Impact of Covid-19 Pandemic on Impulse Purchase Behaviour among Women Shoppers of Mumbai

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Abstract

As global economies started to shut down to prevent the spread of the Covid-19 virus, this changed businesses and consumers and how the two entities interacted. Disruptions in the supply chain caused mass anxieties and people were reported to be hoarding essential supplies such as toilet papers, food, and grocery items (The Times of India, 27 May 2020). The contrary was observed in the long run and saving rates reportedly improved (Financial Express, 1 June 2020). Scientific investigations into the short- and long-term effects of the pandemic on consumer behaviour are the need of the hour. The present research aims to contribute to this growing body of scientific knowledge by studying the short-term effects of the pandemic on the impulsive buying tendency of women consumers of Mumbai, India. It investigates how the experience of living with social restrictions and uncertainties might have affected the impulsive buying tendencies of subject consumers and their consumption of secondary need items such as clothes, personal care items, and luxuries. The research also discusses the decision-making process of consumers when the subjects are on an impulsive buying streak.

Keywords: Women shoppers, crisis, impulse buying, online shopping, purchase decision, Covid-19, cognition, anxiety, panic buying.

1. Introduction

As global economies started to shut down to prevent the spread of the Covid-19 virus, this changed the landscape of businesses and consumers and how the two entities interacted. Disruptions in the supply chain caused mass anxieties and people across the world were reported to be hoarding essential supplies such as toilet papers, food, and grocery items (The Times of India 27 May 2020). In the short run, this resulted in a complete failure of the

supply chain as demands skyrocketed and supplies couldn't reach the end consumers due to restrictions. The contrary was observed in the long run, however. Saving rates improved, perhaps due to little opportunities to spend on non-essentials and massive salary cuts and employees lay-offs (Financial Express, 1 June 2020).

It could be costly for businesses to just take these observations for granted. Scientific investigations into the short- and long-term effects of the pandemic on consumer behaviour are the need of the hour (Jamunadevi et. al., 2021). The present research aims to contribute to this growing body of scientific knowledge. Specifically, the present research studies the short-term effects of the pandemic on the impulsive buying tendency of women consumers of Mumbai, India. It also investigates how living with social restrictions and uncertainties might have affected the impulsive buying tendencies of subject consumers. The research also discusses the decision-making process of consumers when they're on an impulsive buying streak.

2. Literature Review

2.1 Impulse purchasing behaviour during Covid-19

Past investigations have revealed several factors that influence the impulsive purchasing behaviour of consumers. With the advent of e-commerce, the constraints of time and distance that otherwise took considerable effort at the end of consumers no longer exist to dissuade a consumer from purchasing unnecessarily (Zhang *et al.*, 2020). Then, e-commerce also offers greater variety and a large inventory of all types of goods that further persuades consumers to purchase on impulse rather than for need.Increase in impulsive and panic purchasing patterns in China, India, the United States of America, and other developing and developed countries (Islam *et al.,*2021). The author's further point out that uncertainties and a fear of lack of supplies in the future led to such behaviours (Xiang et. al., 2016). With shops closed and restrictions in place, e-commerce gained significant ground, and with little friction with e-commerce, as pointed out earlier, mobile shoppers exhibited heightened impulsive purchasing tendency amid the Covid-19 pandemic (Xian et. al., 2020).

2.2 Emotional triggers during impulse purchasing behaviour

In the pre-pandemic times, greater impulsive purchases were observed in the fashion industry. Because of temporary fashion trends and exhibition of fashion items in sales, consumers tend to purchase more clothes and apparels than they needed (Nuseir, 2020). Instagram had become a key tool in marketing fashion goods among millennials and Gen. Z

consumers (Djafarova and Bowes, 2021). The authors observed that influencer marketing was far more effective in triggering positive emotional stimulations in consumers than other traditional mass media. Businesses too are shifting their advertising to social media (Dhanesh and Duthler, 2019).

