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IMPACT OF COVID-19 PANDEMIC ON CHANGING CONSUMER BEHAVIOR

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***Abstract*—**The COVID-19 pandemic which has hit the World since 2020 has changed how consumers behave. The changes have both positive and negative implications to businesses and are forcing them to transform to meet the needs and demands of the consumers behavior post-COVID-19 pandemic. This research studies the determining factors which lead to a change in consumer behavior due to the COVID-19 pandemic. The use of quantitative approach using online survey and data collected will be analyzed using Smart PLS 3. This study found a new insight which had not been studied before in Malaysia- It is found out that substitution buying and spending power is significantly correlated with change in consumers behavior during COVID-19 pandemic. Contrary to common belief, the other determinants studied in this research including impulse buying, luxury indulgence, increase demand for health-related products and desire for online shopping all did not show significant relationships with change in consumer behavior. As the world is continuously experiencing changes due to the COVID-19 pandemic, this study hopes to provide insight to businesses on how to position themselves to face the change in consumer behavior.

Keywords—Consumer Behavior, Substitution Buying, Spending Power, COVID-19

I. INTRODUCTION

The COVID-19 pandemic has changed the way the world works. It is no doubt that the World post-pandemic is not the same as the one before the COVID-19 virus exists. In many aspects, the World functions differently. The way people think is no longer the same. Values that were important previously have become less important nowadays, while new ideas and values have emerged during the crisis.

COVID-19 has significant economic, social, and psychological impacts on mankind. The pandemic, which started in early 2020, has significantly transformed consumer buying behaviour, which has subsequently caused a sudden change in business operating model and sustainability. People have changed how and where they should spend their money (Roger, 2020). This is because environmentally-imposed

constraints such as the COVID-19 pandemic will cause consumers to react, cope, and adapt to the new environment (Kirk, 2020).

Businesses that have transformed quickly enough survived, while those that are slow in response subsequently ceased operations. COVID-19 has caused the traditional business model to lose its attractiveness and the emergence of new and innovative business models. In the first 6 months since the implementation of Movement Control Orders (MCO), near to 30,000 businesses were forced to close down, based on the Entrepreneurship Development and Cooperation Ministry (Medac) (Auto, 2020). This is partially attributed to the change in consumer buying behaviour.

While other factors such as logistics, finances, and turnover play a role in determining the survival of businesses, the core component is still the consumer's buying behaviour. It is therefore important to understand the factors which lead to a change in consumer buying behaviour and the impact of each on businesses. Reported preliminary studies also suggest that the nature and extent of the impact of the COVID-19 pandemic are not similar across all citizens and depend on their condition of poverty, age, residential status, and other demographic variables (United Nations, 2020)

At the same time, this understanding is also important for businesses to track any buying behaviour which can be explored as new business opportunities, such as health-related and wellness-related industries and products. Market studies pertaining to the impact of COVID-19 on consumers have indicated increased spending on groceries, and health and hygiene products (Roger, 2020)

During the COVID-19 pandemic, especially during the MCO, Malaysians embraced online grocery shopping for its convenience and safety. Preference for contactless delivery and online payment methods has also became the norm. Certain local grocery chains quickly adapted, enhancing their online presence and delivery capabilities, while others, did not manage to change in time and was drastically affected by the reduction in revenue during the pandemic. Being able to understand changes in consumer behaviour like this, and to make swift decision to quickly adapt is no longer for greater revenue, but at challenging times like the pandemic, it is for the survival of the business.

According to a survey by Rakuten Insight on dietary supplements in Malaysia conducted in July 2022, 74 percent of respondents who took dietary supplements or nutraceuticals stated that their frequency of doing so increased after the outbreak of the COVID-19 pandemic. In response to the increase in health awareness, some local businesses increased the promotion of local and fresh produce to meet the growing demand for healthier food options. Beyond that, certain groceries stores or restaurants have also started sales of supplements and organic foods. All these will not be possible without first understanding the change in consumer buying behaviour.

