



Do social media platforms develop consumer panic buying during the fear of Covid-19 pandemic

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ABSTRACT

There is inadequate understanding of how social media can shape fear and consumer responses in the manner of consumer panic buying while Covid-19 is spreading across the world. Through taking a social constructionism position this research focused on what people think and feel at an individual and collective level on the role of social media to create panic behaviour. Data have been collected from thirty-four consumers who have minimum one active social media account. These participants are contacted through telephonic interview due to maintaining the social distancing. Findings reveal that uncertainties and insecurities proof, buying as persuasion, product unavailability proof, authorities' communication, global logic, and expert opinion are some of the causes on social media platforms that developed the situation of consumer panic buying during Covid-19 crises. Furthermore, the unprecedented level of real-time information on Covid-19 at users' fingertips can give them the tools they need to make smart decisions, but also make them more anxious about what is to come; experts say that may lead to panic buying or stockpiling of products. The study has tried to develop understanding about how social media generates social proof and offers a window into people's collective response to the coronavirus outbreak and shapes panic buying reaction. The study has provided a consumer panic buying theory based on the results of this study and on existing theories, such as global capitalism/information society risk society, social influence, and social proof. These theories help to understand how global logic is built due to the use of social media and how different social proofs are generated which developed the behaviour of consumer panic buying due to Covid-19 pandemic.

1. Introduction

Currently, social media has facilitated the use of some hashtags, for example “#toilet-paper-gate” and “#toilet-paper-crisis”, which indicate consumers' panic behaviour during the coronavirus pandemic (Mao, 2020). Barr (2020) found that demand for hand sanitizer increased by up to 255% in UK, probably partly in response to a suggestion by the World Health Organization (WHO) that hand sanitizer was the best preventative measure for Covid-19. According to a Reuters (2020) report, groceries sales have increased by 43% in a month compared to last year in UK. Collinson (2020) reported that sales of online groceries increased up to 51.5% as Covid-19 started to spread in the UK. Collinson (2020) reported that a UK bank with 1.2 million individual accounts stated that spending on groceries increased by up to 15% in a month compared to previous year, which supports the observation that UK consumers are involved in panic buying. Shaw (2020) reported that Tesco, Asda, Morrisons, and other supermarket websites crashed after UK Prime Minister Boris Johnson's lockdown speech. Furthermore,

Reuters (2020) indicated that there were 79 million additional groceries orders in a month in Great Britain compared to last year. Cogley (2020) highlighted that many people have posted complaints on social media regarding stockpiling (i.e. rice, pasta, and sanitizer). Furthermore, it is found that most UK supermarkets are busy and have empty shelves due to consumer panic buying during the pandemic (Cogley, 2020; Mao, 2020).

Due to social media, people are more engaged and connected, which increases information sharing (Aslam et al., 2018a; Muqadas et al., 2017) while at the same time allowing sensationalism and misinformation to spread regarding Covid-19 because shocking or emotionally charged content gets people's attention (Cogley, 2020; Mao, 2020). Consequently, experts say social media makes people more anxious about what is to come, which had an impact on stock supplies (Reuters, 2020); therefore, consumer panic buying increased across the globe based on a socially constructed meaning of Covid-19 that led to stockpiling behaviour of consumers. Researcher have shared that the business activities and consumer buying patterns are changed due to Covid-19

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(Ting et al., 2020; Cogley, 2020; Mao, 2020). Consumer buying behaviour is complicated and subjective reality especially in the presence of social commerce (Aragoncillo and Orus, 2018; Abdelsalam et al., 2020; Algharabat et al., 2020). Other researchers stated social media enhanced the information sharing among consumers through online rating, sponsored ads, online reviews, social motivation, and social influencers (Alalwan et al., 2017; Alalwan, 2018, 2020). The social media has increased the online purchasing behaviour therefore many businesses and consumers are engaged because it facilitates to take optimal buying decision (Alalwan, 2018; Alalwan et al., 2019; Baker Qureshi et al., 2019).

Shaw (2020) found that food home deliveries increased when food chains allowed only take out options and there are strict punishments for social gathering at social events. Due to consumers' panic buying, many stores, such as Walmart and Costco, there is a limit on the number that can be bought at one time (Barr, 2020). Many public messages are sent on social media to raise awareness, for example British Retail Consortium stated, "*We understand your concerns but buying more than is needed can sometimes mean that others will be left without*". On the other hand, from the consumers' point of view the UK government advised them to stay at home, therefore, they are buying additional food items with the aim of not going outside their homes (Brazell, 2020).

Many countries such as America, UK, and Canada have taken measures to increase social distancing; therefore, the role of social media for engaging and exchanging information among people has increased. Social media provides many communication features (i.e. audio, video, chat, picture, tag, like, sharing, tweet/retweet and many other features); therefore, many politicians, celebrities, media persons, government officials, and others have joined these platforms to exchange information about their common interests (Cogley, 2020). Many people have shared stories, pictures, and experiences on Twitter and Facebook which also increased panic buying among other consumers (Cogley, 2020; Mao, 2020). For example, Barr (2020) reported that a high number of Twitter users in America shared pictures of the empty shelves in Costco supermarkets during Covid-19 pandemic. As a result, more people-initiated stockpiling which increased the pressure on supermarkets and suppliers around the globe. Therefore, it is essential to understand the role of social media in exploiting consumers' panic buying behaviour that led to stockpiling. At present, the use of social media has increased because people can collect helpful information through local virtual communities on Facebook, WhatsApp, and other social platforms. There is limited literature available regarding how consumers' panic behaviour can be increased due to the advent and rise of social media platforms. The present study aims to contribute to the literature by exploring the role of social media in fostering stockpiling behaviour among consumers during the Covid-19 pandemic crises. The study will aim to connect different theories with the purpose of building a research framework that can guide how consumers' panic behaviour increases due to the presence of social media.

2. Literature review

The new electronic media have wired everyone with their phone-computer networks, such as through automated services, online banking and shopping, global financial markets, and global health risks. Different social media platforms have emerged from the internet providing global connectivity to users (Aslam et al., 2018b; Muqadas et al., 2017). There are over 2.65 billion users of social media as of 2018. It is estimated that by 2021 this number will increase to 3.1 billion. Social networking increases with every passing day, for example by January 2019 it is estimated to have grown 45% (Statista, 2020). This has given rise to the popular rhetoric of electronic globalism and to concerns about the dark aspects of Net culture, such as digital capitalism and transnational consumerism. Risk society has evolved to global risk society which has corresponding configurations of ontological dimensions of its own including the contradictions (Beck et al., 1995). For

example, in the current digital era, work culture is becoming 24/7 partly due to the possibility of working from home. This has given rise to surf-mentality, advertising hype, privatized home entertainment, online shopping, convenience living, and instrumental as well as aggressive orientations to the world. Many authors have documented that the importance of social media has increased, especially since people have been confined to their home due to Covid-19 (Cogley, 2020; Mao, 2020). Due to instantaneous means of communication, stress and uncertainty have become universalized, underpinned by 24/7 electronic communications as well as problems with online groceries orders. Previously, concepts of road rage were prevalent, but now due to the digital age the concepts of stockpiling and panic buying are coming into the limelight. People now order items over the internet from the convenience of their own home, which has given rise to the increased need for inventory management and computerized vending machines to accommodate larger orders. Nevertheless, the digital age has also brought issues of surveillance, fragmented identity, and techno-anxieties to the personal life and collective lives of individuals. User-generated content influences the behaviour of consumers in different situations. Consequently, there is a need to comprehend the role of the social influence of social media users (SMUs) in generating panic across social media that led to the stockpiling behaviours of customers.