Impulsive triggers following the pandemic and observed that anxieties and negative stimulations had now replaced positive emotional triggers identified in the pre-pandemic era (Lee *et al.*, 2021). Fear of uncertainty and unavailability of essential supplies had heightened the risk perception of consumers, leading to a mass panic purchasing across the world in the early days of the pandemic. Safety concerns due to exposure to the outside world too led consumers to buy supplies in bulk to avoid health risks.

2.3   Role of consumer characteristics in buying behaviour

Demography has been a widely studied factor in consumer behaviour. Indonesian consumers show a great deal of heterogeneity where each tribe and region show unique consumption tendencies (Putra *et al.*, 2017). The authors also found other factors affecting consumer behaviour in Indonesia, e.g., personal preferences, cultural ideals, social tendencies, financial background, etc.Harwani and Kanade (2017) investigated the role of gender and age in impulse buying tendency. They found that woman and those between 25-35 years old showed greater susceptibility to impulse buying than their counterparts of the other gender and age groups. These studies indicate a significant role of demography in impulsive purchases.

2.4   Hawkins Stern Impulse Buying Theory

Hawkins Stern Impulse Buying Theory states that impulsive buying tendencies exhibited by the average consumer group are influenced by various external factors as well. External positive stimulations affect the ability of a consumer to make their purchasing decisions rationally and leads them to act upon their contemporary emotional state (Ittaqullah*et al.,* 2020). In other words, external factors such as promotional campaigns, advertising, the placement of product in a supermarket, ambience, etc. influences purchasing intentions of an average consumer. These external stimuli could be due to a natural cause or man-made, as in the case of advertisements, and could induce positive or negative emotions within a consumer (Razzak and Imran, 2020).

Impulse purchasing is primarily driven by a sense of attachment with the brand, which is a case of positive stimulus. On the other hand, negative stimuli in the form anxiety and stress

were observed to play a role in the heightened impulse purchasing in the days following the pandemic (Kulsum*et al.*, 2020).

Our literature review has identified zero studies into the long-term effect of the pandemic on impulsive buying tendency of consumers as well as little research in the short-term effects on women consumers. To fulfil this gap, the present research investigates the short- and long-term effects of pandemic on impulsive buying tendency of women consumers between the age of 18 and 50 and residing in Mumbai, India (Pappas et. al., 2017).

3.   Research Methodology

A proper research design is what distinguishes a great research from the average ones. It is the second most important element in a research after formulation of the research problem, which determines the kind of methods the research would employ. This section details the research methodology employed in the present research and provide justification for these choices.

Explanatory research has been employed as is needed to clarify the exact nature of the problem addressed in the research. Explanatory research is the preliminary research that is used to ensure additional research is taken into consideration during the research as well as while defining research priorities, during data collection, and honing in on certain subjects which may be difficult to consider without exploratory research.

Positivism research philosophy has been thereafter adapted for data collection and their evaluation. The positivism research philosophy helps researchers understand the nuances associated with their research topic (Ryan, 2018).Positivism also helps researchers avoid bias in their research (Park *et al.*, 2020). In view of these advantages associated with the positivism philosophy, contrary research philosophies such as pragmatism and interpretivism have been neglected in the present study.

The present study is a primary research, i.e., it attempts to address the research questions via primary data. The significance of primary quantitative research as they provide new avenues from which to understand the world around us (Ebert *et al.*,2018).

Survey is a popular data collection tool in the field of psychology and social sciences. We designed a questionnaire of 15 items and surveyed a diverse group of 100 women consumers between age of 18-50 years. Participants included students, professionals, homemakers, and

businesswomen. The survey was carried out online and those women who do not shop online were excluded from the present investigation.

4. Results & Discussion

4.1 Instrument Validation

Exploratory factor analysis is an important and commonly used tool in testing the validity of the instrument used in a survey and in exploring for possible latent variables. Latest variables are variables that are not directly measured and could be understood as explained by a group of items that have been measured in the survey.

