INFLUENCING FACTORS FOR DEMAND DISRUPTIONS OF FAST-MOVING CONSUMER GOODS DURING A PANDEMIC IN SRI LANKA

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ABSTRACT - Not only Covid 19 pandemic but other new pandemics will also emerge in the future. Therefore, understanding the reasons for the disruption of consumer demand during a pandemic is critical for a speedy recovery of the market. Thus, the study fills the gap in the literature on demand disruptions during a pandemic to fast-moving consumer goods (FMCG) under the category of 'personal care' and 'home care' in the Sri Lankan context. The paired t-test output emphasizes that there is a significant impact on the consumption of 'personal care' and 'home care' products during the pandemic period compared to the same days in the pre-pandemic. Therefore, influencing factors to a demand disruption of FMCG during a pandemic in a global context are searched through a literature survey, validated to the Sri Lankan context 'personal care' and 'home care' category with the reviews from 12 managerial level experts in 4 leading FMCG companies and finally quantified variables using Pearson correlation and Kendall's tau-b tests.

Keywords: Personal care; Home care; Influencing factors; Covid 19; FMCG

1. INTRODUCTION

A disturbance that interrupts the continuation of an activity to process as the plan is defined as a 'disruption'. Covid 19 pandemic has created an impact similar to the disruptions that occurred during the early war and depression periods [1] causing changes in consumer attitudes, behaviors, and purchasing patterns [2]. As a result, the global Fast Moving Consumer Goods (FMCG) sector is experiencing a strong instability with the pandemic [3], given that the demand uncertainty results in the highest negative impact on the supply chain performance [4]. Just for the period from 2011 to 2018, the World Health Organization tracked 1483 epidemic events from 172 countries [5] indicating that the world is moving towards an increasing trend of infectious diseases. Understanding consumer demand is critical to successfully facing future disruptions and prompt transition into the new normal since pandemics will continue and intensify in the future [6].

Different sectors in multiple countries have experienced varied demands. For example, aggregate consumption reduced by 23% from April to June 2020 in Mexico [7] while consumers in rich countries panic buying more than those in poor countries [8]. Therefore, organizations need to take measures to quickly meet consumer demand while understanding the reasons for change simultaneously. Demand disruptions and consumer behavior for FMCG, change depending on various aspects like region, country, sector, and cultural backgrounds [6][7][9]. Therefore, it is crucial to understand whether a particular category is significantly affected by the pandemic in the first place, to identify measures needed to rectify the impact if the effect is significant. This study focuses on filling the gap by identifying influencing factors for demand disruptions of the 'personal care' (PC) and 'home care' (HC) category in FMCG during a pandemic in Sri Lanka. Research Objectives (ROs) are developed to address the identified challenges for the producers in adapting to sudden changes in consumer behaviors and demand fluctuations during a pandemic because there is a lack of understanding of influencing factors (reasons) concerning the Sri Lankan context. RO1 is to identify whether there is a significant impact on the consumption of the 'PC' and 'HC' category due to the pandemic. RO2 and RO3 are respectively to identify the influencing factors for demand disruptions of FMCG during a pandemic in the global context and to identify the impact of each identified factor on the Sri Lankan context 'PC' and 'HC' category.

2. METHODOLOGY

To achieve the RO1, weekly sales data for the 'PC' and 'HC' category (in terms of revenue) of a leading supermarket chain from a leading FMCG company in Sri Lanka from January 2019 to July 2021 was collected. Two-tailed paired t-test was conducted to test the hypothesis of 'there is a significant difference between the demand of 'PC' and 'HC' category during the pandemic era (Feb. 2020-Jul. 2021) to the same days in pre-pandemic (2019). Next, the gathered data in the pandemic period was divided into categories under 'pandemic' (disease propagation period) and 'recovering stages' separately under 1st, 2nd, and 3rd pandemic waves to identify the impact on consumption from the pandemic. Then, the two-tailed paired t-test was conducted separately to pandemic and recovery stages under each wave compared to pre-pandemic.