Social networks and social interactions through social media have changed the consumer buying habits and patterns whereas traditional literature is unable to provide guidance about these aspects (Parment, 2013; Pookulangara and Koesler, 2011). Previous studies have highlighted that the use of social media has increased the social learning, knowledge and different buying patterns (Aslam et al., 2018; Muqadas et al., 2016, 2017). Therefore, more businesses are interested to learn about consumer engagement (Adhikari and Panda, 2019). On the other hand, researchers have highlighted that the use of online devices and platforms have increased more insecurity among customers therefore they are more uncertain regarding which information is correct and which one is incorrect (Koistinen and Järvinen, 2016). It has found that the natural disaster and risks situation are strongly associated with supplier demand and consumer reactions (Zheng et al., 2020; Frank and Schvaneveldt, 2016; Littler and Melanthiou, 2006) therefore consumer buying behaviour is different and unpredictable (Koistinen and Järvinen, 2016; McGoldrick and Andre, 1997). Tsao et al. (2019) argued that supply disruptions can be occurred due to either adverse weather, new government policies, natural disaster, or strikers. Their study contributed to extend understanding regarding low substitution of brands, supply disruptions, and shortage of substitution of brands enhanced the consumer panic buying as well as brands profit (Tsao et al., 2019). A recent study is contributed by providing understanding that supply disruption can develop consumer panic behaviour and it also offered social learning to other consumers (Zheng et al., 2020). They found that panic buying is equally beneficial for retailers and social welfare (Zheng et al., 2020). Su (2010) highlighted that when there is strong monopoly in market for some household items then consumer can stock up these items with the purpose of future consumption. Gupta et al. (2020) and Gangwar et al. (2014) found that price sensitive consumers are usually stock up when they found attractive discounts on items in which they are interested.

There is also limited theoretical understanding about the role of social media to creating panic buying behaviour as a global society. As global information society theory of Kittler (1990) highlighted that the similarity of response created social consensus at global level. But this study also focused on differences of opinion amongst social media users on Covid-19 because Kittler (1990) highlighted that range of responses become more extreme and polarized through coordination, production, reproduction and dissemination of information through electronic cornucopia. Therefore, in line with this theory, author of this study hypothesized that singular and thousands of users spread relatively discrete information as rumours, disinformation and other forms of sensationalism generated panic buying behaviour. Consequently, multi-dimensional social media-convergent as

information-communication technologies of the digital age (ICTs) generated isolated cultural compound or panics that come to define the viral risk consciousness of the postmodern age. Therefore, this study helped to understand the global society risk response which is a reaction of global pandemic. The global society risk response is based on shared information at global level with the help of social media platforms. The risk society theory of Beck (1993) indicated that internet plays a significant material and technical role in the development of a 'global risk society' (Beck, 1993). Correspondingly, risk is 'social constructed through interpretation of global society because many are advising risk adverse behaviour which become a global collective action (Leikas and Penttilä, 2007; Wegmann, et al., 2018).

Unfortunately, both global society information theory and risk society theory cannot provide understanding regarding the social process in the form of risk response of global society which is reflected through consumer stockpiling behaviour during Covid-19 crisis. The consumer panic buying behaviour may be developed through rumours, sensationalism, and other forms of disinformation therefore present study made an attempt to explore it in context of the social influence and social proof which is may be generated through social interpretation of the experts information, sensationalism and misinformation through social media. The primary thrust of this paper is to explore why and how internet users are influenced by other people and how SMUs develop other people's behaviour towards particular actions, for instance, why and how social media influences people to purchase particular product (s) from supermarkets. As Cogley (2020) observed the panic purchasing by UK shoppers left the shelves of thousands of stores bare of essential household items, including pasta, rice, sanitizers, and toilet roll. Cogley (2020) related this behaviour to "social influence" and "social proof theory". He further highlighted that according to some experts, a variety of social media platforms (e.g. Twitter and Facebook) are the key sources that fanned the rush among people to stockpile basic household goods. Social media is also being used by scientists and other public health experts to directly engage with the public or to discuss embryonic research while thousands of users spread sensationalism, rumours, and other forms of disinformation (Dela, 2020). This can be obscured by risk society theory, which provides an understanding of how society or people respond to uncertain situations or a risk. The major thrust of this research is to explore how social media plays an important role in consumers' panic purchasing normative behaviour; thus, it considers social proof theory as the most appropriate and relevant theory in this regard because consumers' panic behaviour is a socially constructed phenomenon that is based on experts' opinions, sensationalism, and misinformation spread by SMUs that make people more anxious about what is to come (see Fig. 1).

3. Research methodology

From the perspective of relativist ontology, it can be stated that racial segregation and social class are experienced and defined differently by different people (Lakoff and Johnson, 2003). As a relativist ontologist, I believe that panic buying behaviour largely depends on the race and class to which consumers belong and the countries or context in which they are in. Hence, panic buying behaviour during Covid-19 reality is not something singular that can be discovered for once and for all as there can be different perspectives on the same subject. Relativists believe that different observers have different perspectives, as for example stated by (Collins 1983: 88): "What counts for the truth can vary from place to place and from time to time". First, as a social constructionist I believe that different aspects of the social reality of Covid-19 in interactions on social media are determined by people instead of by external or objective elements. Therefore, as a social constructionist I am determined not to collect facts and evaluate the recurrence of social panic behaviour patterns. Indeed, I tried acknowledging the different meanings and constructions which people have placed on their existence through social media information exchange about Covid-19. Therefore, in the context of social constructionism the

different interactions people have made during social media information exchange about Covid-19 have different meanings. From a social constructionism position, this research focused on what people think and feel at an individual and collective level about the role of social media in creating panic behaviour (See Fig. 2). Therefore, as a social constructionist I aim to appreciate and understand the various social experiences of people, instead of searching for underpinning fundamental laws that govern their panic buying behaviour, because human actions stem from people making sense of different situations instead of a direct response to Covid-19 as an external stimulus.

4. Population and sampling

The researcher of this study has appeared as a motivational trainer at social and public events. Therefore, the researcher is aware of national culture, social structure, government rules and regulations, and the role of social media in engaging local, national, and international communities. These subjective realities are unique and have different impacts on consumer behaviour. According to Worldometer (2020) report, the UK has 148,377 patients with coronavirus and 20319 deaths from coronavirus until the period of April 25, 2020. The estimated figures for death rate were increasing in the UK; therefore, the Prime Minister ordered a lockdown which developed into the situation of consumers' panic buying (Cogley, 2020; Mao, 2020). Furthermore, most offices in the UK adopted social networking technologies for running official activities from home. The physical and social distancing increased the importance of social media which helps to connect and engage local and international communities. The present study has selected UK consumers based on the following inclusion criteria:

- These UK consumers are over 18 years of age.
- These UK consumers have used social media platforms for a minimum of two years.
- These UK consumers must have a minimum of one active social media account.
- These UK consumers will voluntarily offer research data.

The purposive sampling technique is commonly used and is useful especially when the researcher does not know the sampling framework but tries to select respondents who have useful knowledge about the objectives of research study (Aslam et al., 2018a, 2018b). Therefore, the present study selected the purposive sampling technique and collected data from 34 participants. The demographic features of targeted participants are given in Table 1. There are many advantages of telephonic interview such as it can extend the geographical scope for getting rich insights. It is more cost effective (i.e. saving time, travelling, and meeting spot expense) and able to provide quality data during the spread of Covid-19. Therefore, telephonic interviews were conducted because of the social distancing guidelines of the local government. Information about the study and a consent form were provided to the selected participants and the European GDPR research ethic guidelines were followed for this study.

