consumer fear, anxiety and uncertainty in purchase decisions (Loxton et al., 2020).

Stockpiling by consumers due to COVID-19 adversely influences the individuals in the society. It causes society to purchase essential products in enormous amounts and this can immediately lead to product ran out of stock and also perceived scarcity of consumers for household items due to high demand for essential products made consumers buy products in panic (Chua et al., 2021b; Omar et al., 2021). Understanding the key elements that are shaping these behavioral patterns like panic buying can play a significant role for retail businesses and policy makers (Baidoun & Salem, 2023).

Through this research, the researcher will analyze how these antecedents of panic buying affect consumer behavior in post-pandemic times.

2. LITERATURE REVIEW

2.1. STIMULUS ORGANISM RESPONSE

This study used the Mehrabian & Russell, (1974) Stimulus organism response (SOR) model to assess the effects of perceived severity (stimulus), perceived scarcity (Organism), and panic buying (response) post-pandemic and crisis. Perceived severity

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of the pandemic refers to an individual's assessment of the potential risks and consequences of the crisis. The perceived severity of recent pandemic COVID-19 can majorly influence the decision-making of consumers in purchases such as hoarding items and panic buying (Ali et al., 2023). Through this framework the concept of behavior as occurring in an environment relating stimuli that affect consumers' cognitive and affective processes (Kumar et al., 2021). In the background of the global post-pandemic consumer behavior, the perceived severity (PS) Laato et al., (2020) of the pandemic is used as (stimulus), perceived scarcity and social influence (Organism), and panic buying (response) from which individuals proposed to cause psychological and behavioral reactions. This study is based on the belief that in uncertain and stressful situations leads to customers' desire to shop for retail grocery products from stores were (i.e., emotional reactions) that mediated the relationship between stimulus and response. This hypothesis is based on our assumption that every consumer reacts differently to unexpected and stressful events. The following goals are the focus of this research:

To determine the effects of anticipated regret as a mediator between perceived seriousness and consumer behavior, specifically panic buying.

2.2. PERCEIVED SEVERITY AND PANIC BUYING

The factors of the health belief model Yuen et al., (2022) have impacted the consumers as they influence the consumer's analysis and understanding regarding product availability when they purchase the goods or services for consumption. Principally the perceived susceptibility and perceived severity, for instance, getting affected by any health crisis, e.g., COVID-19 and any pandemic, are positively related to consumers' fear of getting affected by and resulting in consumers' response (Purzer, 2011). Further, past studies suggest that measurements of protection for individuals' threat to save themselves empirically demonstrated that perceived severity (PS) leads to adopting the protective health methods (Alflayyeh, 2020). It is being observed and tested that during the pandemic, the unusual purchase intention regarding multiple products of grocery items. Such as food containers of long-life food items, milk and dry milk, and self-hygiene products that just left the store shelves empty (Miri et al., 2020). The beliefs that trigger the individual's behavior to panic buy in uncertain situations through perceived severity, perceived susceptibility, and benefits attached to the behavior of consumers. Hence, we hypothesize:

H₁: Perceived severity has a relationship with panic buying.

2.3. PERCEIVED SEVERITY AND ANTICIPATED REGRET

Seriousness of the situation which was first applied to comprehend the effects of fear appeal, Carpenter, (2010) holds that people defend themselves based on four considerations: the perceived severity of a challenging event, the perceived likelihood that it will occur or their vulnerability, the effectiveness of the advised preventative behavior, and their perception of their own efficacy (Rogers & Prentice-Dunn, 1997). Farooq et al., (2020) explain the underlying motives of human actions during the pandemic. Pappalardo et al., (2020) found that a person's sense of having limited access to food increases when greater trust is placed in information gained from the media as well as from other sources like friends, family or bloggers (Yuen et al., 2022). Due to this uncertainty, one is more prone to buy more food than usual. Hence, we hypothesize that:

H₂: Perceived severity has a relationship with anticipated regret.

2.4. ANTICIPATED REGRET AND PANIC BUYING

The product and services in this contextual research are anticipated to be easily inaccessible because of health emergencies (Ong et al., 2021). The health crises will also formulate a scenario where personal choice regarding any product category will be limited (Bish & Michie, 2010). As a result, these signs stimulate psychological reactance that enhances the attraction toward a product. Psychological reactance can be instigated through the sense of urgency to have that product or buying impulsively and in panic (Sayyida et al., 2021).