The rate of closure of businesses is alarming, as it can affect not only the nation's economy but can cause disastrous implications for households across the nation. During the same period of time, Malaysia's economy plunged 17.1% in the second quarter of 2020, and a future 2.7% decline in the third quarter. (Kumar, 2021) Understanding the effect of changing consumer buying behaviour due to disasters such as the COVID-19 pandemic is important to equip businesses, especially Small and Medium Enterprises (SMEs) better for any future similar catastrophic event. The understanding is also essential to ensure that businesses can know what the consumer wants post-pandemic, and if those changes will be sustainable, or just a temporary effect due to the circumstances of the COVID-19 pandemic. Without this knowledge, it will be a challenge for businesses to ensure sustainability, resilience, and adaptability. Without these factors, they will be vulnerable to closure if the COVID-19 pandemic returns, or another similar pandemic occurs.

II. LITERATURE REVIEW

Abrupt events that are environmental, social, biological, cognitive, and behavioural in nature will cause changes in consumers' behaviour (Mathur et al, 2006). This is what has been observed, and described by existing literature, even before COVID-19 exists. The adaptation in people's buying behaviour during the COVID-19 pandemic has again proved this theory. It is therefore important to understand how a pandemic of such magnitude can impact, the factors which are involved, and the intensity of each on consumers' buying behaviour.

In the past, similar health-related changing event has also affected economic activities significantly. However, some changes in consumers' buying behaviour are rather unrelated to the economic impact, or the buying power of the consumer. People don't buy less, or buy cheap during the pandemic. There are sometimes certain items that consumers favour buying during crises as such. For example, during Influenza A (H1N1) in 2009, consumers exhibited risk coping strategies, which caused a change in chicken meat consumption (Yeung, 2016).

A pandemic of global magnitude, such as COVID-19 has caused significant instability across the globe, affecting all nations politically, economically, as well as socially. All these caused instability and a state of fear in consumers. Consumers are therefore forced to seek stability (Minto et al., 2021). Consumers, therefore, become more conservative and are more careful and rational in spending. One phenomenon that is observed is consumers becoming more price sensitive (Hampson et al, 2013). They tend to choose more economical items and are more cautious about buying in bulk. The purchase of essentials is also in favour as compared to the purchase of luxuries. This change is due to the human nature of desiring to keep money in anticipation of an emergency. Similar behaviour can also be observed during other crises such as floods,

fires, and terrorist attacks. Understanding this behaviour will help us understand how consumers' buying behaviour changes during the COVID-19 pandemic as well.

However, in contrast, during some other disasters, it is observed that consumers adopt a stress induced compulsive and impulsive buying behaviour. This was observed among the Gulf Coast residents during Hurricane Katrina in New Orleans (Sneath et al, 2009). Such behaviour can also be observed during the COVID-19 pandemic when Circuit Breaker is announced in Singapore. According to research, 63% of panic buyers rated price as the most important factor when making purchases. In order to avoid paying higher prices later, they opt for bulk purchases. Not only that, some researchers also suggested that panic buyers are more likely to be from homes with infants or elderly, who require specialized supplies like milk powder and diapers. Hence, a lot of panic buying was to protect more vulnerable members from the shortage (Cornell University, 2022).

III. RESEARCH METHODOLOGY

This is a quantitative study, in which data are collected through measuring variables. There are dependent and independent variables involved in this study. All of these can be measured on a scale, and subsequently used to be analysed through numerical comparisons and statistical inferences. The data will then be reported through statistical analysis. This is also a cross-sectional study, in which data will be collected from a sample population at a specific moment. Exposure and outcomes are measured simultaneously. To be more specific, this is an analytical cross-sectional study, in which the relationship between the COVID-19 pandemic and consumers' buying behaviour will be evaluated.