5. Data analysis

An audit trial, reflective diary, and two cycles of coding with framework analyses were used to add rigour and transparency, which is a well-utilized approach in social research (Auerbach and Silverstein, 2003) (see Fig. 2). Saldana (2016a) observed that since patterns describe the probability of recurrence, the salience and habits in daily lives become a trustworthy source of qualitative findings. Studying the patterns of panic behaviour through this qualitative enquiry enabled me to confirm the descriptions of Merriam's (2014) relationships, rituals, roles, and routines (5 R's) of human beings in their exchange of information through social media. Moreover, five stages were used for analyzing the data. These stages are familiarizing, identifying the

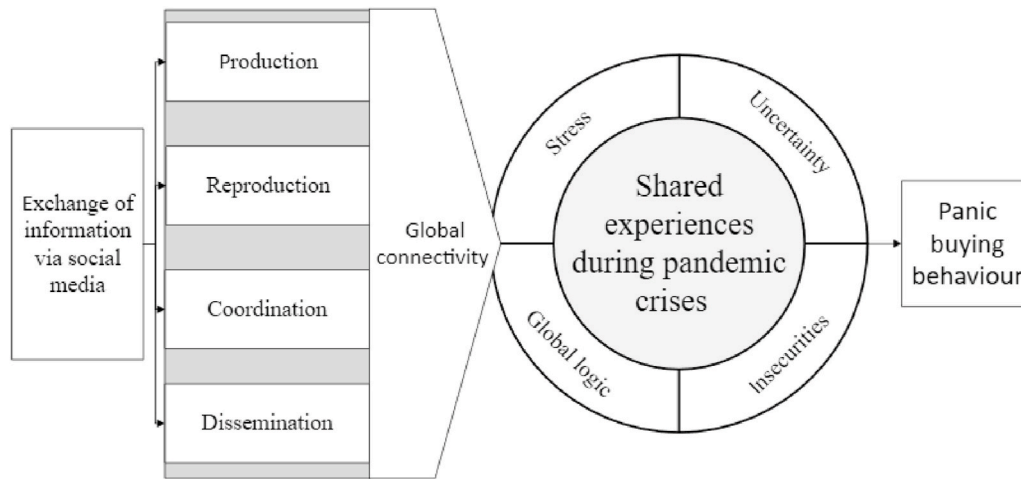


Fig. 1. Theoretical framework
(Source:
Developed by the author of this study).

themes, indexing, charting, and mapping; interpretation would add the value of rigour and transparency to this research. I prepared transcripts of the interviews and kept the transcripts anonymous according to research ethics. A computer program NVivo (Version 12) was employed for organizing and coding the transcripts and to help in visualizing and analyzing the data and their relationships (Janesick, 2011). Saldana (2011) suggested that two cycles of coding be done to maintain the meaning and quality of data. The first cycle of descriptive coding ranged from a single letter to an entire paragraph to the entire text of a page to different moving images (Saldana, 2016a) to arrange panic behaviour in terms of 5 R's of SMUs in exchange of information. In the second holistic coding process, the coding portions were either exactly the same units and analytic memos concerning the data, and it also involved large passages, or reconfiguration of the entire coding scheme (Saldana, 2016b). (Dey 1993: 104) defined holistic coding as an attempt "to grasp basic themes or issues in the data by absorbing them as a whole [the coder as 'lumper'] rather than by analysing them line by line [the coder as 'splitter']". Consequently, that led to the creation of the relations between different themes to engender a widespread concept of panic buying behaviour of customers during the pandemic. Clarke (2005) observed that prefacing of coding should be done, and data should be re-read so that deep insight into the data can be developed. The final themes were authenticated through interpretation of the key words and codes via contemplation of relativism and social constructionism perspective on knowledge that would also add value to the rigour and transparency of this research. I also maintained an audit trail and reflective diary for documenting the emergent and final themes.

6. Findings and analysis

Main theme: role of social media to generate social proof as engaged society for stockpiling behaviour of customers during Covid-19 pandemic crises.

6.1. Sub-theme 1: Uncertainties and insecurities proof

Social media has connected local and international communities therefore people are now more aware about their common interests. For example, Covid-19 has increased health issues and life risks therefore people are sharing their experiences as a social responsibility with the purpose of saving the lives of others. For example, participant 1 has shared: "I have watched many videos on YouTube that this virus spread through spitting and touching of other people. Therefore, I thought that it is better to minimize the life risks, so I bought extra necessities of life (pasta,

rice, dry beans and dry fruit) with the purpose to stay home and practice social distancing". Similarly, participant 2 highlighted: "You can see videos on YouTube how people are suffering with virus because of social gathering and carelessness. So, it's my best decision to buy things to stay at home".

Social media provides personalization and customization therefore people can create and exchange content using audio, video, post, tweet, comment and so on. There is much evidence regarding how Covid-19 has developed into a panic situation around the world therefore people have initiated stockpiling with the purpose to save their life from uncertainties and insecurities. For example, participant 3 shared: "I have seen many videos how the people are dying in US, Italy and China so I decided to buy necessary things to stay at home". Likewise, participant 4 stated: "I have watched many videos, so I know that this virus transfer from person to person, so it was better decision to buy all required things to stay home that is why I bought them".

6.2. Sub-theme 2: Buying as persuasion

Many participants of this study shared that they are strongly tied to their close friends through social media therefore they are more aware regarding how they can deal with pandemic situation. It was found that many participants followed their friends' advice and persuasion about buying extra necessary food items. For example, participant 5 has shared: "I noticed through my Facebook that all of my friends are buying the necessary things, that's why I went to buy things in advance". Similarly, participant 6 stated: "I am luckiest one because one of my close friends shared a US tissues crisis on Facebook that's why I had bought enough tissues before crisis coming in UK".

It is found that friends from national and international communities can play a role to inform their close friends how they can be saved from uncertainties and insecurities which they are facing in their own countries. For example, social media played a role to engage friends from different backgrounds, cultures, and countries who can initiate recommendations for buying items and saving lives during pandemic situation. Participant 7 shared: "One of my friends from US shared videos how people are buying there so I became worried to buy the things in advance". Likewise, participant 8 shared his experiences: "One of my friends who studies in China shared very sad stories of China so I shared all of these videos with my friends on Facebook. After some days, our discussion turned toward Italy, so many people started recommending buying necessary things before it gets worse".