Hence, we hypothesize:

H₃: Anticipated regret affects panic buying.

2.5. PERCEIVED SEVERITY, ANTICIPATED REGRET AND PANIC BUYING

Fear of deficiency and loss of control over anxiety, social learning, environment, and the essential primitive reactions of people are primary factors that cause the panic buying phenomenon (Alflayyeh, 2020; Arafat et al., 2020). Food spending was skyrocketing two weeks after the WHO announcement; the compulsion of a pandemic blockade reduced panic buying and storage behavior (Chronopoulos et al., 2020). According to Frost & Gross (1993), the prevalence of panic buying leads customers to have a greater demand for governing to protect their protection and sustain their lives, Uncertainty has also increased to some extent, which leads to a higher level of damage or suffering in response to any recent unfavorable understanding (Frost et al., 2004). Hence, we hypothesize the following,

H₄: Anticipated regret mediates the relation between perceived severity and panic buying.

3. METHODOLOGY

3.1. RESEARCH DESIGN

The research aims to identify unusual behavior of consumer purchases during health crises and their effects in the post-COVID era. This research study has been developed based on the current literature review to fill the research gap through

this conceptual model. The quantitative method was applied for this present research. Based on the literature analysis, a self-administered questionnaire was created and used to assess each of the study's constructs. Online and in-person distribution of the cross-sectional self-administered survey to 550 Pakistani shoppers who frequent the country's top retailers namely, Alfatah, Carrefour, Chase up, Imtiaz, and Metro. The study constructs were measured using a *five-point Likert scale* in the questionnaire. Each item was rated by the respondents according to how strongly they agreed or disagreed with it, from (1) strongly disagree to (5) strongly agree. The partial least squares (PLS) path modeling method is used to assess the results using structural equation modeling (SEM). The collection of the data is done at one time. In order to assess the research study findings on consumer behavior in terms of panic buying, a quantitative research approach is used. This study presents its arguments on the theoretical grounds of the (SOR) model (Mehrabian & Russell, 1974).

3.2. POPULATION AND SAMPLING

3.2.1. POPULATION

In Pakistan and worldwide, people have faced uncertainty and made unusual purchases in many product categories, especially in retail grocery items, hygiene products, and pharmaceutical products during the COVID-19 Pandemic. People worldwide, including the U.S., India, China, and Pakistan, never face uncertainty and panic buying products for fear of shortage (Islam et al., 2021). The United States, as a developed economy with robust and comprehensive retail and supply chain systems also affected by panic buying at stores. The Population for this study is the shoppers of retail grocery stores from all over Pakistan. Due to a lack of resources and time, the target population of the research study has been chosen from Pakistan, as it is also a developing economy.

3.2.2. SAMPLING FRAME AND SIZE

A sample frame is based on those consumers who purchase products and utilities from the big retail stores from the selected sites. Firstly, according to Population, the top five cities of Pakistan have been secondly, the top major grocery retail stores of Pakistan as Alfatah, Carrefour, Chase up, Imtiaz, and Metro have been chosen for the data collection. The consumers visiting the shop will also be contacted during in-store shopping. Also, some questionnaires will be forwarded online through Facebook, WhatsApp, and email for data collection.

It is recommended to have more significant samples, as it will reduce the sampling error (Graziano & Raulin, 1993). The sample size determined by the rule of thumb of multiplying the total number of items by ten. Hatcher and Stepanski (1994) state that the sample size is calculated using the formula: $(43 \times 10) = 430$. For more confidence in collecting valid responses, the data was collected from 560, and 20 responses were excluded as they were incomplete. Total 540 responses from Pakistan were used for analysis.

3.2.3. SAMPLING TECHNIQUE

Considering the aim of the study for collecting data from the sample, the Purposive Sampling technique is used. Purposive sampling selects mostly respondents to bring suitable and valuable information (Kelly et al., 2010). Therefore, purposive sampling, sometimes referred to as judgmental sampling, is chosen to get the necessary data. Because it chooses samples that are more typical of the population, purposeful sampling is used (Yeo et al., 2017).