As a first step before the factor analysis, it helps to check the data for KMO & Bartlett's test of sphericity. KMO & Bartlett's test of sphericity is a measure of sampling adequacy that checks for the case to variable ratio. In other words, they test whether the data is suitable for factor analysis. A KMO score of above .65 and a $p<0.05$ on Bartlett's test are considered acceptable (Gignac, 2019). Our instrument initially scored .654 on KMO and a $p<0.001$ on Bartlett's test. We then proceed with EFA and data analysis in next sections.

Items with <0.5 in the communality table were removed, resulting in 3 items being from further analysis. It was also later found that two items loaded on two factors. These too were removed. 5 items were thus removed from further analysis in total. KMO & Bartlett's tests were repeated and the new KMO score was reported at .652 with $p<0.001$ for Bartlett's test of sphericity. Factor analysis was also repeated with 5 items removed from the analysis.

Table 2 Communalities

	Initial	Extraction
[FOMO]	1.000	.624
[Influencer and celebrity endorsement]	1.000	.813
[Colourful and attractive memes or display]	1.000	.808
[Stocking up on products due to panic]	1.000	.634
[Convenient delivery]	1.000	.553
[Brand Perception]	1.000	.693
[Ease of navigation]	1.000	.589
[Product design and aesthetic]	1.000	.614

Extraction Method: Principal Component Analysis.

Quartimax rotation was used to better interpret the latent variables. FOMO, Influencer and celebrity endorsement, and Colourful and attractive memes/display ranked together on the

rotated component matrix (see Table 3). So did (i) Stocking up on products in panic and Convenient delivery, and (ii) Brand perception, Ease of navigation, and Product design and aesthetic loaded together on two different factors. The correlation of each of these items on their relevant factor was between 0.597 to 0.889 (a score of .5 or more is acceptable). We named these three latent factors, in order earlier stated, emotional factors, lockdown factors, and cognitive perception (factors 1, 3, and 2, respectively, in Table 3).

Table 1 Rotated Component Matrix

	Component		
	1	**2**	**3**
[FOMO]	.704	-.126	.335
[Influencer and celebrity endorsement]	.889	.103	-.115
[Colourful and attractive memes or display]	.877	.182	-.074
[Stocking up on products due to panic]	.366	-.183	.683
[Convenient delivery]	-.221	.320	.634
[Brand Perception]	.144	.819	.022
[Ease of navigation]	-.035	.597	.482
[Product design and aesthetic]	.030	.781	-.059

Extraction Method: Principal Component Analysis.

Rotation Method: Quartimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

4.2 Shifts in Consumption Pattern

Before testing the shift in consumption patterns, it helps to group expenses using Maslow's hierarchy model. Maslow's hierarchy model discusses two types of needs, basic and psychological needs, and according to the theory, we tend to go seek our psychological needs only after our basic needs have been met (Maslow, 1954). One could hypothesize that people would have tend to seek basic needs during times of crisis such as the Covid-19 pandemic. So, according to the Maslow's hierarchy model, we should find evidence of increase in basic items and a decrease in non-basic items, which, in the case of the present research, is further bifurcated into secondary and luxury needs as classified in Table 4.

Table 2 Classification of categories of expenses according to Maslow's hierarchy model

Basic	Food; Household items
Secondary	Clothing/Apparel; Personal care, Books
Luxury	Gadgets; Gift/luxury items

So, the first thing we do is test whether there is a statistically significant different in pre- and post-Covid levels of consumptions among the three groups of products using a multivariate Analysis of Variance (ANOVA). Specifically, we are testing the following hypothesis.

H2: Consumption pattern will follow Maslow's model, i.e., there will be greater consumption for basic items, followed by secondary and luxury items in the post-Covid era.

Table 5 establishes the differences using ANOVA since p<0.05. Table 6 lists the mean values and other descriptive findings from the test. The difference in frequency of consumption of basic, secondary, and luxury items can be observed from the table (in order). To further establish these differences, we took a Tukey's HSD of the three groups of items results of which are listed in Table 7. Maslow's hierarchy model can be thereafter confirmed from Table 7. The frequency of consumption (in descending order) begins from basic and ends with luxury items, with secondary items lying somewhere in between the two. Thus, **we reject the null hypothesis $H_0 2$**. It's been established that consumption follows Maslow's model in our case.

