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# The Insights of Panic Buying in the Midst of COVID-19 Pandemic: A Systematic Literature Review

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## Abstract

Since the COVID-19 pandemic has attacked the people around the globe, medical and non-medical measures have been applied by the governments. Consequently, a great number of the people have rushed into the supermarkets for panic buying and stockpiling. It is interesting to examine and understand why the people have to stock products, especially food and sanitary products. Therefore, this study targeted exploring the antecedents of such psychological purchasing behaviour by employing the systematic literature review approach. The literature available on EBSCO Discovery Service (EDS) of Bangkok University online database were gathered and scrutinised. Such literature was released between January 2020 and March 2021. For systematic data collection, the keywords searched and included were 'panic buying', 'COVID-19', and 'insights'. Together with these, the literature must be the research articles, reviewed by peers, and also exhibited in the full-text format. In total, 17 research articles met the requirements. The findings revealed that there were 1) psychological factors, 2) social factors, 3) social media, 4) government measures, 5) demographics, 6) personality traits, 7) attitudes, and 8) others encouraging and discouraging panic buying. This study contributes to the governments and local authorities and the marketing communicators for properly crafting policies and measures and contents and messages that can reach the target audiences, respectively. Also, this study provides some critical discussion.

**Keywords:** COVID-19 pandemic, hoarding, impulsive buying, stockpiling, lockdown

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## อมูลเชิงลึกของการซื้อสินค้าอย่างตื่นตระหนก ในสถานการณ์การแพร่ระบาดของโควิด-19 : การทบทวนวรรณกรรมอย่างเป็นระบบ

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### บทคัดย่อ

สถานการณ์การแพร่ระบาดของโควิด-19 ผลกระทบต่อประชาชนโลกโดยภาพรวม รัฐบาลต่างต้องนำเอามาตรการทั้งเชิงการแพทย์ และไม่เกี่ยวข้องกับการแพทย์มาประยุกต์ใช้เพื่อแก่วิกฤตที่เกิดขึ้น ผลกระทบที่เกิดขึ้นจากสถานการณ์การแพร่ระบาดของโควิด-19 คือ การที่ประชาชนจำนวนมากต่างพากันไปยังซูเปอร์มาร์เก็ตเพื่อซื้อสินค้าอย่างตื่นตระหนก และกักตุนสินค้า จึงเป็นที่น่าสนใจในการศึกษา และเข้าใจถึงเหตุผลที่ประชาชนต่างซื้อสินค้าอย่างตื่นตระหนก โดยเฉพาะอย่างยิ่ง สินค้าจำพวกอาหาร และสุขอนามัย ดังนั้น การศึกษานี้จึงมุ่งแสวงหาปัจจัยของพฤติกรรมการณ์ซื้อที่มีความเกี่ยวข้องทางจิตวิทยา โดยอาศัยการทบทวนวรรณกรรมอย่างเป็นระบบเป็นวิธีการวิจัย ทั้งนี้ ได้รวบรวมและวิเคราะห์ข้อมูลจากวรรณกรรมในฐานข้อมูลออนไลน์ EBSCO Discovery Service (EDS) ของมหาวิทยาลัยกรุงเทพ วรรณกรรมที่รวบรวม และใช้ในการวิเคราะห์เป็นวรรณกรรมที่ได้รับการตีพิมพ์ระหว่างมกราคม และ มีนาคม 2564 คำศัพท์ที่ใช้ในการค้นหาวรรณกรรมเหล่านี้ต้องประกอบด้วยคำว่า การซื้อสินค้าอย่างตื่นตระหนก (panic buying) โควิด-19 (COVID-19) และข้อมูลเชิงลึก (insights) ในขณะเดียวกัน วรรณกรรมดังกล่าวต้องปรากฏในรูปแบบของบทความวิจัย ได้รับการตรวจสอบโดยผู้ทรงคุณวุฒิ และนำเสนอเป็นบทความวิจัยฉบับเต็ม โดยมีจำนวนบทความทั้งสิ้น 17 บทความที่ตรงกับเงื่อนไขดังกล่าวข้างต้น ผลการวิจัยพบว่า ปัจจัยที่ก่อให้เกิดการกักตุนสินค้า ประกอบด้วย 1) ปัจจัยด้านจิตวิทยา 2) ปัจจัยด้านสังคม 3) สื่อสังคมออนไลน์ 4) มาตรการของรัฐบาล 5) ลักษณะทางประชากรศาสตร์ 6) คุณลักษณะด้านบุคลิกภาพ 7) ทักษะสติ และ 8) ปัจจัยอื่น ๆ ที่เกี่ยวข้องที่เอื้อหรือไม่เอื้อต่อการซื้อสินค้าอย่างตื่นตระหนก การศึกษานี้มีประโยชน์ต่อรัฐบาล และบุคลากรของรัฐ ตลอดจนนักสื่อสารการตลาดในการกำหนดนโยบาย มาตรการ และเนื้อหาในการสื่อสารกับกลุ่มเป้าหมาย ตามลำดับ ในขณะเดียวกัน การศึกษานี้ยังได้ทำการอภิปรายประเด็นหลาย ๆ ประเด็นที่สำคัญอีกด้วย