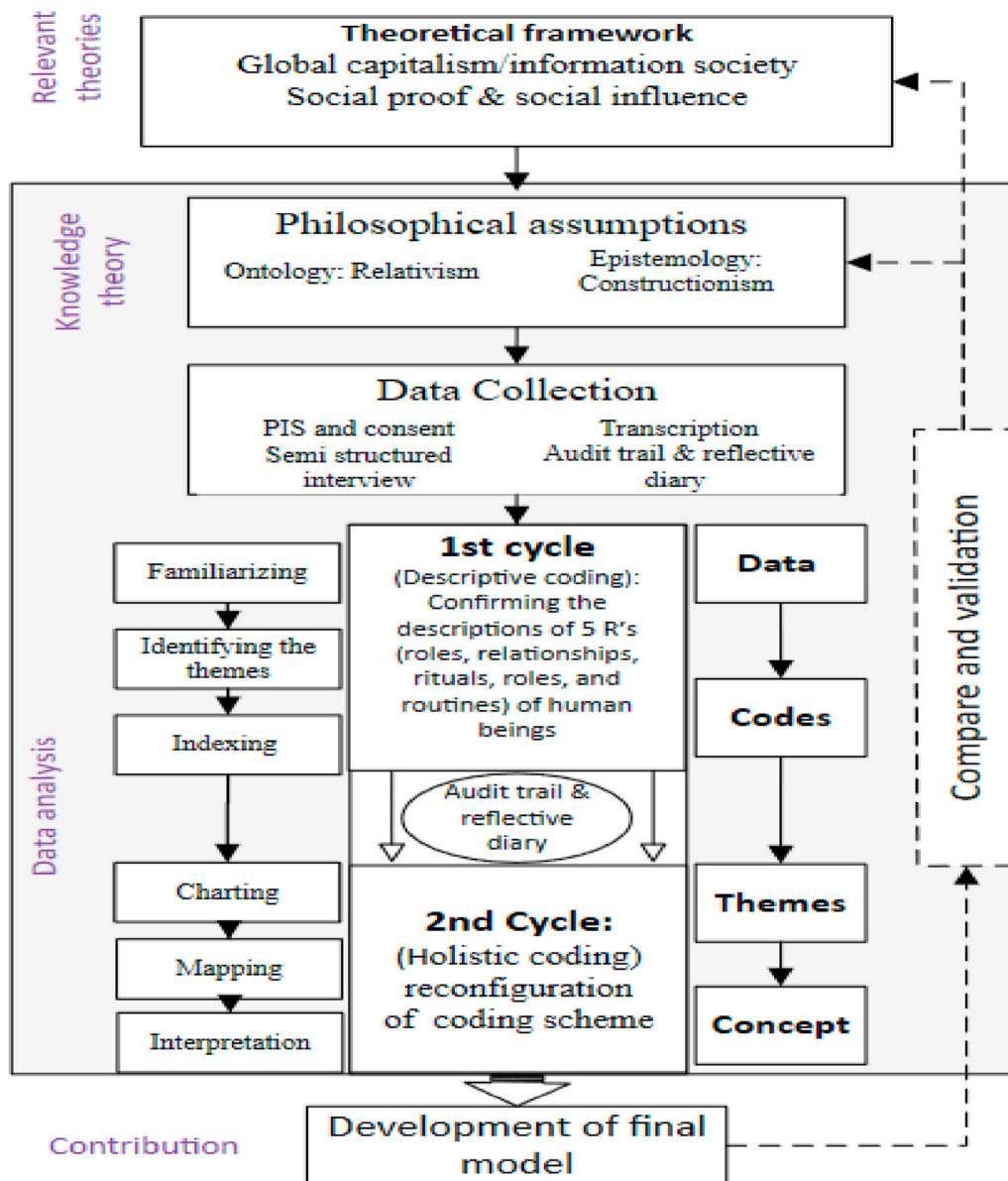


Fig. 2. Research methodology framework (Source: Developed by the author of this study).

6.3. Sub-theme 3: Product unavailability proof

It is found that many people shared pictures, videos, and posts regarding the unavailability of necessities of life in their local markets. These pictures, videos, and posts created an extreme panic situation as more people rushed to markets to stockpile and to avoid future uncertainties. For example, a video went viral on social media in which people are quarrelling about toilet paper which gives a perception that supplies of tissues are rare due to Covid-19 pandemic. Therefore, more people have pursued these messages and started stockpiling which increased pressure on supermarkets and suppliers. For example, participant 9 has shared her experiences: “I went to buy tissues because I have seen on Facebook that toilet paper is rarely available in markets, but I could not find any in the supermarket when I went there”. Similarly, participant 10 stated: “When I saw that many people were struggling to buy things in US that make me crazy to do shopping in advance, so I did it and I share videos of supermarket with my friend”.

It is found that social proof and social persuasion have become more common practices especially when people love to follow the advice and

opinions of others. People thinking that it is their social responsibility to guide, help, and warn others during the Covid-19 pandemic situation; therefore, they share videos of empty shelves in supermarkets. These pictures and videos may help others to prepare an action plan regarding how they can accumulate necessary items especially when people rushed for stockpiling. For example, participant 11 shared: “In the initial stage I shared a video on Facebook and I explained that UK supply chain system of necessary things is based on international supplier so there is a chance of shortage of goods, trust me my video got more than 7000 likes within two days. I also added some videos from China, Italy and US. People are still appreciating my opinion that I was right that time”. Likewise, participant 12 said: “Once I saw similar videos on social media regarding empty shelves of big market giants then I shared with my friends to inform them to buy things as soon as possible”.

6.4. Sub-theme 4: Authorities’ communication

At present, prime ministers, political and social celebrities, and common individuals are using the interactive communication of social

Table 1
Interview participants.

No.	Gender	Social media active account	Profession	Education
1	F	2	Student	PhD in progress
2	M	1	Student	PhD in progress
3	F	2	Professional	CMI level 7 and 8
4	F	1	Business owner	Bachelor's degree
5	M	1	Professional male	CA
6	F	2	Office worker	MBA
7	F	2	Housewife	Bachelor's degree
8	M	2	Student	MBA and ACCA
9	M	1	Professional worker	Master's degree
10	M	1	Student	Bachelor's degree
11	M	2	Marketing consultant	Master's degree
12	F	1	Housewife	Bachelor's degree
13	M	4	Student	DBA in progress
14	M	4	Lecturer	PhD marketing
15	F	3	Mom	Master's degree
16	F	3	Business owner	Master's degree
17	F	2	Student	Master's degree
18	M	2	Marketing consultant	Master's degree
19	F	2	Professional lady	Master's degree
20	F	1	Business owner	Master's degree
21	M	1	Business consultant	Master's degree
22	M	2	Office worker	Master's degree
23	F	2	Housewife	Master's degree
24	F	3	Housewife	Bachelor's degree
25	F	3	Housewife	Bachelor's degree
26	F	3	Marketing professional	Master's degree
27	F	1	Mom	Bachelor's degree
28	M	2	Associate professor	PhD marketing
29	M	1	Business owner	Master's degree
30	M	2	Professional worker	Master's degree
31	F	4	IT professional	Master's degree
32	M	1	Associate professor	PhD marketing
33	F	2	Office worker	Master's degree in progress
34	F	2	Officer worker	Master's degree in progress

media platforms as well as social exchange more frequently. The use of social media enhances socialization, recommendations, suggestions, and advice especially when people are confined to their houses due to Covid-19 crises. For example, it is found that many people mentioned that social media promoted uncertainty when everyone shared the speech of the UK Prime Minister who ordered lockdown by enforcement and advised people to buy necessities of their lives. This situation increased uncertainty and insecurity among people, and they started to accumulate stock because of a fear of a shortage of supplies in the future. For example, participant 13 shared, “I have heard Boris Johnson speech on Facebook regarding the lockdown in whole country, so I shared it with my friends with recommendation to buy necessary things”. Similarly, participant 14 said: “I think public did not do anything wrong to buy extra food because government recommend to stay home so I recommend to my friends buy necessary things and I have seen many people were suggesting to buy necessary items with the purpose to stop virus spreading”.

The value of a health authority's communication has been increased during the Covid-19 pandemic especially when everyone has life risks and uncertainties. It is found that many people shared the speech of the UK Health Minister and of other authorities because they expressed concern about the high number of patients and low number of facilities as this virus spreads. The UK residents are advised to buy necessary food items with the purpose to stay home for uncertain period and practice social distancing. For example, participant 15 stated: “When I heard the speech of the Health Minister who explained how UK national health system cannot deal with higher number of patients, then I suggested to my friends through video message on YouTube, WhatsApp, and Facebook to stay at home. In response to my communication, I got many comments where they suggested to buy pasta, sauces, and drinks for worst situation”. People also shared that they are buying hand sanitizer, masks, and gloves especially when WHO declared these things to be best preventive measures from Covid-19. This is evidenced by a quotation taken from participant 16's

interview: “Many people have shared videos and posts regarding World Health Organization declared sanitizer as best preventive measure from Covid-19. Also, I have seen many videos on social media that washing hands is one of the major protections, so I bought enough hand sanitizer and soap because it was expected to run out quickly”.