Table 3 ANOVA results for H2.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	81.808	2	40.904	26.730	.000
Within Groups	339.716	222	1.530		
Total	421.525	224			

Table 4 Descriptive findings from ANOVA test

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Min.	Max.
Avgfreq of basic items during covid	75	4.0133	.98972	.11428	3.7856	4.2410	1.00	5.00
Avgfreq of luxury items during covid	75	2.5467	1.50039	.17325	2.2015	2.8919	.00	5.00
Avgfreq of secondary items during covid	75	3.1289	1.16621	.13466	2.8606	3.3972	.00	5.00
Total	225	3.2296	1.37179	.09145	3.0494	3.4098	.00	5.00

Table 5 Tukey's HSD

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Avgfreq of basic items during covid	Avgfreq of luxury items during covid	1.46667*	.20201	.000	.9900	1.9433
	Avgfreq of secondary items during covid	.88444*	.20201	.000	.4078	1.3611
Avgfreq of luxury items during covid	Avgfreq of basic items during covid	-1.46667*	.20201	.000	-1.9433	-.9900
	Avgfreq of secondary items during covid	-.58222*	.20201	.012	-1.0589	-.1056
Avgfreq of secondary items during covid	Avgfreq of basic items during covid	-.88444*	.20201	.000	-1.3611	-.4078
	Avgfreq of luxury items during covid	.58222*	.20201	.012	.1056	1.0589

*The mean difference is significant at the 0.05 level.

Figures 1 and 2 show the shift in expenditure pattern across different groups of products following the Covid-19 pandemic. From the two graphs, we can notice more people cut back on their expenses in non-essentials such as clothes, gadgets, and gifts and luxury items. On the other hand, expenses on household items, food, and personal care increased.

But these graphs don't tell the complete story. Are these shifts in expenditure patterns statistically significant to make a conclusion? We test them using t-test and the results indicate that except for household items, we have failed to show a statistically significant change in expenditure pattern for all other categories of products using t-test (Table 8).
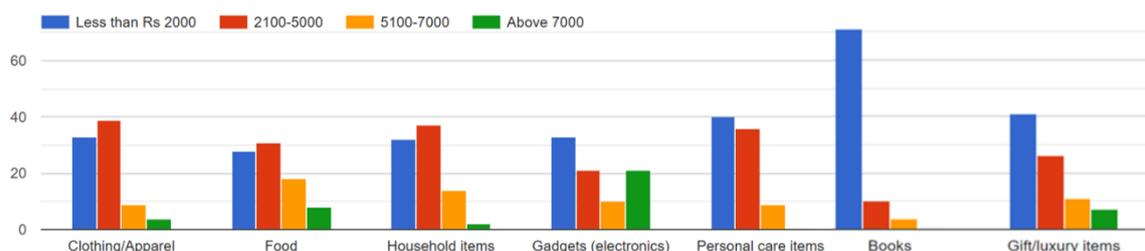
Figure 1 How much did you spend in a month on each of these products before Covid-19?
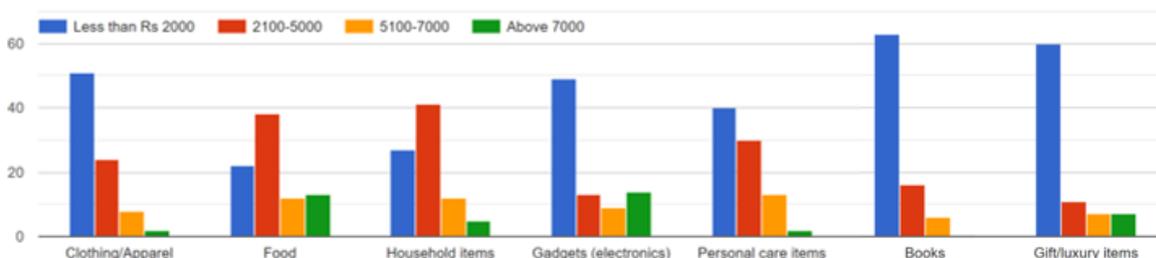

Figure 2 How much did you spend in a month on each of these products during Covid-19?