**คำสำคัญ:** โควิด-19 การกักตุนสินค้า การตัดสินใจซื้อสินค้าในเวลาอันรวดเร็ว การสะสมสินค้า การปิดเมือง หรือประเทศ

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## Introduction

In the wake of the COVID-19 pandemic, both health and non-health measures are imposed for the purposes of economic survival and safety and security reasons. One of the measures that has been applied by the governments is lockdown, i.e., the people are not authorised to freely go within and across the countries, and staying at home is preferable, though. Along with the lockdown orders, obviously, the actions of rushing into the supermarkets and stores and buying and stocking up over-demanding necessary and non-necessary commodities, later on, nothing is left at the shelves in supermarkets and stores or so-called panic buying can be foreseen and expected. This behaviour has occurred in the first and the second waves of the pandemic. Just currently, in Greater Brisbane, South East Queensland, a sign of a multiple-day lockdown has been addressed again after some confirmed cases have been found. Unsurprisingly, panic buying and stockpiling before the lockdown period are the expected results and, later on, only allowed amounts of the products can be bought and purchased, as announced by some supermarkets (Barnsley, 2021; Edwards, 2021; Panic buying ahead of Greater Brisbane’s COVID-19 lockdown prompts Woolworths to impose purchase limits, 2021).

Panic buying and stockpiling are vital for positive economic shakes. Unsurprisingly, sales growth can be noticed in those who are selling food and groceries as well as electronic appliances. It will be the other way round for those who are not selling such products (Elmas, 2020). By referring to the statistical data of ABS, a good sign of revenues is also indicated by panic buying and stockpiling because, for such commodities, about a one-third increase is recognised between February and March, 2020, i.e., the first wave of the COVID-19 spreading. Since the people need to stay safe and strong, noticeably, ‘canned food, medicinal products, and cleaning goods’ are cleared out (Cranston & Evans, 2020). Panic buying and stockpiling is, furthermore, performed and acted by every single level of socio-economic backgrounds ranging from the poorer to the richer (Youshizaki, de Brito Junior, Hino, Aguiar, & Pinheiro, 2020).

In contrast, panic buying can negatively provide the multiple economic and social impacts. For example, economic systems and management are affected. Anderson (2020) elaborated that the people psychologically do not want to be left behind not only for panic buying, but also for transactions, i.e., deposits at the financial institutions. As a result of this, a shortage in cash flow can be an expected outcome among the banks. At a smaller scale, furthermore, a few spendings are done at these small shops and groceries because some commodities are unavailable and not in stock. This can, accordingly, affect a financial deficit for those who are the grocers.

Cash reserves will be withdrawn by the grocers to survive this period of time. Apart from these, another group of the people that can be hit by panic buying is those who are the poorer. Unsurprisingly, they have insufficient money to be invested and spent. Moreover, the Center for Occupational & Environmental Health (n.d.) stated that while some ordinary and rich people are satisfied and happy with the products and goods they have owned during the pandemic, other people, especially those who are older, have difficulties in physical movements, and need continuous medication and treatment, are in trouble. This is because they have to push more efforts and attempts to search for the products and goods they want and need from one shop to the others for maintaining their health and wealth.

As for helping the governments and parties concerning to manage and communicate well and get through this chaotic situation of panic buying effectively and efficiently, i.e., to minimise the unfavourable outcomes, the insights of the panic buying must be examined. It is, therefore, of high interest to examine and understand why the people have to stock products, especially food and sanitary products.

## **Objectives**

The main objective of the study was to study and examine the insights and antecedents of the psychological purchasing behaviour, i.e., panic buying in the wake of the COVID-19 pandemic by employing a systematic literature review.

## **Literature Review: Similarities and differences between panic buying, stockpiling, impulse buying, compulsive buying, and hoarding**

The similarities and differences between panic buying and stockpiling and impulse buying, compulsive buying and hoarding are asked about and compared because they are mentioned and addressed by the previous studies and they are interrelated and they are used together. Even being explained, however, it is important to highlight at this point that the study does not consider such convergences and divergences of these various psychological buying and purchasing behaviour. Instead, an overall picture of panic buying and stockpiling is analysed and presented.

At the easiest, following the definitions provided by Cambridge Dictionary for ‘panic buying’ (Cambridge Dictionary, n.d.d), ‘stockpiling’ (Cambridge Dictionary, n.a.e), ‘impulse buying’ (Cambridge Dictionary, n.a.c), ‘compulsive buying’ (Cambridge Dictionary, n.d.a), and ‘hoarding’ (Cambridge Dictionary, n.d.b), all of these manners have shared senses of over-demanding and out-of-control