6.5. Sub-theme 5: Global logic and panic buying

Many interviewees shared that social media engaged people from different backgrounds with the purpose of social exchange and advice. Social media platforms developed into a global village; people can become more proactive to deal with uncertainties that started in another corner of world. For example, people frequently shared their experiences from China and US and as a result more people in the UK acted and started stockpiling with the purpose of staying at home and avoiding life threats. People from the US and other countries have shared their videos and posts on social media and some of the videos and posts have become viral as more opinion leaders referenced their posts to advice for accumulating the necessities of life. Social media played a vital role in developing a global logic and panic buying during Covid-19 pandemic. For example, evidence collected from participants 20 and 25 is as follows: “Suddenly I watched a video on Facebook that USA and UK supermarkets are very busy, so I immediately went there for shopping. Unfortunately, there were not too many choices left to buy, even many shelves were empty, so I took pictures and shared on my Facebook and Instagram to tell my friends what's going on in supermarkets”; “I have many videos on social media about Italy and China so I decided to remain at home so bought all necessary thing like pasta, rice, cooking oil and hand wash cases cannot got out to get corona so it better to remain at home so should have to buy the necessary items to remain at home”.

6.6. Sub-theme 6: Expert opinion and panic buying

There are many experts on social media who have social proof and influence because they have knowledge and awareness. People love to take recommendations from experts because they have professional experience and knowledge and are trustworthy and credible for them. For example, participant 30 shared that they acted on the advice of their store manager friend; therefore, they were able to accumulate more stock, especially when people were in long queues to maintain social distancing and spending more time and resources on groceries. Participant 38 highlighted they bought boxes of paracetamol because it is effective against the pain and fever of Covid-19. These evidences are taken from following interviews “*One of my friends who is working as a store manager in one of the famous stores suggested to purchase necessary food items as Covid-19 developed into a panic buying situation in the world. I shared my friend’s views with other friends and thankfully we bought necessary items in advance*”. “*Thanks to social media we can share news with friends and family. I heard from well-known medical experts through social media there is no specific treatment of corona, so I bought boxes of paracetamol at least having necessary pain killer, but now paracetamol rarely available due to high demand and low supply*”.

7. Discussion

The study was conducted to answer some specific research questions, such as how panic buying behaviour developed through social media during Covid-19 pandemic. By using an inductive reasoning approach, the study aims to develop a theory with the purpose of understanding the social fearing influence of social media for stockpiling among UK consumers. Most of the existing studies have highlighted that consumers are involved in stockpiling when prices are low such as discounted/promotional sales (Gangwar et al., 2014; Ching and Osborne, 2019). Other studies have documented that consumers benefit from, and are involved in, stockpiling especially when competition is high and businesses are compelled to give some promotional packages to increase sales (Guo and Villas-Boas, 2007; Chen, 2020). However, there is lack of evidence regarding how global risks (life-threatening virus) can develop into a situation of consumer panic buying due to the advent and rise of social media platforms. Businesses, government officials, social celebrities, and the young generation are connected and engaged with the purpose of sharing common interests (Aslam et al., 2018a, 2018b). One of the reasons for this is that social media promotes socialization, interactive communication, reviews, recommendations, information, and knowledge which may help to take optimal purchase decisions. Consumer behaviour cannot simply predict as it is highly influenced due to social and other factors (Fraj and Martinez, 2007; Goldsmith and Goldsmith, 2011). The consumer values and consumer socialization have impacted the buying decision (Hansen, 2008; Kamaruddin and Mokhlis, 2003).

The existing literature has highlighted that social media influence fosters socialization among consumers which can enhance social exchange (i.e. product reviews, advice for purchase, warnings of sub-standard products, and word of mouth for good brands) (Forbes, 2013; Wang et al., 2012; Goodrich and De Mooij, 2014). However, there is no evidence regarding how social media can play a role to develop consumer panic buying behaviour, especially when they have insecurities and uncertainties due to Covid-19. The findings of this study have been summarized in six sub-themes (i.e. uncertainties and insecurities proof, buying as persuasion, product unavailability proof, authorities’ communication, global logic, expert opinion and consumers’ panic buying). Findings reveal that UK consumers have seen many viral videos in which people have advised to create social distance by purchasing necessities of lives as well as staying at home for an uncertain period. Therefore, many people have bought extra rice, pasta, hand sanitizer, tissue paper, paracetamol, masks and gloves due to life risks.

Findings reveal that social proof and influence from close connections can enhance consumer panic buying behaviour. For example, findings reveal that social media helped to engage people of different countries (i.e. US, China, UK, Italy) who have close social ties and are able to create recommendations for buying. For example, a friend shares the tissue paper crisis video from UK which has become viral and many people have purchased extra tissue paper and other items. Similarly, some people shared pictures, videos, and posts regarding the empty shelves of big supermarket giants which increased pressure for online groceries and other alternative ways of immediate buying. It is found that health issues and psychological causes have been increased due to Covid-19 (Yuen et al., 2020). Shaw (2020) documented how the websites of big UK supermarkets have crashed due to lockdown and consumers’ panic buying. Furthermore, some people from US shared social proof where they recommended others to buy necessities before these items become rare around the globe. It is found that many people shared the speech of UK Prime Minister, Health Minister and other authorities because they expressed concerned due to growing number of patients and people must do social distancing after buying necessities of life. The lockdown situation created more uncertainties for consumers therefore they rushed to buy necessary items.

The social influence theory of Kelman (1958) proposed central theme “Social Influence” which is understood as a belief that attitudes, subsequent behaviours and actions of individuals are affected by referent other people. The findings supported by this theory to define the social influencing effect of accepting influence of stockpiling buying to avoid the punishment of unavailability of groceries during lockdown. But, this theory would not helpful to understand how social interpretation of social actors can create social influence to develop panic buying with the purpose to avoid risk due to the unavailability of stock in future period so social proof theory used to support the findings of this research. Moreover, social proof theory extensively highlights how much social impact on human behaviour is important (Cialdini, 2009). Therefore, this study followed components of social proof which includes similarity, uncertainty, number and expertise those would help to explore the panic stockpiling behaviour of the customer during pandemic Covid-19 crises. Therefore, this theory is being employed to support the findings how similarity in views on social media enhances and motivates the usage of “social proof” because of large number of similar opinions of different social media users as a global society. Because Cialdini (2009) indicated that risk adverse individual would tend to adopt the attitudes and behaviours of those persons who he/she perceived much like himself/herself (Cialdini, 2009). This theory also indicted that social proof is a mechanism that works best in case when large numbers of people provide the proof through their collective action and behaviour (Cialdini, 2009).

8. Contribution

The existing literature focused on only consumer buying behaviour in following perspectives: supply disruptions (Tsao et al., 2019), historical memory of SARS (Miri et al., 2020), supply disruption and social learning (Zheng et al., 2020), uncertainty and death of Covid-19 (Sim et al., 2020), attractive promotional discounts (Gangwar et al., 2014), future uncertainty (Su, 2010), trade discounts (Desai et al., 2010), and discounted/promotional sales (Gangwar et al., 2014; Ching and Osborne, 2019). However, the existing literature offered understanding about consumer panic behaviour without involving the social media channels which can engage the world in a one global society. Due to engagement of global society, social proof such as social review, suggestion, advice, and recommendation can create collective action with the purpose to avoid future uncertainty and like threatening risks. Therefore, present study offered understanding about social media channels which enhanced social exchange and developed social influence which ultimately enhanced the consumer panic buying. Present study revealed that social media helped to promote social exchange

which developed proactive action in the form of consumer panic buying among during Covid-19 pandemic.