Target respondents are individuals from a variety of organizations in the different industry that are residing in Malaysia since before the COVID-19 pandemic. Respondents across all age groups will be targeted, focusing on working adults. At the same time, respondents from all classes of household income will also be included in order to study the impact of the COVID-19 pandemic on changing consumer behaviour. 384 respondents who are employed in Malaysia and are at least 18 years old will make up the sample size for this study.

A. Conceptual Framework

The conceptual framework is based on how the COVID-19 pandemic influences consumers' buying behaviour. Secondly, it measures how the COVID-19 pandemic influences occupations, household income, employment status, and insecurity. These variables will then have effects on affordability, lifestyle changes, health awareness, and retailers' precautions. Subsequently, they will affect consumers' buying behaviour as measured by spending power, new demand for health related products, substitutions, impulse buying,

luxury indulgence, and digital platforms. All of which are parameters to indicate changes in consumers' buying behaviour. Variables are interrelated to one another but ultimately show that the COVID-19 pandemic has an influence on consumers' buying behaviour.

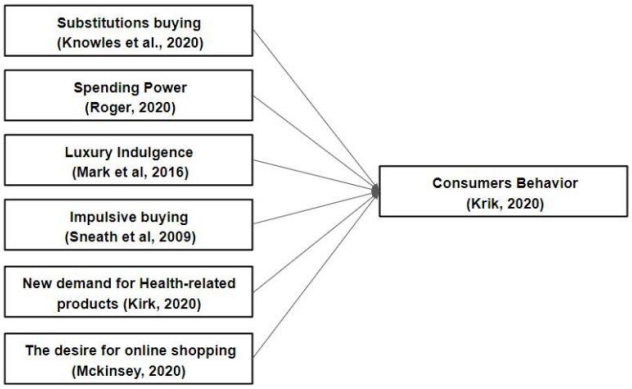

Fig. 1. Conceptual Framework

These variables will then have effects on affordability, lifestyle changes, health awareness, and retailers' precautions. Subsequently, they will affect consumers' buying behaviour as measured by spending power, new demand for health related products, substitutions, impulse buying, luxury indulgence, and digital platforms. All of which are parameters to indicate changes in consumers' buying behaviour. Variables are interrelated to one another but ultimately show that the COVID-19 pandemic has an influence on consumers' buying behaviour.

B. Data Analysis Method

With the aid of the Smart PLS 4 3 software, the partial least square structural equation modelling approach (PLS-SEM) will be used to evaluate and interpret the reliability and validity of the variables in the conceptual framework. The calculation and evaluation of the measurement model's composite reliability, average variance extracted, and discriminant reliability are aided by the PLS-SEM. Then, in order to increase the study's reliability and validity, the results of each variable are utilized to analyse their convergent and discriminant validity.

IV. RESULTS

The measurement model and the structural model are both validated in this study using structural equation modelling (SEM) analysis. SEM techniques were used to examine the connections between the exogenous and endogenous variables.

A. *Structural Model*

The results of the PLS-SEM Analysis, which involved assessing the measurement model (outer) using the PLS method and then applying the structural model using bootstrapping - 5000 samples, are the main emphasis of this section. Prior to the relationship's validity and reliability being tested, this is essential. Fig. 2 illustrates the suggested PLS structural model for this study based on the research framework.

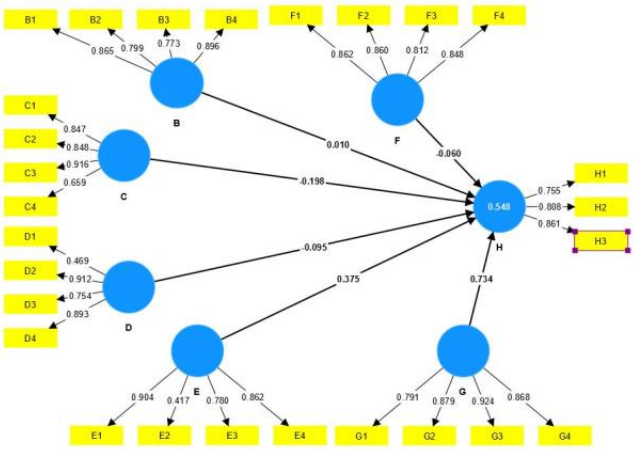

Fig. 2. Measurement Model of the Study Construct by Author

B. *Path Coefficient*

Table I presents path coefficients from a structural equation model (SEM) or a path analysis. These coefficients represent the relationships between different constructs or variables. In this context, the constructs on the left (e.g., “Desire for Online Shopping,” “Impulsive Buying,” etc.) are independent variables or predictors, while “Consumer Behaviour” on the right is the dependent variable or outcome.