purchase and action. The reason behind such senses and levels of speed are, nevertheless, rather dissimilar including unexpected, physical situations, sudden demands, psychological factors, and media effects. Mathews (2020a; 2020b), a psychiatry professor from the University of Florida, interestingly and clearly explains beyond the disparities between panic buying, stockpiling, and hoarding: 'Hoarding disorder goes beyond stockpiling in an emergency'. According to Mathews' (2020a; 2020b), elaboration, panic buying, and stockpiling are the normal buying and purchasing symptoms that can happen with the people. Panic buying and stockpiling are not psychologically-related, though. The similarity and difference can be found in both of the panic buying and stockpiling. They have shared the similarity that the people can simply let the products that they have bought and found unnecessary, post to the nightmares go. The main difference between panic buying and stockpiling is about planning. While the people with panic buying have not planned anything before buying and purchasing the goods and commodities, the people who are stockpiling have planned ahead of what items they need and want during the specific periods of time for their future lives. However, when the people consider and predict that the happenings of the crises have not been rolled out easily, the people are likely to stock the greater, i.e., massive amount of the products than it is usual. One of the influential factors for the massive stockpiling is the hand of the media. As for panic buying, because the people are frightened and afraid of the nightmares, in general, they immediately grab the (necessary) items on the shelves and that is not surprising that nothing has been left on the shelves during the difficult times. Panic buying can be regarded as impulsive buying (Mathews, 2020a; 2020b).

As for impulse and compulsive buying, misunderstanding is found between them. The psychological triggers are the shared characteristics between impulsive and compulsive buying. Impulsive buying is a purchasing decision made by the people who spend a very short period of time. Nonetheless, compulsive buying is rather related to something that is called 'shop till we drop' or, in short, 'shopaholics', i.e., the people are crazy at and cannot stop shopping and buying although they have a shortage of money and credits because of the negative psychological hinders and that needs psychiatry (Faber, 2010; Hartney, 2020).

Regardless of the names given for such buying and purchasing behaviours discussed above, it is difficult to differentiate panic buying from stockpiling, impulse buying, impulsive buying, compulsive buying, and hoarding. This can be explained in the two outstanding reasons. On the one hand, the noticeable outcome is that the people have got the excessive products, i.e., more than the usual and routine needs in their hands. On the other hand, the main starting-point

reason of such behaviours is the emergences of the nightmares. These ring the bell for media reports and physical and psychological pressure and depression. In this case, this study did not aim to understand and differentiate the insights of the particular buying and purchasing behaviour. The overall picture of why panic buying occurs was the main focus, instead. Under the bad incidents, i.e., the COVID-19 pandemic, it is assumed that there is a variety of antecedents encouraging the people's panic buying. Panic buying, furthermore, needs to be studied and explored because a research gap about understanding reasons and rationales behind the people's actions to buy and purchase necessary and non-necessary goods and products over-demands and without actual needs has been found (Kirk & Rifkin, 2020). As the statement proposed by Professor Richard Bentall from the University of Sheffield, additionally, it is pinpointed that it is important for the governments and authorities to study and understand factors and variables, especially psychological ones so that panic buying and stockpiling behaviour can be minimised and limited (Ferguson, 2021).

## Methods

A systematic literature review was employed as the research method in this study. The systematic literature review is '... a process that allowed to collect relevant evidence on the given topic that fits the pre-specified eligibility criterion and to have an answer for the formulated research questions ...' (Mengist, Soromessa & Legese, 2020, p.1) and '... to identify, evaluate, and summarize the findings of all relevant individual studies over a health-related issue, ...' (Gopalakrishnan & Ganeshkumar, 2013, p.9). The systematic literature can be beneficial to help bridge the gaps and improve the people's health and wealth (Mengist et al., 2020), to help shape and develop the decision making and policies (Gopalakrishnan & Ganeshkumar, 2013).

These articles that were reviewed and scrutinised were gathered from EBSCO Discovery Service (EDS) available on Bangkok University online database and also made public between January 2020 and, most currently, March 2021 to represent the period of the COVID-19 nightmare. These articles were the research articles and full-text and reviewed by peers before being published. The three keywords including 'panic buying', 'COVID-19', and 'insights' were used and searched on Tuesday, 16 March 2021. These three words were the main keywords to be studied and examined in this study, as it was named in the research title. As mentioned in the research objectives, specifically, this study targeted to examine and discover the insights, i.e., reasons and antecedents of the panic buying behaviours. These behaviours could give both of the positive and negative impacts on the governments, retailers, and suppliers at the micro and macro scales. Such

psychological behaviours, i.e., panic buying were not a common buying and purchasing practice. Instead, this behaviour was created when a crisis – an unstable, chaotic, and unexpected situation – occurs. The COVID-19 pandemic had been threatening the people around the globe from time to time, until currently and has changed multiple political, economic, and socio-cultural perspectives.

Moreover, repetition had been excluded. There were 194 searches in total. However, 26 academic papers were included and met the requirements and of these 26 academic papers, when reading and analysing the articles, no details were provided to articulate the various factors on panic buying, hoarding, stockpiling, and types of purchases on the four academic articles. The other three academic article has reviewed hoarding as the relevant literature whereas the two articles could be regarded as the academic articles. Thus, only 17 research papers were included as follows:

1. Ahmed, R. R., Streimikiene, D., Rolle, J., & Duc, P. A. (2020). The COVID-19 pandemic and the antecedents for the impulse buying behavior of US citizens. *Journal of Competitiveness*, 12(3), 5-27. doi: 10.7441/joc.2020.03.01
2. Brizi, A., & Biraglia, A. (2021). “Do I have enough food?” How need for cognitive closure and gender impact stockpiling and food waste during the COVID-19 pandemic: A cross-national study in India and the United States of America. *Personality and Individual Differences*, 168, 110396. doi: 10.1016/j.paid.2020.110396
3. Chakraborti, R. & Roberts, G. (2020). Anti-gouging laws, shortages, and COVID-19: Insights from consumer searches. *The Journal of Private Enterprise*, 35(4), 1-20.
4. Dammeyer, J. (2020). An explorative study of the individual differences associated with consumer stockpiling during the early stages of the 2020 coronavirus outbreak in Europe. *Personality and Individual Differences*, 167, 110263. doi: 10.1016/j.paid.2020.110263
5. Garbe, L., Rau, R., & Toppe, T. (2020). Influence of perceived threat of COVID-19 and HEXACO personality traits on toilet paper stockpiling. *PLoS One*, 15(6), 1-12. doi: 10.1371/journal.pone.0234232
6. Islam, T., Pitafi, H., Arya, V., Wang, Y., Akhtar, N., Mubarik, S., & Xiaobei, L. (2021). Panic buying in the COVID-19 pandemic: A multi-country examination. *Journal of Retailing and Consumer Services*, 59, 102357. doi: 10.1016/j.jretconser.2020.102357

7. Jaspal, R., Lopes, B., & Lopes, P. (2020). Fear, social isolation and compulsive buying in response to COVID-19 in a religiously diverse UK sample. *Mental Health, Religion & Culture*, 23(5), 427-442. doi: 10.1080/13674676.2020.1784119
8. Kim, J., Giroux, M., Kim, J., Choi, Y., Gonzalez-Jimenez, H., Lee, J.C., ... Kim, S. (2021). The moderating role of childhood socioeconomic status on the impact of nudging on the perceived threat of coronavirus and stockpiling intention. *Journal of Retailing and Consumer Services*, 59, 102362. doi: 10.1016/j.jretconser.2020.102362
9. Laato, S., Islam, A. K. M. N., Farooq, A., & Dhir, A. (2020). Unusual purchasing behaviour during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach. *Journal of Retailing and Consumer Services*, 57, 102224. doi: 10.1016/j.jretconser.2020.102224
10. Lehberger, M., Kleih, A., & Sparke, K. (2021). Panic buying in times of coronavirus (COVID-19): Extending the theory of planned behaviour to understand the stockpiling of non-perishable food in Germany. *Appetite*, 161, 105118. doi: 10.1016/j.appet.2021.105118.
11. Müller, S. & Rau, H. A. (2021). Economic preferences and compliance in the social stress test of the COVID-19 crisis. *Journal of Public Economics*, 194, 104322. doi: 10.1016/j.jpubeco.2020.104322
12. Naeem, M. (2021). Do social media platforms develop consumer panic buying during the fear of COVID-19 pandemic. *Journal of Retailing and Consumer Services*, 58, 102226. doi: 10.1016/j.jretconser.2020.102226
13. Pandita, S., Mishra, H. G., & Chib, S. (2021). Psychological impact of COVID-19 crises on students through the lens of stimulus-organism-response (SOR) model. *Children and Youth Services Review*, 120, 105783. doi: 10.1016/j.childyouth.2020.105783
14. Prentice, C., Chen, J., & Stantic, B. (2020). Timed intervention in COVID-19 and panic buying. *Journal of Retailing and Consumer Services*, 57, 102203. doi: 10.1016/j.jretconser.2020.102203
15. Taylor, S. (2021). Understanding and managing pandemic-related panic buying. *Journal of Anxiety Disorders*, 78, 102364. doi: 10.1016/j.janxdis.2021.102364

16. Wang, G. H., & Hao, N. (2020). Panic buying? Food hoarding during the pandemic period with city lockdown. *Journal of Integrative Agriculture*, 19(12), 2916-2925. doi: 10.1016/S2095-3119(20)63448-7
17. Yuen, K. F., Wang, X., Ma, F., & Li, K. X. (2020). The psychological causes of panic buying following a health crisis. *International Journal of Environmental Research and Public Health*, 17(10), 3513. doi: 10.3390/ijerph17103513

It was important to elaborate at this point that the insights were a variety of the reasons and rationales behind the people's panic buying. These should be internal, personal factors and external, environmental environments. By understanding these insightful and profound antecedents, such negative impacts of panic buying could be reduced and alleviated.

## Results

From the systematic literature review used as the research method in this study, the results of this study were divided into 1) the countries of the studies, 2) the theoretical frameworks applied, 3) the research methods applied, and 4) the insights and antecedents of panic buying found. The greater explanations are shown below.