3.2.4. STATISTICAL ANALYSIS TOOL

This research is aimed at testing and evaluate the collected data through the help of statistical analysis. This research used the Smart PLS version 4.0.9.2 to analyze data, which is helpful for complex model analysis. This study aims to determine the endogenous variable to explain the maximum variance. Hair et al., (2019) suggest that smart PLS can cater to the outer (measurement) and inner (structural) models. The smart PLS has been employed to test the model for this research study to ensure valid results.

4. FINDINGS AND RESULTS

4.1. SOCIO-DEMOGRAPHIC PROFILE OF PARTICIPANTS

The data were collected for three months starting from January 2023 to March 2023. The survey was distributed among 560 respondents from different cities of Pakistan, Lahore, Faisalabad, Multan, Rawalpindi, and Multan. Twenty outliers have been removed from data, following in the total sample of 540. The majority of the respondents in the study were male (55.9%) and female (44.1%). Around 62% of the respondents belong to the 31-50 age bracket with income between 100,000 to 150,000. More than half of the respondents in the study were married and almost half respondents had bachelor's degrees.

4.2. ESTIMATION METHOD

The study used SMART PLS 4.0.9.2 Joseph F. Hair, (2021) to analyze group-specific and pooled sample data using the inbuilt PLS-SEM algorithm. Descriptive statistics were analyzed using SPSS 25 analytical software. PLS-SEM is preferred for theory extension and prediction, especially in small sample sizes and complex theoretical models. Path significance was examined by using PLS-SEM bootstrapping procedures (Hayes & Preacher, 2014).

4.3. ASSESSMENT OF MEASUREMENT MODEL

PLS-SEM assessment involves two-step evaluations of measurement models (outer) and structural models (inner), with the outer model assessing construct reliability and validity. Inspection of multiple measures and criteria is necessary. For

construct reliability, the Cronbach alpha value and composite reliability value were assessed (Waseem et al., 2022). The results revealed that all Cronbach's alpha and composite reliability values were above the cutoff point of 0.07. We examined factor loadings and average variance extracted (AVE) values in order to estimate the convergent validity. The results revealed that the majority of factor loadings and AVE values were higher than 0.7 and 0.50, respectively. (See Table 2), indicating a satisfactory level of convergent validity.

Table 1: Demographic profile

Characteristics	N	%age	Characteristics	N	%age
Gender			Monthly Income		
Female	238	44.1	50,000-75,000	48	8.88
Male	302	55.9	75,001-100,000	92	17.03
Age group			100,001 – 125,000	139	25.74
00-30	90	16.66	125,001 – 150,000	126	23.33
31-40	160	29.62	150,001 – 200,000	82	15.18
41-50	175	32.42	200,001 +	53	9.81
51-60	68	12.69	Purchase frequency		
60+	47	8.70	Daily	150	27.7
Educational level			Once a week	109	20.2
Metric	76	14.1	2 to 4 times a week	131	24.3
Intermediate	80	14.8	1 to 3 times a month	138	25.6
Bachelors	231	42.8	Once a month	12	2.22
Masters	123	22.8	Marital status		
Doctoral	30	5.6	Divorced	13	2.4
Family Structure			Married	339	62.8
Nuclear	294	54.4	Unmarried	188	34.8
Single Parent	82	15.2	Unmarried	188	34.8
Childless	31	5.7			
Extended	133	24.6			

N=540

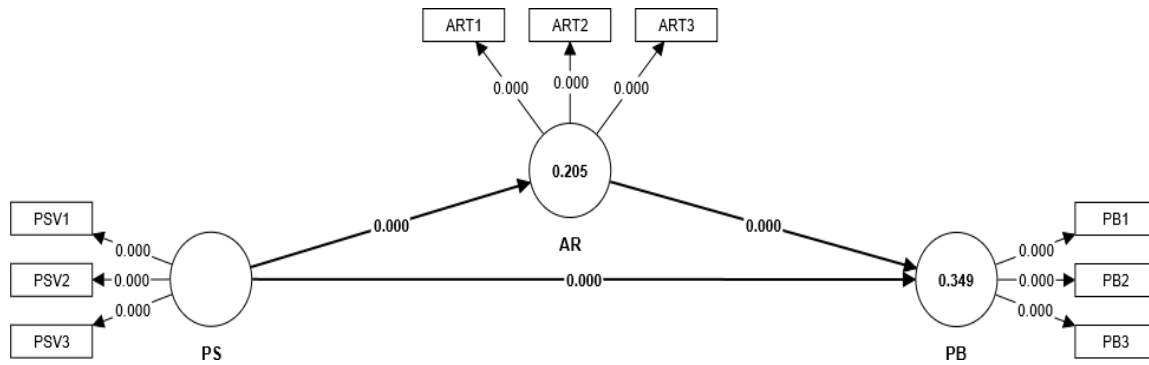
Table 2: Construct Reliability and Convergent Validity