TABLE I. PATH COEFFICIENTS

	Path coefficients
Desire for Online Shopping -> Consumer Behavior	0.734
Impulsive Buying -> Consumer Behavior	0.375
Luxury Indulgence -> Consumer Behavior	-0.095
New Demand for Health-Related Products -> Consumer Behavior	-0.06
Spending Power -> Consumer Behavior	0.01
Substitution Buying -> Consumer Behavior	-0.198

a) Desire for Online Shopping -> Consumer Behavior (0.734): This path coefficient of 0.734 represents the strength and direction of the relationship between "Desire for Online Shopping" (the predictor or independent variable) and "Consumer Behavior" (the outcome or dependent variable). A positive coefficient (0.734) suggests a positive relationship between these two constructs, indicating that as desire for online shopping increases, consumer behavior tends to increase as well. In other words, higher levels of desire for online shopping are associated with more consumer behavior.

b) Impulsive Buying -> Consumer Behavior (0.375): This path coefficient of 0.375 represents the relationship between "Impulsive Buying" and "Consumer Behavior." A positive coefficient (0.375) indicates a positive relationship, suggesting that higher levels of impulsive buying tend to be associated with higher levels of consumer behavior.

c) Luxury Indulgence -> Consumer Behavior (-0.095): This path coefficient of -0.095 represents the relationship between "Luxury Indulgence" and "Consumer Behavior." The negative coefficient (-0.095) suggests a negative relationship, indicating that higher levels of luxury indulgence are associated with lower levels of consumer behavior. In other words, there may be a reduction in consumer behavior when individuals are more focused on luxury

d) New Demand for Health-Related Products -> Consumer Behavior (-0.06): This path coefficient of -0.06 represents the relationship between "New Demand for HealthRelated Products" and "Consumer Behavior." The negative coefficient (-0.06) suggests a negative relationship, indicating that higher levels of new demand for health-related products are associated with lower levels of consumer behavior.

e) Spending Power -> Consumer Behavior (0.01): This path coefficient of 0.01 represents the relationship between "Spending Power" and "Consumer Behavior." The very small positive coefficient (0.01) suggests a weak positive relationship. It indicates that there is a slight positive association between spending power and consumer behavior, but the relationship is very weak.

f) Substitution Buying -> Consumer Behavior (-0.198): This path coefficient of -0.198 represents the relationship between "Substitution Buying" and "Consumer Behavior." The negative coefficient (-0.198) suggests a negative relationship, indicating that higher levels of substitution buying are associated with lower levels of consumer behavior.

In summary, these path coefficients provide insights into the strength and direction of the relationships between different constructs or variables and "Consumer Behavior." Positive coefficients indicate positive relationships, negative coefficients indicate negative relationships, and the magnitude of the coefficient represents the strength of the relationship. These coefficients are crucial for understanding how various factors influence consumer behavior in the context of the model or analysis they are derived from.

C. *Coefficient of Determination (R^2)*

The following table presents R-squared (R^2) and adjusted R-squared (R^2 adjusted) values for the "Consumer Behaviour" variable in a regression model.

TABLE II. R-SQUARED (R^2) AND ADJUSTED R-SQUARED (R^2 ADJUSTED)

	R-square	R-square adjusted
Consumer Behavior	0.548	0.546

In this context, an R^2 value of 0.548 means that approximately 54.8% of the variability in Consumer Behaviour is explained by the predictors included in the model. The R^2 value ranges from 0 to 1. A value of 1 would indicate that the model explains 100% of the variance in the dependent variable, while a value of 0 suggests that the predictors have no explanatory power.