Table 6 T-test for changes in expenditure pattern

	Frequency of shopping				
	Before Covid		During Covid		
	Mean	Variance	Mean	Variance	p
Clothing/Apparel	3.2713	1.6	3.1042	1.9	0.4293
Food	3.7947	1.4	4.0844	1.4	0.1343
Household items	3.3774	1.7	3.8750	1.5	0.0157
Gadgets/Electronics	2.5734	1.6	2/4861	2.9	0.6667
Personal care products	3.3510	1.7	3.7453	1.6	0.0608
Books	2.4513	2.3	2.5000	3.0	0.8814
Gift/luxury items	2.6704	2.0	2.6119	2.5	0.7801

Fortunately, that's not the end of the story. T-test is a parametric test and though fairly robust to certain violation of assumptions, in our case, we violated its assumption of scalar items, t-tests may fail to get us the required results. So, we further use the Wilcoxon matched pairs signed rank test to test the shift in expenditure pattern for statistical significance. Table 9 presents the results of the tests, and we find evidence of statistically significant change in expenditure patterns for clothing and apparels, gadgets, and gifts and luxury items.

Based on the earlier t-test and the Wilcoxon matched pairs test results, **we reject the null hypotheses H1.1, H1.3, H1.4, and H1.6**, thereby establishing the change in expenditure pattern at least for clothes & apparels, household items, gadgets, and gifts & luxury. We noticed a drop in the average expenditure for clothes & apparels, gadgets, and gifts & luxury items, whereas the average expenditure for household items saw an increase during the pandemic.

Table 7 Related Samples Wilcoxon Signed Rank Test results of H1.1–1.7.

S. no.	Null Hypothesis	Sig.	Decision
H1.1	The median of differences between spend before Covid-19 [Clothing/Apparel] and spend during Covid-19 [Clothing/Apparel] equals 0.	.001	Reject the null hypothesis.
H1.2	The median of differences between spend before Covid-19 [Food] and spend during Covid-19 [Food] equals 0.	.178	Retain the null hypothesis.
H1.3	The median of differences between spend before Covid-19 [Household items] and spend during Covid-19 [Household items] equals 0.	.486	Retain the null hypothesis.
H1.4	The median of differences between spend before Covid-19 [Gadgets (electronics)] and spend during Covid-19 [Gadgets (electronics)] equals 0.	.002	Reject the null hypothesis.
H1.5	The median of differences between spend before Covid-19 [Personal care items] and spend during Covid-19 [Personal care items] equals 0.	.127	Retain the null hypothesis.
H1.6	The median of differences between spend before Covid-19 [Gift/ luxury items] and spend during Covid-19 [Gift/ luxury items] equals 0.	.007	Reject the null hypothesis.
H1.7	The median of differences between spend before Covid-19 [Books] and spend during Covid-19 [Books] equals 0.	.097	Retain the null hypothesis.

*Asymptomatic significances are displayed. The significance level is 0.05.

4.3 Correlation & GLM

In section 4.1, three latent variables were identified. In this section, we begin with a bivariate correlation between these variables and frequency of consumption of secondary group of products (personal care, books, and clothes and apparels). We found statistically significant

and a positive correlation between emotional factors (such as influencer endorsement, etc.) and consumption of secondary group of products, and a negative significant correlation between lockdown factors and consumption of the secondary group of products (see Table 10).