Findings showed that people acted on the speeches and advice of UK authorities for staying at home with the purpose of stopping the spread of Covid-19. The one of the major reasons of the development of panic buying behaviour is social interpretation of expert guidance that shaped up risk avoidance response of global society in the form of stockpiling. According to global capitalism/information society theory and risk society theories, the reach of organizations went multinational from national and the reach of states became international from within their borders due to the advent of the internet (Sandywell, 2003). Similarly, the reach and connection of social media users are now at global level due to common interests. The world has become a global village due to cyberspace, but dystopian researchers warn against the hegemonic and colonization-oriented control of new media across the world (Shields, 1996). A prominent technical and material role is played by the Net in developing global risk society (Beck, 1993). For example, it is found that many people shared the videos of a quarrel on tissue papers as well as empty shelves of markets which created more tension and uncertainty regarding consumer panic buying. It is found that many individuals from USA and China initiated videos as a social responsibility so that people may know what measures are necessary to avoid risks for their families. People have purchased groceries (pasta, drinks, rice etc.) and medial items (hand sanitizers, gloves, masks) with the purpose to practice social distancing and avoid life risks (Fig. 3).

Therefore, these people purchased extra groceries so that they can avoid life threats and uncertainties which is supported by digital global theory and risk society theory. Similarly, it was also found that some store managers and medical experts who are well known in their social circle initiated recommendations to purchase groceries, hand sanitizer, gloves, masks, and paracetamol with the purpose of practicing social distancing and staying home for the long term. They shared videos, audios, posts, and tweets with the purpose to initiate recommendations and suggestions for their close friends as well as the general public. But the given information is also socially interpreted in the form of rumours,

sensationalism, and other forms of disinformation because social media offering a window into our collective response to the coronavirus outbreak. Therefore, high number of similar responses and uncertainty developed the social proof for collective action (i.e. stockpiling behaviour) which is supported by the social proof theory (Cialdini, 2009).

As a result, this situation created unavailability of stock which increased panic and crises situation among UK residents which is later generated social influence. Consequently, empty shelves, and shortage of stock picture started spreading around the globe which create compliance social influence. As Kelman (1958) Compliance occurs when people is ready to accept the influence and started buying to avoid punishments/disapproval and gain rewards/approval. Therefore, people accepted the behaviour of stockpiling to avoid as punishments of shortage of stock during lock down period which was already announced by the UK authorities. These evidences are supported by the social influence theory which is given by Kelman (1958) who argued that social influence can create beliefs and attitudes and subsequent behaviours and actions of individuals are affected by referent other people. According to social influence theory, social influence can be described as social review, consensus, awareness, cooperation, and support that can influence consumer buying intention. The findings of this study highlighted that social proof regarding uncertainties and insecurities proof, buying as persuasion, product unavailability proof, authorities' communication, global logic, and expert opinion are some of the causes on social media platforms that developed the situation of consumer panic buying during Covid-19 pandemic. Social media has enhanced social engagement at global level which supported by global information society theory (Kittler, 1990) and panic buying behaviour reflecting how global society is thinking and reacting to the Covid 19 crisis which supported by the study of Beck (1993). Therefore, the overall findings are supported by four theories such as global information (Kittler, 1990), society risk (Beck, 1993), social proof (Cialdini, 2009) and social influence (Kelman, 1958).

The expert's opinion is worked as social proof and impact of on individual's behaviour because people in surroundings are particularly

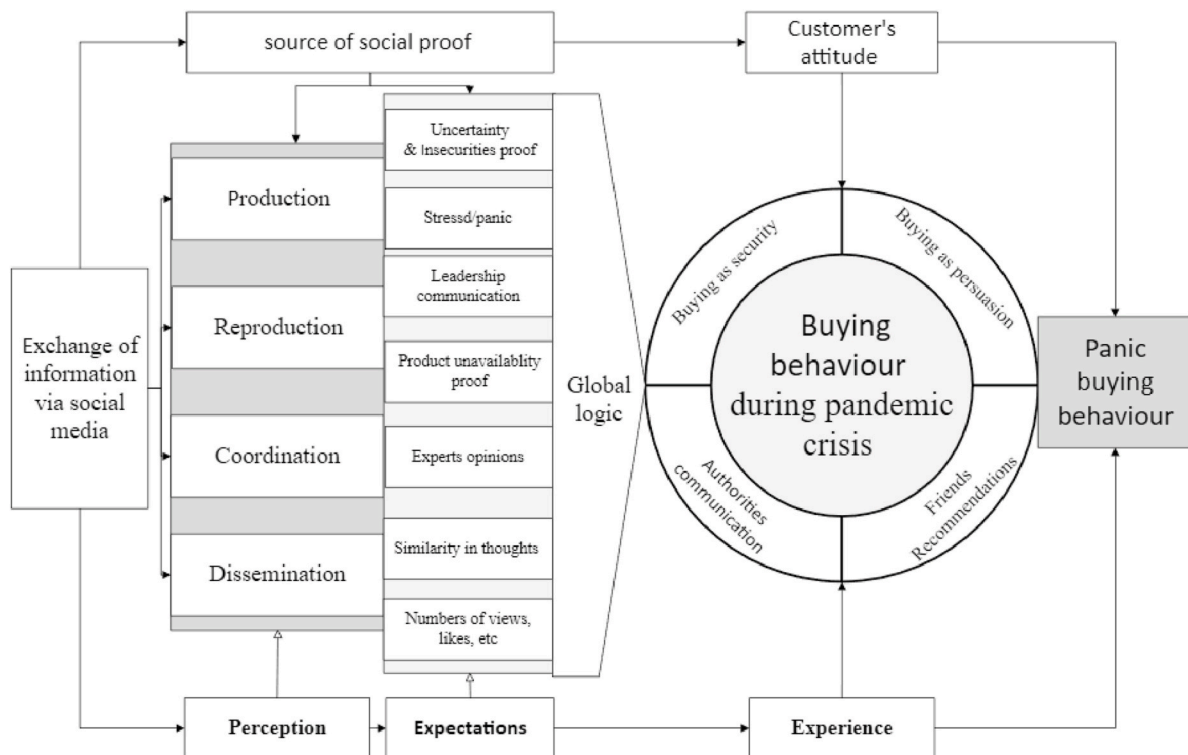


Fig. 3. Consumer panic buying theory (Source: Developed by the author of this study).

perceived as more knowledgeable circumstances (Cialdini, 2009). While this was not the case in Covid 19 because scientists, government authorities, community leaders and medical experts were using social media to describe that what is an unprecedented kind of threat but the social interpretation of the these information converted to panic buying which is reflecting how global society is thinking and reacting to the Covid 19 crisis. In such a manner, social influence and social influence theory proved adequate to define the process of consumer panic buying behaviour in the form of social influence and social proof that is reflecting how global society is thinking and reacting to the risk of Covid-19 crisis. Consequently, this research is contributing the theory that how social media play a role to develop digital global society to react Covid-19 crisis and how social proof created a social influence of panic buying behaviour in result social interpretation of the information, misinformation and sensationalism in the form emotionally-charged or shocking contents.

The study is focused to develop a framework to synthesize the role of social customers' panic behaviour during crises is supported by research findings and said four theories. Based on the results of this study, the researcher has offered a panic buying behaviour theory which guides how panic buying behaviour developed through social media during pandemic crisis communication. It is found that social media allowing society to enhance the social exchange regarding unprecedented kind of threat which produced social proof through interpretation of expert's information, rumours, sensationalism, and other forms of disinformation. As Robert Cialdini was the first psychologist to popularize social proof theory. According to this theory, an individual who is unaware of how to properly behave in a certain situation, will likely take guidance from other actions for optimal decision making (Cialdini, 2009). For example, it is found that many people have shared videos and messages on social media that became viral and widely followed by others with the purpose of taking proactive measures regarding staying at home and accumulating necessities of their lives but the stockpiling actions were not being advised by either experts or government officials.