### *Countries of the studies*

As mentioned in the introduction part, although there was huge academic and professional support to conduct the studies to understand the insights of the customers about their panic buying, this should be boosted, especially in the Asian and Australian continents. This was because there were only three studies conducted in Asia, i.e., Wang and Hao (2020) in China and Pandita, Mishra and Chib (2021) in India, and one study was implemented in Australia, i.e., Prentice, Chen, and Stantic (2020). In contrast, this appeared to gain the high popularity in the sights of the American and European countries. In the greater details, the studies of Ahmed, Streimikiene, Rolle and Duc (2020), Chakraborti and Roberts (2020), and Kim et al. (2021) were practiced in the United States while the data from the United States and Canada was perceived in the study of Taylor (2021). In Europe, there were the studies of Naeem (2021) in the United Kingdom, Lehberger, Kleih, and Sparke (2021) in Germany, Laato, Islam, Farooq and Dhir, (2020) in Finland, Dammeyer (2020) in Denmark and the United Kingdom, Jaspal, Lopes and Lopes (2020) in the United Kingdom, and Müller and Rau (2021) in Germany. Even being a small number of studies, the cross-border populations were conducted in some studies including Islam et al. (2021) collecting the data in

the United States, China, India, and Pakistan and Brizi and Biraglia (2021) gathering the data in the United States and India. More interestingly, among any continent, the United States, the United Kingdom, Germany, China, and India were the most famous countries to be studied and examined. This could be reasoned by the most-COVID-19-hit countries of the world. As for China, it was the country of origin of the widespread COVID-19 pandemic. The rest of the sampled academic studies could not identify the places where the studies had been conducted.

Since Yuen, Wang, Ma and Li (2020) had employed the systematic literature review, the specific countries of the study could not be identified.

#### *Theoretical frameworks applied*

As for the theoretical framework, a wide range of the concepts, models, and theories had been applied. For explaining the incidents of the panic buying, generally speaking, the scholars had assumed that the psychological model like stimulus-organism-response model could best describe this panic buying phenomenon (Islam et al., 2021; Laato et al., 2020; Pandita et al., 2021). It was equally followed by demographic perspectives (Brizi & Biraglia, 2021; Jaspal et al., 2020) and personality traits (Dammeyer, 2020; Garbe, Rau, & Toppel, 2020). The greater details were demonstrated as follows. Some of the studies employed a single, main theoretical framework, including Ahmed et al. (2020) for theory of fear, Chakraborti and Roberts (2020) for anti-gouging law, Garbe et al. (2020) for personality traits, Jaspal et al. (2020) for source of information, Kim et al. (2021) for behavioural economics, Laato et al. (2020) and Pandita et al. (2021) for stimulus-organism-response model, Lehberger et al. (2021) for the theory of planned behaviour, Prentice et al. (2020) for timed intervention policy, and Wang and Hao (2020) and Yuen et al. (2020) for generic concepts of panic buying, hoarding, and stockpiling.

Nevertheless, a combination of the theories and concepts were discovered in Brizi and Biraglia (2021) for demographic perspectives and need for cognitive closure, in Dammeyer (2020) for personality traits, social dominance orientation, health literacy, and attitudes towards the government, in Islam et al. (2021) for stimulus-organism-response model and competitive arousal model, in Müller and Rau (2021) for economic preference, social compliance, and generic preferences, for example, risk tolerance, in Naeem (2021) for the theory developed from the study, global capitalism, and social influence and proof theories, and in Taylor (2021) for social learning theory and behavioural immune system.

*Research methods applied*

Furthermore, it was interesting that the measures addressed by the governments, including the timed intervention, anti-gouging law, and lockdown were taken as the antecedents of the panic buying. The quantitative research approaches were still of high acceptance while there were only four studies employing the hand of the qualitative approach. The greater details and explanations were as follows. As for the quantitative research approaches, there were the studies of Ahmed et al. (2020), Brizi and Biraglia (2021), Chakraborti and Roberts (2020), Dammeyer (2020), Garbe et al. (2021), Islam et al. (2021), Jaspal et al. (2020), Kim et al. (2021); Laato et al. (2020), Müller and Rau (2021), Taylor (2021), and Wang and Hao (2020).

In contrast, Naeem (2021), Pandita et al. (2021), Prentice et al. (2020), and Yuen et al. (2020) had enjoyed implementing the qualitative studies. Specifically, the documentary, textual-based analysis research method could be observed in the study of Yuen et al. (2020) as systematic literature review, respectively. The studies of Naeem (2021) and Padita et al. (2021) had employed interviews and a mixed use of interviews and focus groups as the research methods, accordingly. In addition, the study of Prentice et al. (2020) could, presumably, be regarded the both quantitative and qualitative research methods were underlined because semantic analysis big data analysis, and sentiment analysis were employed. In a sense, this study compiled the written data from social media and turned loads of data into quantitative understanding.

In this field of study and research, only one study, i.e., Lehberger et al. (2021) favoured and gave the importance of the mixed-method approach. That was to say, the quantitative survey was conducted for understanding the influences of people’s attitude, subjective norm, and fear of future on piling and stocking the commodities. The qualitative research was created after the quantitative survey for deeply and profoundly examining the reasons behind stocking the products. From the qualitative study, the insights and antecedents for stocking and not stocking were revealed.

*Insights and antecedents of panic buying found*

The reasons and rationales boosting and influencing the people’s panic buying were the following: 1) psychological factors, 2) social factors, 3) social media, 4) government measures, 5) demographics, 6) personality traits, 7) attitudes, and 8) others. The details of such insights are exhibited in Table 1.