Table 8 Correlation between latent factors and consumption of secondary items

Variables	Correlation with consumption of secondary items during Covid-19
Emotional factors	.210**
Cognitive perception	.049
Lockdown factors	-.153*

*p<0.05, **p<0.01

We then took a linear regression of all the three variables, e.g., pre-pandemic consumption level, emotional factors, and lockdown factors, and investigated their independent and combined effects on the consumption of secondary items during the Covid-19 pandemic (Figure 3). Their combined effects, in terms of coefficient of determinant, turned out be $R^2 = 0.34$, indicating that at least 34% of variance in the dependent variable is explained by the three selected variables. The independent effects, represented by β coefficients, of the three variables have been found to be as illustrated in Figure 3. Emotional factors (β = .28) and pre-pandemic consumption level (β = .58) had positive effects on post-pandemic consumption of secondary items, whereas the lockdown resulted in a dip in this consumption level (β = -.40).
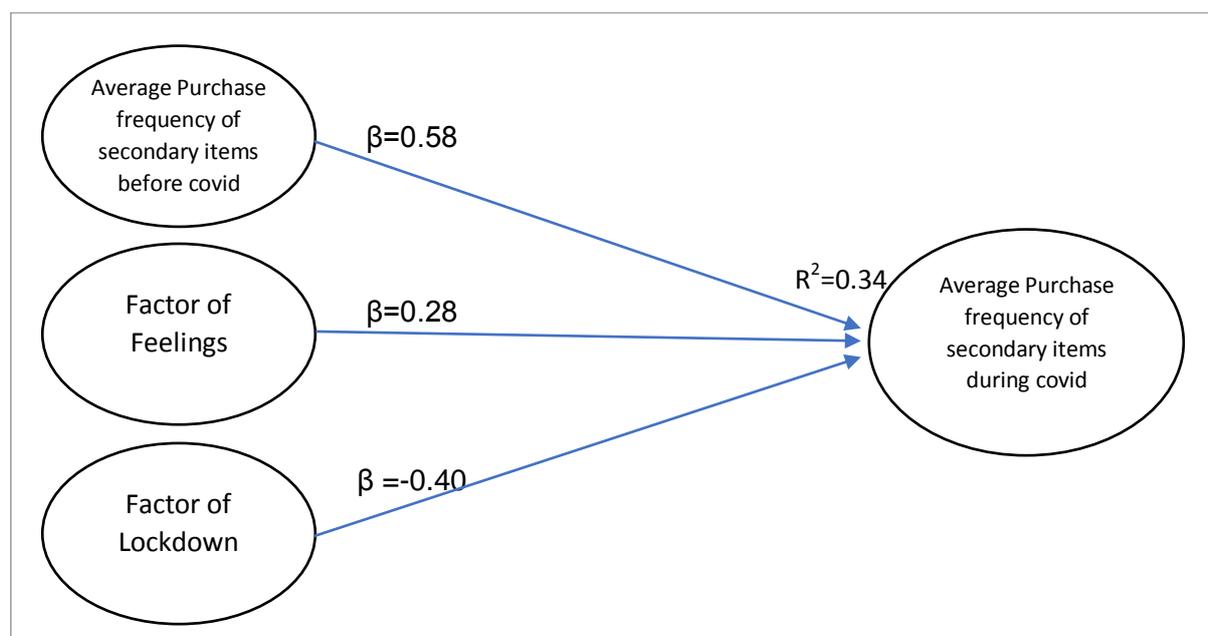
Figure 3 Impact of lockdown on consumption of personal care items, books, and clothes.

5. Conclusion

Ali and Sudan (2018) suggested that a growth in organised retail was also responsible for an increase in impulsive purchases in India (in addition to growing purchasing power of Indian consumers). Organised retail use research to trigger and get us to purchase. Extreme levels of impulsive (panic) buying were observed in the initial days following the announcement of restrictions. An interesting finding that we noted in the literature review was that the stimulants behind impulsive buying was negative (due to anxiety and stress) this time as compared to positive stimulants (such as brand association, etc.) in the case of promotional campaigns (Akram et. al., 2018).

Our investigation focused on impulsive buying tendency of women consumers of Mumbai in the pre- and post-pandemic periods. We used Maslow's hierarchy of need to better understand how the pandemic affected the consumption level of products that are of basic needs vs. those that are of psychological needs. It was found that consumption in clothes & apparels, gadgets, and gifts & luxury items dropped following the pandemic, whereas consumption of household items increased during the same period (see Tables 1 and 2). A

lack of evidence left us inconclusive about the effect of lockdown restrictions on the pre- and post-pandemic levels of consumption of certain items, e.g., food, personal care items, and books (Table 2).