The first contribution of this research is to provide explicit evidences against the believe of expert opinions which wrongly interpreted by the social actors. The second contribution of this research is to define the role of number, uncertainty, and similarity in opinions as element of social proof theory to generate panic buying behaviour. The third contribution is that this study also highlighted high number of similar opinions and uncertainty as social proof create compliance social influence (social influence theory) to create panic buying. The fourth contribution of this research is that this research hypothesized the idea of global information society (global information society theory) and risk society that reflecting how global society is thinking and reacting to the global crisis (Fig. 3)

As the overall phenomenon of panic buying behaviour is created by the social interpretation of information, rumours, sensationalism, and other forms of disinformation by the social actors therefore the final contributed theory underpins by the social constructionism epistemological position. As the panic buying behaviour is social constructed by social actors so studying the patterns through 5 R as roles, relationships, rituals, roles, and routines which is suggested by Merriam (2014) strengthening the research through understanding the role of different social actors who offered various social realities such as the role of similarity in opinion, number of opinion, and uncertainty which lead to consumer panic buying behaviour. Therefore, understanding of social roles, relationships, rituals, and routines improved the understanding about the social interpretation and social influence which is created by different social actors. Because it has found that panic buying as persuasion is also a result of social influence and social proof. People act strongly on the buying recommendations of their close friends because they feel that their friends are sincere, and their suggestions are helpful to take optimal purchase decisions. For example, findings reveal that people are strongly connected to their close friends through social media therefore they are made proactive decisions regarding how they can deal

with pandemic situation. It was found that many participants have followed their friends and crowd suggestions about buying extra necessary food items during Covid-19 pandemic. Consequently, the connection of these social realities is buttressing with relativism ontological position. Therefore, the overall reliability of the contribution is rooted with four theories (global information society, risk society, social influence and social proof), additionally the research is also garrison through social constructionism epistemological and relativism ontological position (see Fig. 2) to hypothesize the social phenomenon of panic buying behaviour of people during Covid-19 pandemic.

9. Limitations and future directions

The study has provided a useful research framework that highlights how social media can play an active role in developing consumer panic buying during Covid-19 pandemic. The given research theory is supported by primary data as well as existing literature, but the validity and reliability of the theory is not tested which invites future researchers to test it using statistical techniques. Furthermore, semi-structured interviews and qualitative data analysis methods are not fully unbiased (Aslam et al., 2018a); therefore, future studies can use probability sampling, multiple data collection methods, and statistical techniques to produce more valid and generalizable results. The social constructionism requires research involvement for understanding, connecting, and interpreting his/her own and respondents experiences. Therefore, it may include some biasness from author side (Aslam et al., 2018b) therefore the results of this study cannot generalize to large population due to small sample size. So future researchers can validate the consumer panic buying theory by using quantitative data collection and analysis methods.

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There was no funding available for this study and there is not conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jretconser.2020.102226>.

References

- Abdelsalam, S., Salim, N., Alias, R.A., Husain, O., 2020. Understanding online impulse buying behavior in social commerce: a systematic literature review. *IEEE Access* 8, 89041–89058.
- Adhikari, K., Panda, R.K., 2019. The role of consumer-brand engagement towards driving brand loyalty: mediating effect of relationship quality. *J. Model. Manag.* 14 (4), 987–1005. <https://doi.org/10.1108/JM2-03-2019-0067>.
- Alalwan, A.A., 2018. Investigating the impact of social media advertising features on customer purchase intention. *Int. J. Inf. Manag.* 42, 65–77.
- Alalwan, A.A., 2020. Mobile food ordering apps: an empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *Int. J. Inf. Manag.* 50, 28–44.
- Alalwan, A.A., Algharabat, R.S., Baabdullah, A.M., Rana, N.P., Raman, R., Dwivedi, R., Alfajari, A., 2019. Examining the impact of social commerce dimensions on customers' value cocreation: the mediating effect of social trust. *J. Consum. Behav.* 18 (6), 431–446.
- Alalwan, A.A., Rana, N.P., Dwivedi, Y.K., Algharabat, R., 2017. Social media in marketing: a review and analysis of the existing literature. *Telematics Inf.* 34 (7), 1177–1190.
- Algharabat, R., Rana, N.P., Alalwan, A.A., Baabdullah, A., Gupta, A., 2020. Investigating the antecedents of customer brand engagement and consumer-based brand equity in social media. *J. Retailing Consum. Serv.* 53 <https://doi.org/10.1016/j.jretconser.2019.01.016>.
- Aragoncillo, L., Orus, C., 2018. Impulse buying behaviour: an online-offline comparative and the impact of social media. *Spanish Journal of Marketing - ESIC* 22 (1), 42–62. <https://doi.org/10.1108/SJME-03-2018-007>.
- Aslam, Usman, Muqadas, Farwa, Imran, Muhammad Kashif, Rahman, Ubaid-Ur, 2018a. Exploring the sources and role of knowledge sharing to overcome the challenges of organizational change implementation. *Int. J. Organ. Anal.* 26 (3), 567–581. <https://doi.org/10.1108/IJOA-07-2017-1189>.