R^2 adjusted is particularly useful when comparing models with different numbers of predictors because it adjusts for model complexity. In this context, an R^2 adjusted value of 0.546 means that approximately 54.6% of the variability in Consumer Behaviour is explained by the predictors in the model, while also accounting for the model's complexity due to the number of predictors.

In summary, these statistics indicate how well the independent variables in the regression model collectively explain the variation in Consumer Behaviour. An R-squared of 0.548 suggests that a significant portion of the variability in Consumer Behaviour can be accounted for by the predictors. The adjusted R-squared of 0.546 adjusts this value to account for model complexity, providing a slightly more conservative estimate of the explanatory power of the model while considering the number of predictors. These values are important for evaluating the overall fit and usefulness of the regression model in explaining the target variable.

D. *Hypotheses Testing*

Table III presents the p-values associated with each predictor variable. P values indicate the significance of the relationship between each predictor and Consumer Behavior.

TABLE III. P VALUES FOR HYPOTHESES TESTING

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Desire for Online Shopping -> Consumer Behavior	0.734	0.729	0.091	8.051	0
Impulsive Buying -> Consumer Behavior	0.375	0.37	0.076	4.922	0
Luxury Indulgence -> Consumer Behavior	-0.095	-0.09	0.121	0.785	0.432
New Demand for Health-Related Products -> Consumer Behavior	-0.06	-0.058	0.093	0.647	0.518
Spending Power -> Consumer Behavior	0.01	0.012	0.053	0.18	0.858
Substitution Buying -> Consumer Behavior	-0.198	-0.196	0.102	1.936	0.053

In hypothesis testing, p-values help determine whether the observed relationship is statistically significant. Smaller p-values (typically below a predefined significance level, such as 0.05) suggest a more significant relationship.

a) Desire for Online Shopping -> Consumer Behavior:

H01: The COVID-19 pandemic changing consumer behavior has no significant relationship with substitution buying.

H11: The COVID-19 pandemic changing consumer behavior has a significant relationship with substitution buying.

The coefficient is 0.734, indicating a positive relationship between Desire for Online Shopping and Consumer Behavior. The t-statistic is 8.051, which is quite large, suggesting that the relationship is statistically significant. The p-value is 0, indicating that the relationship is highly significant. Null hypothesis rejected. Alternate hypothesis accepted. The COVID-19 pandemic changing consumer behavior has a significant relationship with substitution buying.

b) Impulsive Buying -> Consumer Behavior:

H02: The COVID-19 pandemic changing consumer behavior has no significant relationship with spending power.

H12: The COVID-19 pandemic changing consumer behavior has a significant relationship with spending power.

The coefficient is 0.375, indicating a positive relationship between Impulsive Buying and Consumer Behavior. The t-statistic is 4.922, indicating that this relationship is statistically significant. The p-value is 0, indicating a highly significant relationship. Null hypothesis rejected. Alternate hypothesis accepted. The COVID-19 pandemic changing consumer behavior has a significant relationship with spending power.

c) Luxury Indulgence -> Consumer Behavior:

H03: The COVID-19 pandemic changing consumer behavior has no significant relationship with luxurious indulgence

H13: The COVID-19 pandemic changing consumer behavior has a significant relationship with luxurious indulgence.

The coefficient is -0.095, suggesting a negative relationship between Luxury Indulgence and Consumer Behavior. The t-statistic is 0.785, indicating that this relationship is not statistically significant. The p-value is 0.432, which is greater than the typical significance level of 0.05, indicating non-significance. Null hypothesis accepted. Alternate hypothesis rejected. The COVID-19 pandemic changing consumer behavior has no significant relationship with luxurious indulgence

d) New Demand for Health-Related Products -> Consumer Behavior:

H04: The COVID-19 pandemic changing consumer behavior has no significant relationship with impulse buying.