RO2 and RO3 were based on understanding the reasons for a demand disruption of FMCG. A literature survey was conducted to gather influencing factors unbiasedly to achieve RO2. A pool of 45 full-text papers in English from databases Google Scholar, Wiley Online Library, and Scopus was selected. To achieve RO3, the factors are validated using a questionnaire based on a Likert scale from 1-5 to rate each factor under the Sri Lankan context 'PC' and 'HC' category. A sample of 12 managerial-level experts in the 'PC' and 'HC' industry from 4 leading FMCG companies in Sri Lanka was selected using the convenience sampling technique to rate factors based on their experience. The mean was used as the central tendency measure considering the results of normality tests and one-sample t-tests further validated the factors for the population as well. Finally, the factors were quantified using the Pearson correlation coefficient and Kendall's tau-b calculated with gathered data on variables that represent factors from published sources.

3. RESULTS AND DISCUSSION

The IBM SPSS output with a 95% confidence level concluded that there is a significant difference between the demand for the 'PC' and 'HC' category during the total pandemic era to the same days in the pre-pandemic (p-value - 0.001). However, a significant impact can be observed only in the pandemic stage with p-values of 0.045, 0.001, and 0.008 respectively for the 1st, 2nd, and 3rd wave pandemic period compared with the same days in pre-pandemic. No significant impact is observed in the recovery stage under each wave compared to the same days in the pre-pandemic with p-values of 0.107, 0.171, and 0.451, respectively.

Table 7. The Output of RO2 And RO3

Influencing factor	Influencing subfactor and mean (μ) of Likert rating based on expert reviews
The severity of the disease	Covid 19 infected cases ($\mu = 3.1$) Covid 19 deaths ($\mu = 3.0$) Covid 19 recovered cases ($\mu = 2.8$) A feeling of unsafe / anxiety/self-isolation among consumers ($\mu = 3.9$) Social media messages during the pandemic ($\mu = 4.3$)
Disruption to economy	Unemployment ($\mu = 3.8$) Loss of income / wages / disposable income ($\mu = 4.0$) Inflation ($\mu = 4.4$) Prices / Purchasing power of consumers ($\mu = 4.3$) Scarcity of items ($\mu = 4.1$) Increased levels of savings of money by consumers ($\mu = 3.3$)
Government-imposed regulations	Lockdowns / travel restrictions ($\mu = 4.1$) Work from home/school closure ($\mu = 4.1$) Restrictions on transportation / internal movement restrictions ($\mu = 4.0$)
Consumer behavioral changes	Digital adoption (e-commerce) / online shopping ($\mu = 3.9$) A feeling of scarcity of goods ($\mu = 4.1$) Conscious consumption (Limit waste and shop more cost consciously) ($\mu = 4.1$) Reduction in frequency of shopping ($\mu = 3.8$) Stockpiling of goods by consumers/panic buying ($\mu = 4.1$)

	Changes in consumer spending (spend only on essential items) ($\mu = 4.2$) Purchase goods in small shops and less likely to buy at large stalls ($\mu = 3.8$)
Demographic factors	Household composition, gender, age, educational level, preferences ($\mu = 3.5$)
Quality of goods ($\mu = 3.6$)	

The mean rating that ranges from high influence to very high influence on disruption of demand in the Sri Lankan context 'PC' and 'HC' category according to the experience of experts are highlighted in Yellow in table 1. Pearson correlation and Kendall's tau-b coefficient results indicate that NCPI (Inflation MoM% food), NCPI (Inflation MoM% all items), CCPI (Inflation MoM% food), CCPI (Inflation MoM% all items), wage rate indices (public sector real MoM%), wage rate indices (workers in wage boards trades real MoM% - Dec. 1978=100), inflation rate MoM% and average monthly stringency index MoM% are as indicators with significant impact to demand disruption of 'PC' and 'HC' category in a pandemic in Sri Lanka.

4. CONCLUSION

Although there is a significant impact on the demand for the 'PC' and 'HC' category in Sri Lanka during the pandemic period compared to the same days in the pre-pandemic, a significant impact is only in the disease propagation period but not in the recovery period in each 1st, 2nd, and 3rd pandemic wave. Variables that indicate a change in prices of all items, wages, inflation, and government-imposed regulations show a significant impact on demand disruption of the Sri Lankan context 'PC' and 'HC' category. Thus, FMCG companies can plan production in advance when there is an influence from the above factors. Accordingly developing a quantitative model to manage demand disruption of FMCG during a pandemic in Sri Lanka can be suggested as a future research area considering the increasing trend of pandemics.

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