- Aslam, U., Muqadas, F., Imran, M.K., Saboor, A., 2018b. Emerging organizational parameters and their roles in implementation of organizational change. *J. Organ. Change Manag.* 31 (5), 1084–1104.
- Auerbach, C., Silverstein, L.B., 2003. *Qualitative Data: an Introduction to Coding and Analysis*. NYU Press, New York.
- Baker Qureshi, P.A., Murtaza, F., Kazi, A.G., 2019. The impact of social media on impulse buying behaviour in Hyderabad sindh Pakistan. *International Journal of Entrepreneurial Research* 2 (2), 8–12.
- Barr, S., 2020. Coronavirus panic-buying: as supermarkets ration items, should customers be stockpiling? Available at: <https://www.independent.co.uk/life-style/food-and-drink/coronavirus-stockpile-emergency-list-food-hand-sanitiser-panic-buying-a9373061.html>.
- Beck, U., 1993. *Risikogesellschaft. Auf dem Weg in eine andere Moderne*. Frankfurt am Main [trans. Risk Society: Toward a New Modernity. Sage, London and New York].
- Beck, U., Giddens, A., Lash, S., 1995. *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Sage, London.
- Brazell, E., 2020. People are still turning up outside supermarkets at 6am for panic buying. Available at: <https://metro.co.uk/2020/03/20/people-still-turning-outside-supermarkets-6am-panic-buying-12429226/>.
- Chen, A.W., 2020. Consumer Stockpiling Behavior in the Retail Gasoline Market. *The International Review of Retail, Distribution and Consumer Research*, pp. 1–18.
- Ching, A.T., Osborne, M., 2019. Identification and estimation of forward-looking behavior: the case of consumer stockpiling. *Forthcoming in Marketing Science*. <https://doi.org/10.1287/mksc.2019.1193>.
- Cialdini, R.B., 2009. *Influence: Science and practice*, (Vol. 4). Pearson education, Boston, MA.
- Clarke, A.E., 2005. *Situational Analysis: Grounded Theory after the Postmodern Turn*. Sage, Thousand Oaks, CA.
- Cogley, M., 2020. Has social media turbocharged panic buying by UK shoppers? Available at: <https://www.telegraph.co.uk/technology/2020/03/10/has-social-media-turbocharged-panic-buying-uk-shoppers/>.
- Collins, Harold Maurice, 1983. An empirical relativist programme in the sociology of scientific knowledge. In: Knorr-Cetina, K., Mulkay, M. (Eds.), *Science Observed: Perspectives on the Social Study of Science*. London: Sage, pp. 85–114.
- Collinson, P., 2020. Panic buying on wane as online shopping takes over, says bank. Available at: <https://www.theguardian.com/business/2020/mar/30/coronavirus-bank-finds-end-to-panic-buying-while-online-shopping-takes-over>.
- Dela, G.A., 2020. How social media is shaping our fears of — and response to — the coronavirus. Available at: <https://time.com/5802802/social-media-coronavirus/>.
- Desai, P.S., Koenigsberg, O., Purohit, D., 2010. Forward buying by retailers. *J. Market. Res.* 47 (1), 90–102.
- Dey, I., 1993. *Qualitative Data Analysis: A User-Friendly Guide for Social Scientists*. Routledge, London.
- Forbes, L.P., 2013. Does social media influence consumer buying behavior? An investigation of recommendations and purchases. *J. Bus. Econ. Res.* 11 (2), 107–112.
- Fraj, E., Martinez, E., 2007. Ecological consumer behaviour: an empirical analysis. *Int. J. Consum. Stud.* 31 (1), 26–33.
- Frank, B., Schvaneveldt, S.J., 2016. Understanding consumer reactions to product contamination risks after national disasters: the roles of knowledge, experience, and information sources. *J. Retailing Consum. Serv.* 28, 199–208.
- Gangwar, M., Kumar, N., Rao, R.C., 2014. Consumer stockpiling and competitive promotional strategies. *Market. Sci.* 33 (1), 94–113.
- Goldsmith, E.B., Goldsmith, R.E., 2011. Social influence and sustainability in households. *Int. J. Consum. Stud.* 35 (2), 117–121.
- Goodrich, K., De Mooij, M., 2014. How 'social' are social media? A cross-cultural comparison of online and offline purchase decision influences. *J. Market. Commun.* 20 (1–2), 103–116.
- Guo, L., Villas-Boas, J.M., 2007. Consumer stockpiling and price competition in differentiated markets. *J. Econ. Manag. Strat.* 16 (4), 827–858.
- Gupta, V., Ivanov, D., Choi, T., 2020. Competitive Pricing of Substitute Products under Supply Disruption. *Omega*, p. 102279.
- Hansen, T., 2008. Consumer values, the theory of planned behaviour and online grocery shopping. *Int. J. Consum. Stud.* 32 (2), 128–137.
- Janesick, V.J., 2011. "Stretching" Exercises for Qualitative Researchers, third ed. Sage, Thousand Oaks, CA.
- Kamaruddin, A.R., Mokhlis, S., 2003. Consumer socialization, social structural factors and decision-making styles: a case study of adolescents in Malaysia. *Int. J. Consum. Stud.* 27 (2), 145–156.
- Kelman, H.C., 1958. Compliance, identification, and internalization three processes of attitude change. *J. Confl. Resolut.* 2 (1), 51–60.
- Kittler, F.A., 1990. *Discourse Networks 1800/1900*. Stanford University Press, Stanford, CA.
- Koistinen, K., Järvinen, R., 2016. Comparing perceived insecurity among customers and retail staff during service encounters. *J. Retailing Consum. Serv.* 31, 80–92.
- Lakoff, G., Johnson, M., 2003. *Metaphors We Live by*. The University of Chicago Press, Chicago (Original work published 1980).
- Leikas, J., Penttilä, M., 2007. The needs and expectations of aging citizens—a potential for mobile terminal developers and service providers. *IOS Press*, pp. 203–207, 07.
- Littler, D., Melanthiou, D., 2006. Consumer perceptions of risk and uncertainty and the implications for behaviour towards innovative retail services: the case of internet banking. *J. Retailing Consum. Serv.* 13 (6), 431–443.
- Mao, F., 2020. Coronavirus panic: why are people stockpiling toilet paper? Available at: <https://www.bbc.co.uk/news/world-australia-51731422>.
- McGouldrick, P.J., Andre, E., 1997. Consumer misbehaviour: promiscuity or loyalty in grocery shopping. *J. Retailing Consum. Serv.* 4 (2), 73–81.
- Merriam, S.B., 2014. *Qualitative Research: A Guide to Design and Implementation*, third ed. Wiley, Hoboken.
- Miri, S.M., Roozbeh, F., Omranirad, A., Alavian, S.M., 2020. Panic of buying toilet papers: a historical memory or a horrible truth? Systematic review of gastrointestinal manifestations of COVID-19. *Hepat. Mon.* 20 (3).
- Muqadas, F., Ilyas, M., Aslam, U., 2016. Antecedents of knowledge sharing and its impact on employees' creativity and work performance. *Pakistan business review* 18 (3), 655–674.
- Muqadas, F., Rehman, M., Aslam, U., Ur-Rahman, U., 2017. Exploring the challenges, trends and issues for knowledge sharing: a study on employees in public sector universities. *VINE Journal of Information and Knowledge Management Systems* 47 (1), 2–15.
- Parment, A., 2013. Generation Y vs. Baby Boomers: shopping behavior, buyer involvement and implications for retailing. *J. Retailing Consum. Serv.* 20 (2), 189–199.
- Pookulangara, S., Koesler, K., 2011. Cultural influence on consumers' usage of social networks and its' impact on online purchase intentions. *J. Retailing Consum. Serv.* 18 (4), 348–354.
- Reuters, 2020. Coronavirus effect: UK supermarket visits jump by 79 million before lockdown. Available at: <https://www.indiatoday.in/business/story/coronavirus-effect-uk-supermarket-visits-jump-by-79-million-before-lockdown-1661763-2020-03-31>.
- Saldana, J., 2011. *Fundamentals of Qualitative Research*. US: Oxford University Press, London, New York.
- Saldana, J., 2016a. *The Coding Manual for Qualitative Researchers*, third ed. Sage, London.
- Saldana, J., 2016b. Goodall's verbal exchange coding: An overview and example. *Qualitative Inquiry* 22 (1), 36–39.
- Sandywell, B., 2003. Metacritique of information. *Theor. Cult. Soc.* 20 (1), 109–122.
- Shaw, N., 2020. Supermarket sites collapse as people rush to book deliveries. Available at: <https://www.walesonline.co.uk/news/uk-news/supermarket-sites-collapse-people-rush-17968808>.
- Shields, M.A., 1996. Lost in cyberspace? Virtual learning and higher education. *Soc. Sci. Comput. Res.* 14 (4), 410–422.
- Sim, K., Chua, H.C., Vieta, E., Fernandez, G., 2020. The anatomy of panic buying related to the current COVID-19 pandemic. *Psychiatr. Res.* <https://doi.org/10.1016/j.psychres.2020.113015>.
- Statista, 2020. *Worldwide Digital Population as of January 2020*. Available at: <https://www.statista.com/statistics/617136/digital-population-worldwide/>.
- Su, X., 2010. Intertemporal pricing and consumer stockpiling. *Oper. Res.* 58 (4-part-2), 1133–1147.
- Ting, H., Ling, J., Cheah, J.H., 2020. It will go away!? Pandemic crisis and business in asia. *Asian Journal of Business Research* Volume 10 (1).
- Tsao, Y.C., Raj, P.V.R.P., Yu, V., 2019. Product substitution in different weights and brands considering customer segmentation and panic buying behavior. *Ind. Market. Manag.* 77, 209–220.
- Wang, X., Yu, C., Wei, Y., 2012. Social media peer communication and impacts on purchase intentions: a consumer socialization framework. *J. Interact. Market.* 26 (4), 198–208.
- Wegmann, E., Ostendorf, S., Brand, M., 2018. Is it beneficial to use Internet-communication for escaping from boredom? Boredom proneness interacts with cue-induced craving and avoidance expectancies in explaining symptoms of Internet-communication disorder. *PloS one* 13 (4), e0195742.
- Worldometer, 2020. *Coronavirus cases*. available at: <https://www.worldometers.info/coronavirus/#countries>.
- Yuen, K.F., Wang, X., Ma, F., Li, K.X., 2020. The psychological causes of panic buying following a health crisis. *Int. J. Environ. Res. Publ. Health* 17 (10), 3513.
- Zheng, R., Shou, B., Yang, J., 2020. Supply disruption management under consumer panic buying and social learning effects. *Omega* 102238.