**Table 1** The Detailed Elements of the Insights of the Panic Buying

Main Category	Sub-category	Studies
Psychological factors	- Perceived fear of emptiness	Ahmed et al. (2020); Islam et al. (2021); Taylor (2021); Yuen et al. (2020)
	- Perceived fear of the uncertain COVID-19 situation	Ahmed et al. (2020); Garbe et al. (2020); Laato et al. (2020); Lehberger et al. (2021); Wang and Hao (2020); Yuen et al. (2021)
	- Emotional involvement, i.e., bad mood	Wang and Hao (2020)
Social factors	- Peer factors	Ahmed et al. (2020); Lehberger et al. (2021); Wang and Hao (2020); Yuen et al. (2020)
Social media	- Use of social media	Islam et al. (2021); Jaspal et al. (2020); Taylor (2021)
	- Messages conveyed in social media	Kim et al. (2021); Naeem (2021)
	- Cyberchondria	Laato et al. (2020)
Government measures	- Lockdown & timed intervention, self-isolation	Laato et al. (2020); Pandita et al. (2021); Prentice et al. (2020)
	- Anti-gouging law	Chakraborti and Roberts (2020)
	- US stimulus check	Ahmed et al. (2020)
Demographics	- Sex and country	Brizi and Biraglia (2021)
	- Religion	Jaspal et al. (2020)
	- Childhood socio-economic status	Kim et al. (2021)
Personality traits	- General traits	Dammeyer (2020); Garbe et al. (2020), Taylor (2021)
	- Uncertainty avoidance and long-term orientation	Müller and Rau (2021)
Attitudes	- Attitudes towards self and society	Lehberger et al. (2021)
	- Attitudes towards the government	Dammeyer (2020)
Others	- Food availability in house	Wang and Hao (2020)
	- Need for cognitive closure	Brizi and Biraglia (2021)

From Table 1, panic buying was mainly created by the psychological factors. The majority of the studies, firstly, identified that the people were frightened about the on-going situations of the COVID-19 pandemic and they were not sure when the crisis was going to terminate (Ahmed et al., 2020; Garbe et al., 2020; Laato et al., 2020; Lehberger et al., 2021; Wang & Hao, 2020; Yuen et al., 2021). The second psychological factor was that the people were afraid that they could not find any necessary products and commodities in the supermarkets and that nothing was left for them to buy and purchase (Ahmed et al., 2020; Islam et al., 2021; Taylor, 2021; Yuen et al., 2020). In addition, the people had emotional attachment, i.e., bad feeling (Wang & Hao, 2020) causing panic buying.

Furthermore, pressures from peers could encourage the people's panic buying. In other words, if the people had seen and noticed someone whom they had been familiar with, there were more odds and likelihood the people would be rushing to the supermarkets to buy and purchase some necessary products (Ahmed et al., 2020; Lehberger et al., 2021; Wang & Hao, 2020; Yuen et al., 2020). Additionally, a variety of studies had addressed the power of the social media, in terms of a level of use and consumption (Islam et al., 2021; Jaspal et al., 2020; Taylor, 2021), contents and messages conveyed on the social media platforms (Kim et al., 2021; Naeem, 2021), and online search behaviour (Laato et al., 2020). That is to say, panic buying was caused by heavy use of the social media platforms, the message arousals and cues, and love to search for health and medical information and data leading the people concerned more about their physical health status. Such powerful message arousals and cues were, for instance, when the information was confirmed and delivered by credible source of information, including those whose responsibility was to handle the COVID-19 pandemic crisis, those who had knowledge and experiences about the issue, and those who were accepted at the international level and such information was distributed concurrently and instantaneously (Naeem, 2021).

If the other information was reported, not about the on-going numbers of the people who were found dead, panic buying was likely to practiced (Kim et al., 2021). The government measures of not allowing the people to get out of their homes, staying at home and keeping themselves alone (Laato et al., 2020; Pandita et al., 2021; Prentice et al., 2020), respectively, of not allowing the sellers and retailers to increase the price (Chakraborti & Roberts, 2020), and of monitoring and surveillance (Ahmed et al., 2020) could, furthermore, impact the people's panic buying. Especially for self-isolation, it was assumed that the people needed to be certain that they had something to eat and use.

As for the demographic profiles, gender, places to live, and religious background could provide diverse effects on panic buying. Brizi and Biraglia (2021) revealed that, comparing between men and women living in the United States and India, the Indian females had more odds for panic buying. Jaspal et al. (2020) also exhibited that, by making a comparison between those in the United Kingdom whose religion was Christianity, Islam, and not identified, the people from the Islamic background took the greater level of concerns and actions about panic buying than their Christian and non-specified counterparts. Personality traits were, additionally, assumed to be the stimulator for panic buying. Taylor (2021) exhibited that those who were suffering the mental-ill conditions, or so-called the psychopathic trait was more likely for panic buying for making full use of it and for themselves. Likewise, Dammeyer (2020) revealed that those who expressed more about their feelings and emotions outwardly and easily and also those who were less exposed to the surrounding situations and environments indicated the acts of panic buying. Garbe et al. (2020) pointed out that those whose personality was to make everything perfect would fall into the groups of the people gathering in the supermarkets to buy and purchase some necessary products and goods immediately and rapidly. Specifically, Müller and Rau (2021) found that those who were not strong and unable to stand on the difficulty and gave no importance to the present circumstances, panic buying would be the expected result.