Construct	Items	Factor loadings	Cronbach α	CR	AVE
Perceived Severity	PSV1	0.765	0.728	0.727	0.648
	PSV2	0.828			
	PSV3	0.820			
Anticipated Regret	AR1	0.863	0.795	0.797	0.709
	AR2	0.838			
	AR3	0.824			
Panic Buying	PB1	0.803	0.732	0.734	0.651
	PB2	0.791			
	PB3	0.826			

Using the Fornell-Larcker criterion and discriminant validity has been investigated to determine the degree of overlap between conceptually individual notions. In order to strengthen the discriminant validity, cross-loadings were analyzed. Each item had the maximum cross-loading on its relevant concept and the lowest cross-loading on other constructs (Waseem et al., 2022). Moreover, (Henseler, 2017; Waseem et al., 2022) discriminant validity was evaluated using the heterotrait-monotrait ratio of correlations (HTMT) criterion proposed by (Henseler, 2017). Table 3 demonstrates the discriminant validity by showing that the correlation values following each construct are much lower than the cutoff value 0.85.

Table 3: Heterotrait-monotrait HTMT ratio

Construct	Anticipated Regret	Panic Buying	Perceived Severity
Anticipated Regret			
Panic Buying	0.745		
Perceived Severity	0.595	0.540	



4.4. ASSESSMENT OF STRUCTURAL MODEL

The VIF values assessed to detect the multi-collinearity in regression models, which indicates a high correlation between independent variables. Researchers assess the impact of multi-collinearity on regression results and evaluate it in structural equation models. VIF 3.0 or higher indicates significant multi-collinearity in structural equation models, using the Variance Inflation Factor (VIF) to evaluate independent variables (Hamledari & Fischer, 2021). In this study, all the variance inflation factor (VIF) values were below 3.0 represented in below (Table 4) indicating that the independent regression results were reliable. Examination of the coefficient of determination R^2 that our predictor (perceived severity) explained 35% of the variations in outcome variable (panic buying).

Table 4: Variance inflation factor

Construct	VIF	R^2
ART1	1.827	0.205
ART2	1.623	
ART3	1.655	
PB1	1.455	0.349
PB2	1.399	
PB3	1.496	
PSV1	1.274	
PSV2	1.605	
PSV3	1.618	

4.5. DIRECT HYPOTHESIS TESTING

In this study, we evaluated the proposed structural connections between endogenous and exogenous components. The outcomes of the algorithm and bootstrapping analysis are shown in the hypothesis testing (Table 5). Perceived severity has a significant direct effect on Panic buying behavior ($\beta=0.174$, $t=3.650$, $P=0.000$). Similarly, the influence of perceived severity significantly affects anticipated regret ($\beta=0.453$, $t=9.877$, $P=0.000$). Anticipated regret has significantly impacted panic buying ($\beta=0.491$, $t=10.324$, $P=0.000$). Hence all the hypotheses have been accepted.

Table 5: Hypothesis Testing

Hypothesis	β	T-value	P-value	C.I 2.5%	C.I 97.5%	Confirmation
H_1 PS \rightarrow PB	0.174	3.650	0.000	0.081	0.266	Accepted
H_2 PS \rightarrow AR	0.453	9.877	0.000	0.363	0.543	Accepted
H_3 AR \rightarrow PB	0.491	10.324	0.000	0.395	0.582	Accepted

4.6. HYPOTHESIS TESTING: MEDIATION EFFECT

The mediating effect of anticipated regret (AR) between perceived severity(PS) and panic buying(PB) shows the complimentary mediation as ($\beta=0.222$, $t=7.274$, $P=0.000$).