H14: The COVID-19 pandemic changing consumer behavior has a significant relationship with impulse buying.

The coefficient is -0.06, suggesting a negative relationship between New Demand for HealthRelated Products and Consumer Behavior. The t-statistic is 0.647, indicating that this relationship is not statistically significant. The p-value is 0.518, indicating non-significance. Null hypothesis accepted. Alternate hypothesis rejected. The COVID-19 pandemic changing consumer behavior has no significant relationship with impulse buying.

e) Spending Power -> Consumer Behavior:

H05: The COVID-19 pandemic changing consumer behavior has no significant relationship with new demands for health-related products.

H15: The COVID-19 pandemic changing consumer behavior has a significant relationship with new demands for health-related products.

The coefficient is 0.01, indicating a positive relationship between Spending Power and Consumer Behavior. The t-statistic is 0.18, indicating that this relationship is not statistically significant. The p-value is 0.858, indicating non-significance. Null hypothesis accepted. Alternate hypothesis rejected. The COVID-19 pandemic changing consumer behavior has no significant relationship with new demands for health-related products.

f) Substitution Buying -> Consumer Behavior:

H06: The COVID-19 pandemic changing consumer behavior has no significant relationship with the desire for online shopping.

H16: The COVID-19 pandemic changing consumer behavior has a significant relationship with the desire for online shopping.

The coefficient is -0.198, suggesting a negative relationship between Substitution Buying and Consumer Behavior. The t-statistic is 1.936, indicating that this relationship is statistically significant, although it has a relatively smaller effect size compared to the others. The p-value is 0.053, which is close to but slightly above the typical significance level of 0.05, indicating borderline significance. Null hypothesis accepted. Alternate hypothesis rejected. The COVID-19 pandemic changing consumer behavior has no significant relationship with the desire for online shopping.

V. CONCLUSION

The COVID-19 pandemic has affected the way society functions. It has also changed consumer behavior. The implication of the changes is real. Since 2020, the way business functions have changed to adapt to the new way consumers behave. Some have successfully identified what the consumers want, and therefore thrive; while the rest have failed to do so, and therefore are still struggling to survive. As the saying 'customer is always right', it is important to understand what the consumers want in order to survive in the post-COVID-19 era.

This study attempts to identify the factors which have resulted in a change in consumer behavior due to the COVID-19 pandemic. A cross-sectional survey was being carried out from July 2023 to September 2023 among Malaysians to understand what has led to a change in consumer behavior. A total of 385 respondents have participated in the survey, which was done via Google Form. The survey focuses on factors including substitution buying, spending power, luxurious indulgence, impulse buying, new demands for health-related products, as well as desire for online shopping.

Data collected was then analyzed to study the relationship between the dependent variables and the independent variables. This is done via Smart PLS 4 3 software, in which the reliability and the validity of the study has been verified. Several tests have subsequently been run through. The hypotheses of the study were also being tested, in which some null hypotheses were accepted, while for others, the null hypotheses were rejected, and the alternate hypotheses were accepted.

The COVID-19 pandemic changing consumer behavior has a significant relationship with 2 of the 6 variables studied. They are substitution buying and spending power. The change in consumer behavior due to the COVID-19 pandemic is therefore significantly affected by these two factors. On the other hand, the remaining 4 variables studied showed no significant relationship with the COVID-19 pandemic changing

consumer behavior. These 4 variables are impulse buying, luxury indulgence, new demands for health-related products and desire for online shopping. These findings oppose what the public, and many businesses would perceive the change in the way consumers behave.

The study has provided a better understanding of the change in consumer behavior due to COVID-19 pandemic, from the Malaysia perspective. Businesses in Malaysia will be able to have a better insight on these changes and can plan their business strategy for the future. The COVID-19 pandemic changing consumer behavior has a significant relationship with spending power and substitution buying, and no significant relationship with luxurious indulgence, impulse buying, new demands for health-related products, and desire for online shopping.

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