Emotional (β = .28) and lockdown factors (β = -.40), respectively, were positively and negatively correlated with the post-pandemic consumption level of secondary need items (Ingaldi, and Brozova, 2020). The pre-pandemic consumption level was the single most important factor that determined the post-pandemic consumption level of secondary need items (β = .58). The combined effect of the three stated variables on the post-pandemic consumption of secondary need items was found to be 34% (or R^2 = .34). The regression has been illustrated in Figure 3.

Thus, lockdown restrictions and other pandemic-induced factors did result in a decrease in consumption of secondary and tertiary need items. In other words, people spent less on things they didn't need (or needed less of) and likely saved more. Future studies could investigate, in specific, how the pandemic affected the saving patterns of people. News article indicate that people across the world have been saving more in the pandemic (QZ, Worried Indians are saving more during the pandemic despite layoffs and salary cuts; NBC News, Americans are saving more during the pandemic — but there's still a huge demographic divide; Deseret, More people are saving as a result of the pandemic, Utah bank reports). These articles point at different aspects of this changed pattern in consumer saving. Future studies could investigate (i) the uniformity of this change in saving pattern (since NBC News article clearly point at the demographic division in saving during the pandemic), (ii) the extent of this change across different population groups, (iii) whether this change has been sustained in the post-pandemic period, and (iv) how has a drop in consumer spending affected the global economy.

References

Akram, U., Hui, P., Khan, M.K., Yan, C. and Akram, Z. (2018), "Factors affecting online impulse buying: evidence from chinese social commerce environment", Sustainability (Sustainability), Vol. 10 No. 2, doi: 10.3390/su10020352.

Ali, S.W. and Sudan, S., 2018. Influence of cultural factors on impulse buying tendency: A study of Indian consumers. *Vision*, *22*(1), pp.68-77.

Dhanesh, G.S. and Duthler, G. (2019), "Relationship management through social media influencers: effects of followers' awareness of paid endorsement", Public Relations Review, Vol. 45 No. 3, p. 101765, doi: 10.1016/j.pubrev.2019.03.002.

Djafarova, E. and Bowes, T., 2021. 'Instagram made Me buy it': Generation Z impulse purchases in fashion industry. *Journal of Retailing and Consumer Services*, *59*, p.102345.

Ebert, J.F., Huibers, L., Christensen, B. and Christensen, M.B., 2018. Or web-based questionnaire invitations as a method for data collection: cross-sectional comparative study of differences in response rate, completeness of data, and financial cost. *Journal of medical Internet research*, *20*(1), p.e24.

Fairhurst, A.E. and Fiorito, S.S., 1990. Retail buyers' decision-making process: an investigation of contributing variables. *International Review of Retail, Distribution and Consumer Research*, *1*(1), pp.87-100.

Ginac, G. (2019). How2statsbook. https://how2statsbook.com/.

Harwani, S. and Kanade, S.R., 2017. Impact of demographic differences and other factors on impulse buying. *International Journal of Management (IJM)*, *8*(2), pp.58-67.

Ingaldi, M. and Brozova, S. (2020), "Popularity of E-shops during COVID-19 pandemic", Quality Production Improvement, Vol. 2 No. 1.

Islam, T., Pitafi, A.H., Arya, V., Wang, Y., Akhtar, N., Mubarik, S. and Xiaobei, L., 2021. Panic buying in the COVID-19 pandemic: A multi-country examination. *Journal of Retailing and Consumer Services*, *59*, p.102357.

Ittaqullah, N., Madjid, R. and Suleman, N.R., 2020. The effects of mobile marketing, discount, and lifestyle on consumers' impulse buying behavior in online marketplace. *Int. J. Sci. Technol. Res.*, *9*(3), pp.1569-1577.

Jamunadevi, C., Deepa, S., Kalaiselvi, K.T., Suguna, R. and Dharshini, A. (2021), "An empirical research on consumer online buying behaviour during covid-19 pandemic", IOP Conf.Series: Materials Science and Engineering, Vol. 1055 No. 1.