Table 6: Hypothesis Testing

Hypothesis	β	T-value	P-value	C.I 2.5%	C.I 97.5%	Confirmation
H ₄ :PS→AR→PB	0.222	7.274	0.000	0.166	0.285	Accepted Complimentary partial mediation.
PS → PB	0.174	3.650	0.000	0.081	0.266	Accepted

5. DISCUSSION

The current study is set to examine the impact of (Stimulus) perceived severity, (Organism) anticipated regret, and (Response) Panic buying in the post-pandemic era. Further, this study analyzes the mediating effect of anticipated regret as a mediator between perceived severity and panic buying. The obtained results have primarily confirmed the significance of these factors on the panic buying behavior of consumers. The mirroring effect of perceived severity and panic buying is explained in (Laato et al., 2020). As the severity of the situation in the pandemic escalates the nature of buying and pattern of buying behavior, relevant behavior can be seen in this research reported post-pandemic times.

The perceived severity has a positive significant effect on anticipated regret through this study's findings. People were unable to digest and comprehend what was happening throughout the pandemic, which made it difficult for them to understand the true gravity of the situation. This research in post-pandemic has focused on assessing consumer behavior regarding perceived severity. Perceived severity is still showing a positive effect on anticipated regret. Consumers assume that if the severity of the situation arises, they will regret later on not buying the grocery products even when pandemic is over. Anticipated regret has a mediating role between perceived severity and panic buying. This research also replicates the findings of (Chua et al., 2021b). The implications of this research findings can be employed to understand consumer behavior if any epidemic or pandemic occurs in the future. Many retailers and stakeholders of grocery stores can understand the behavior of consumers and make strategies to deal in uncertain situations.

Further, this research has its limitations, the cross-cultural study for understanding consumer behavior in post-pandemic may bring more insights to the research question. Moreover, this research reports the results from cross-sectional data, future longitudinal studies can be conducted to analyze consumer behavior in the post-pandemic era.

REFERENCES

- Alflayyeh, S. (2020). *European Journal of Molecular & Clinical Medicine Theoretical Perspective Of Unusual Purchasing Tendencies During Pandemic Situation Of Covid-19*. 07(01), 3475–3482.
- Ali, M., Gomes, L. M., Azab, N., de Moraes Souza, J. G., Sorour, M. K., & Kimura, H. (2023). Panic buying and fake news in urban vs. rural England: A case study of twitter during COVID-19. *Technological Forecasting and Social Change*, 193, 122598.
- Arafat, S. M. Y., Kar, S. K., Marthoenis, M., Sharma, P., Apu, E. H., & Kabir, R. (2020). Psychological underpinning of panic buying during pandemic (COVID-19). *Psychiatry Research*, 289, 113061.
- Baidoun, S. D., & Salem, M. Z. (2023). Factors affecting consumer post COVID-19 online shopping behavior: the moderating role of commitment—evidence from Palestine. *Journal of Strategic Marketing*, 1–16.
- Bish, A., & Michie, S. (2010). Demographic and attitudinal determinants of protective behaviours during a pandemic: A review. *British Journal of Health Psychology*, 15(4), 797–824.
- Carpenter, C. J. (2010). A meta-analysis of the effectiveness of health belief model variables in predicting behavior. *Health Communication*, 25(8), 661–669.
- Chronopoulos, D. K., Lukas, M., & Wilson, J. O. S. (2020). Consumer spending responses to the COVID-19 pandemic: An assessment of Great Britain. Available at SSRN 3586723.
- Chua, G., Yuen, K. F., Wang, X., & Wong, Y. D. (2021a). The determinants of panic buying during COVID-19. *International Journal of Environmental Research and Public Health*, 18(6), 3247.
- Chua, G., Yuen, K. F., Wang, X., & Wong, Y. D. (2021b). The determinants of panic buying during COVID-19. *International Journal of Environmental Research and Public Health*, 18(6), 1–28.
- Farooq, A., Laato, S., & Islam, A. K. M. N. (2020). Impact of online information on self-isolation intention during the COVID-19 pandemic: cross-sectional study. *Journal of Medical Internet Research*, 22(5), e19128.
- Frost, R. O., & Gross, R. C. (1993). The hoarding of possessions. *Behaviour Research and Therapy*, 31(4), 367–381.
- Frost, R. O., Steketee, G., & Grisham, J. (2004). Measurement of compulsive hoarding: saving inventory-revised. *Behaviour Research and Therapy*, 42(10), 1163–1182.
- Graziano, A. M., & Raulin, M. L. (1993). *Research methods: A process of inquiry*. HarperCollins College Publishers.

- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24.
- Hamledari, H., & Fischer, M. (2021). Measuring the impact of blockchain and smart contracts on construction supply chain visibility. *Advanced Engineering Informatics*, 50, 101444.
- Hatcher, L., & Stepanski, E. J. (1994). *A step-by-step approach to using the SAS system for univariate and multivariate statistics*. SAS Institute.
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451–470.
- Henseler, J. (2017). Partial least squares path modeling. *Advanced Methods for Modeling Markets*, 361–381.
- 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. In *Journal of Retailing and Consumer Services* (Vol. 59). Elsevier Ltd.
- Joseph F. Hair, J. . G. T. M. H. C. M. R. M. S. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)-Third Edition*.
- Kelly, S. E., Bourgeault, I., & Dingwall, R. (2010). Qualitative interviewing techniques and styles. *The SAGE Handbook of Qualitative Methods in Health Research*, 19, 307–326.
- Kumar, S., Dhir, A., Talwar, S., Chakraborty, D., & Kaur, P. (2021). What drives brand love for natural products? The moderating role of household size. *Journal of Retailing and Consumer Services*, 58(September 2020), 102329.
- Laato, S., Islam, A. K. M. N., Farooq, A., & Dhir, A. (2020). Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach. *Journal of Retailing and Consumer Services*, 57(March), 102224.
- 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.
- Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. the MIT Press.
- Miri, S. M., Roozbeh, F., Omranirad, A., & Alavian, S. M. (2020). Panic of buying toilet papers: a historical memory or a horrible truth? Systematic review of gastrointestinal manifestations of COVID-19. *Hepatitis Monthly*, 20(3).
- 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.
- Ong, A. K. S., Cleofas, M. A., Prasetyo, Y. T., Chuenyindee, T., Young, M. N., Diaz, J. F. T., Nadlifatin, R., Agung, A., & Perwira, N. (2021). *Consumer Behavior in Clothing Industry and Its Relationship with Open Innovation Dynamics during the COVID-19 Pandemic in in Southeast*.
- Pappalardo, G., Cerroni, S., Nayga, R. M., & Yang, W. (2020). Impact of Covid-19 on Household Food Waste: The Case of Italy. *Frontiers in Nutrition*, 7.
- Purzer, S. (2011). The Relationship Between Team Discourse , Self-Efficacy , and ... *Journal of Engineering Education*, 100(4), 655–679.
- Rogers, R. W., & Prentice-Dunn, S. (1997). *Protection motivation theory*.
- Sayyida, S., Hartini, S., Gunawan, S., & Husin, S. N. (2021). The Impact of the Covid-19 Pandemic on Retail Consumer Behavior. *Aptisi Transactions on Management (ATM)*, 5(1), 79–88.
- Vázquez-Martínez, U. J., Morales-Mediano, J., & Leal-Rodríguez, A. L. (2021). The impact of the COVID-19 crisis on consumer purchasing motivation and behavior. *European Research on Management and Business Economics*, 27(3), 100166.
- Waseem, M. A., Waqas, M., Irfan, I., Abdullah, I., & Wajid, N. (2022). A cross-sectional study of antecedents and Consequence of panic buying behavior: the moderating effect of COVID-19 Rumors. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 59, 00469580221126304.
- Yeo, V. C. S., Goh, S. K., & Rezaei, S. (2017). Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services. *Journal of Retailing and Consumer Services*, 35(December 2016), 150–162.
- Yuen, K. F., Tan, L. S., Wong, Y. D., & Wang, X. (2022). Social determinants of panic buying behaviour amidst COVID-19 pandemic: The role of perceived scarcity and anticipated regret. *Journal of Retailing and Consumer Services*, 66, 102948.