The people's attitudes towards their own self and society and the government had also been taken into consideration. While Lehberger et al. (2021) mentioned that some people showed that they want to stock the products and goods because they did not want to go out frequently whereas they did not want to do as such since they thought of the other people in the society. Dammeyer (2020) highlighted the importance of the people's attitude towards in extent to which the governments had managed and handled the COVID-19 pandemic crisis. Interestingly, if the people thought that more actions should be provided and managed by the government, lack of confidence and trust on the governments could drive the people for panic buying.

Finally, there were other issues to be considered and validated as the reasons behind the people's panic buying. These included how much and how many products and goods in the people's hands (Wang & Hao, 2020) and high avoidance of confusion, leading to the perceived thought and need for buy and purchase because insufficient food and products available at home (Brizi & Biraglia, 2021).

## Discussion and Conclusion

This current study entitled ‘The insights of panic buying in the midst of COVID-19 pandemic: A systematic literature review’ targeted examining and discovering of the reasons and rationales behind panic buying by reviewing the literature systematically. The findings of the study revealed that the studies relating to panic buying were limited in Asia and Australia and cross the borders, but not in the United States and Europe. Happily, to understand panic buying, a wide range of the theories, concepts, and models had been applied from demographics to psychographics. The constraint could also rather be seen in the qualitative research methods than the quantitative ones. Moreover, panic buying was caused by a variety of factors including 1) psychological factors, 2) social factors, 3) social media, 4) government measures, 5) demographics, 6) personality traits, 7) attitudes, and 8) others.

### *Fears as the most important psychological factor*

Both of the psychological, biological, and sociological dimensions of fears were presented as the most important triggers of panic buying. As for the psychological factors, the two fears and frights of the uncertain situations of the COVID-19 pandemic and of nothing left on the shelves were expressed and shared. Consistently, Cypryańska and Nežlek (2020) revealed that the people have gone crazy buying and storing food, medical and cleaning products, and the like since they are extremely fearful that some bad incidents will happen soon and they cannot avoid such bad situations. In the Thai axiom, likewise, when the people were extremely fearful and frightened, they were able to carry the big and difficult-to-remove jars. Ma (2012) elaborated her thoughts in the Psychology Today website interestingly by showing her agreement in paraphrasing Franklin Roosevelt, the former American president: ‘[f]ear of fear probably causes more problems in our lives than fear itself’. In other words, fear *per se* was not as dangerous and frightening as fear that was created by the people. So did the fears of the uncertain situations of this health-related outbreak and of starvation because the people had exploded such fears themselves although the COVID-19 pandemic had been managed by the governments and various local, regional, and global organisations at a certain level and also the various shops had stated the sufficiency of the goods and items during this hard time. Even being under lockdown, the retailers’ digital adaptation and flexibility, i.e. ecommerce, online shopping, and delivery could widely be perceived and seen. Ma (2012) had further employed the ‘Feararchy’ presented and copyrighted by Karl Albrecht (2007), there were the five levels of fears and the fears of the unstable situations of the COVID-19 pandemic

and of food and necessary goods fulfilment could fail into the third layer of the ‘fear of loss of autonomy’ while the peer and social pressure as another antecedent of the people’s panic buying could be regarded as the ‘fear of separation’. This was because panic buying was an act that the people could be confident that the nightmare was under their hands and controls, according to the professionals and experts (as cited in Lufkin, 2020).

The following space would be given and devoted to the outstanding ‘Feararchy’ of Karl Albrecht established in 2007 (as cited in Ma, 2012) since the author had found this piece of work not only interesting, but also extremely valuable and beneficial for designing the appropriate contents and messages to meet and respond to the different causes of fears. At the bottom, this stage was so-called the ‘fear of extinction’. As it was named, the people would be fearful if they had perceived and acknowledged that their beloved and known one’s lives no longer exist in the world. The ‘fear of mutilation’ was placed in the second stage and explained that the people were found themselves handicapped and disabled where their parts of bodies could not go and function together as normal and usual. Albrecht (2007, as cited Ma, 2012) also mentioned that the people who were frightened by the scary animals and species were resulted from this ‘fear of mutilation’. As mentioned above, the two fears revealed in this study was considered in the ‘fear of loss of autonomy’ because the solutions and ways to go were out of control and out of hand to be able to manage. Likewise, if the people did not follow the others’ panic buying practices, they were afraid that they were left behind and were not regarded as the in-group members. This stage was known as the ‘fear of separation’. Last but not least, the ‘fear of ego-death’ was taken for granted when the people’s self-esteem and respect were damaged and destroyed. In other words, their confidence and pride were heavily hit and attacked for some reasons and that the people had lost their own self (in Ma, 2012). In this case and in my opinion, the example hashtag was #trust your thoughts. That means to encourage the people to trust and believe in their decision and evaluation and not to just follow the others because the different families had the different surrounding environments.