Kulsum, N.M., Salim, A., Sjuchro, D.W., Nugraha, A.R. and Prastowo, A.A., 2020. The impact of social media on personal shopper phenomenon in the covid-19 era. *Psychology and Education Journal*, *57*(8), pp.336-342.

Lee, J. (2021, February 24). More people are saving as a result of the pandemic, Utah bank reports. *Deseret News*. https://www.deseret.com/utah/2021/2/24/22297302/more-people-are-saving-as-a-result-of-the-pandemic-utah-bank-reports

Lee, Y.C., Wu, W.L. and Lee, C.K., 2021. How COVID-19 triggers our herding behavior? Risk perception, State anxiety and Trust. *Frontiers in Public Health*, *9*, p.46.

Maslow, A.H., 1954. The instinctoid nature of basic needs. *Journal of personality*.

Mulye, P. (2021, May 10). The pandemic has made savings a priority for Indian households. *Quartz*. https://qz.com/india/2006292/the-pandemic-has-made-savings-a-priority-for-indian-households/

Nuseir, M.T., 2020. The extent of the influences of social media in creating'impulsebuying'tendencies. *International Journal of Business Innovation and Research*, *21*(3), pp.324-335.

Pappas IO, Kourouthanassis PE, Giannakos MN, Chrissikopoulos V (2017) Sense and sensibility in personalized e-commerce: how emotions rebalance the purchase intentions of persuaded customers. Psychol Mark 34(10):972–986.

Park, Y.S., Konge, L. and Artino, A.R., 2020. The positivism paradigm of research. *Academic Medicine*, *95*(5), pp.690-694.

Putra, A.H.P.K., Said, S. and Hasan, S., 2017. Implication Of External And Internal Factors Of Mall Consumers In Indonesia To Impulsive Buying Behavior. *International Journal of Business Accounting and Management ISSN*, *2*(4), pp.1-10.

Razzak MI, ImranM,XuG (2020) Big data analytics for preventive medicine. Neural Comput&Applic 32:4417–4451

Ryan, G., 2018. Introduction to positivism, interpretivism and critical theory. *Nurse researcher*, *25*(4), pp.41-49.

Sinha, S. (2020, June 1). *Are Indians Spending Less, Saving More During Covid-19 Lockdown? Here's What SBI Research Reveals - The Financial Express.* The Financial Express. https://www.financialexpress.com/money/are-indians-spending-less-during-covid-19-lockdown-heres-what-sbi-research-reveals/1977397/.

Visakhapatnam: Lockdown Disrupts Supply of Essentials | Visakhapatnam News - Times Of India. (2020, May 27). The Times of India. https://timesofindia.indiatimes.com/city/visakhapatnam/lockdown-disrupts-supply-of-essentials/articleshow/74836048.cms.

Weun, S., Jones, M.A. and Beatty, S.E., 1998. Development and validation of the impulse buying tendency scale. *Psychological reports*, *82*(3_suppl), pp.1123-1133.

White, M. C. (2021, February 10). Americans are saving more during the pandemic — but there's still a huge demographic divide. *NBC News*. https://www.nbcnews.com/business/economy/americans-are-saving-more-during-pandemic-there-s-still-huge-n1257252

Why Are People Hoarding Toilet Paper?. (2020, March 15). Psych Central. https://psychcentral.com/blog/why-are-people-hoarding-toilet-paper#1.

Xian, H., Zhang, Z. and Zhang, L. (2020), A Diary Study of Impulsive Buying during the Covid-19 Pandemic, Current Psychology.

Xiang L, Zheng X, Lee MKO, Zhao D (2016) Exploring consumers' impulse buying behavior on social commerce platform: the role of parasocial interaction. Int J Inf Manag 36(3):333–347

Zhang, W., Leng, X. and Liu, S., 2020. Research on mobile impulse purchase intention in the perspective of system users during COVID-19. *Personal and ubiquitous computing*, pp.1-9.