#### *Previous negative experiences and a state of emotion as the supplementary psychological factors*

The other two psychological variables were about the previous negative experiences and a state of emotion at that time. The people who had experienced with the previous nightmares taught them to prepare well and beforehand for having the necessary and non-necessary food and products (Cooper & Gordon, 2021; Prentice et al., 2020). Likewise, when the people were

not in a good state of emotion, panic buying and heavy shopping could be the way for them to relieve such bad sentiments. According to Atalay and Meloy (2011), so-called the retail therapy, i.e., buying and purchasing some goods and commodities without having a plan could help the people escape from their bad sentiments that happened for a short period of time. These bad sentiments, in times of the COVID-19 pandemic crisis, could be such two fears proposed and discussed above.

#### *Social media as the trigger*

Moreover, the power of social media was largely discussed. Rieper (2020) had conducted an interview with the marketing scholar, Professor Jim Roberts from Baylor University, who expressed and elaborated that '[t]he media benefits from creating hysteria – more people watch and listen when they are frightened'. In other words, the greater the people were exposed to the information on the social media platforms, the more fearful the people were. Moreover, this was the valuable goal the social media persons and professionals could earn. The professor had called this situation as the 'availability bias' and recommended the people to consume the social media in the lesser extent to avoid panic buying. The study of Li, Zhang, Wang, and Dou (2021) exhibited that although panic buying was caused by the greater degree the people perceived the COVID-19 pandemic, such purchasing behaviour could be minimised by their close peers whose level of social media consumption was not high. Consequently, Dumont (2020) demonstrated that one of the big supermarkets and shopping malls in the United States had launched the #MoreForAll social media campaign and asked and convinced their customers to share this hashtag more widely so that panic buying would be terminated by the people and food and products could be shared to the other people in society who were really need such items.

#### *Demographic profiles and personality traits cannot be missed*

In the consideration of demographic profiles, although this study did not find the socio-economic indications to panic buying and stockpiling, Youshizaki et al. (2020) pointed out that the socio-economic backgrounds should be taken for granted because panic buying and stockpiling is performed and acted by every single level of socio-economic attainments ranging from the poorer to the richer. As for the personality trait, those who express their emotions and feelings outwardly, i.e., extraversion and easily, i.e., neuroticism, especially the negative and unfavourable ones were sensitive and prone to panic buying. This was consistent with the studies of Larsen, McAlexander, and Pomeroy (2020), in the case of both extraversion and neuroticism and of Bentall

et al. (2021), in the case of neuroticism. The possible reason could be that the mood of this group of the people was always swung. When this group of the people were aroused by something, panic buying could be one of the practical consequences they would take. Those whose personality was neurotic would impact and interrupt their abilities and capabilities to work and their relationships in the marriage lives (Widiger & Oltmanns, 2017). Not only these two personality traits, but also the conscientiousness personal characteristic triggered panic buying. Since this type of the people were respecting to what was agreed and shared by society and this should not be ignored (Leary, 2018), in the case of the COVID-19 pandemic, it could make sense if these people rushed into the supermarkets and shopping malls and got all the things well-organised and in their hands.

### *Recommendations*

As for the governments and local authorities, together with the retailers and suppliers, communication, i.e., contents and messages delivered should be transparent, clear, and sufficient. Such contents and messages include evidences and confirmations of the products available. Likewise, it will be beneficial if the governments and local authorities, together with retailers and suppliers, could develop an application that the people can check the availabilities of the products.

In the interdisciplinary perspectives, furthermore, a combination of the behavioural science and digital marketing communications should be remarked and highlighted. Understanding the behavioural insights of the customers and consumers is a core essence of the digital marketing communications. A campaign, not only from the supermarkets and department stores, but also from the governments and local authorities, should also be released to reduce and minimise the people's panic buying. Generally speaking, the panic-buying people are emotional-attached. Also, it is likely to say that these people's insight, unmet needs are to fulfil and achieve their self-esteem and self-actualisation. 'Set a thief to catch a thief' can be a proposed strategic, promotional direction. If nothing is actually left on the shelves, how would the people do to help. Or, if the people do not buy ones, they will be gaining more and representing as the certificate to save the countries.

Future studies should study and examine a comparison of panic buying in times of the COVID-19 pandemic and of other nightmares including the natural disasters and other health-related outbreaks. Although panic buying and stockpiling always happen, especially when the governments have lifted up their preventive measures through lockdown for their people's safety from the hit of the COVID-19 pandemic and other severe transmissible crises, this action should not be treated as the [new] normal practice. Panic buying can cause an increase in economic

and financial positions of the supermarkets, unfortunately, it provides only the short-term economic and financial growth and consequences. Nonetheless, the pictures capturing conflicts and fights between the consumers to get the products and commodities needed are acceptably not beautiful and disadvantageous to the countries' images and reputations. Understanding the reasons and rationales behind panic buying is valuable and beneficial, especially for the governments and the content creators for designing the more proper contents and messages to reach the people while not exacerbating their panic and anxiety.

## Ethical Statement

For ethical considerations, this study did not conduct and collect with human subjects. Instead, the study systematically gathered and analysed previous studies and literatures relating to the determinants of panic buying. In this case, there should be no harm on the human subjects' lives, privacy, and reputation.

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