

Stockpiling intentions and customer well-being during the COVID-19 pandemic

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Abstract

The COVID-19 pandemic and associated factors influence customers' stockpiling intentions. This study examines the impact of various factors on customers' stockpiling intentions. It develops a model combining threat severity and fear of COVID-19, customer well-being dimensions, and constructs relating to the theories of planned behavior and competitive arousal to explain the effect of these on stockpiling intentions. Adopting a quantitative design, we analyzed data from 476 respondents using covariance-based structural equation modeling. The empirical results confirm that threat severity (with the fear of COVID-19 as a mediator) and fear of COVID-19 positively influenced individuals' attitudes toward stockpiling. Additionally, a positive attitude toward stockpiling, subjective norms that support stockpiling, the degree of perceived behavioral control, perceived scarcity, and time pressure positively influence stockpiling intentions. This study's findings thus contribute to a better understanding of customers' stockpiling intentions during a crisis and assist policymakers in developing effective COVID-19 response and recovery strategies.

KEYWORDS

competitive arousal theory, COVID-19, customer well-being, stockpiling intentions, theory of planned behavior

1 | INTRODUCTION

The COVID-19 pandemic has profoundly impacted the world (WHO, 2020). Governments have enforced population-wide physical distancing measures and movement restrictions. These restrictions, which aim to limit contact between individuals and suppress the community transmission of COVID-19, include limits on business trading as well as self-isolation requirements for returning overseas travelers and individuals who are victims of the virus (Loxton et al., 2020; WHO, 2020). With further outbreaks of the virus possible, uncertainty abounding, and government-enforced restrictions continuing to change, people must adapt, and businesses must transform to meet new and evolving norms (WHO, 2020). Researchers attempting to decipher the magnitude of the pandemic's consequences have noted unprecedented changes in customer behavior (Demetriou, 2020), such as altered consumption patterns in terms of what, when, and how many items are purchased (Chen et al., 2020; Loxton et al., 2020). Practitioners have attempted to respond to the shifting business landscape by altering prices, volumes, values, and supply chains. During these unprecedented times, information is often limited, misrepresented, and conflicting, generating confusion and atypical behavior in customers' decision-making processes. Panic buying (also known as stockpiling) is one of the most common and widely reported aberrant customer behaviors and has been seen during the COVID-19 pandemic, other humanitarian crises, and natural disasters (Laato et al., 2020).

The pandemic has seen widespread irrational stockpiling by customers, with people converging on stores and wiping shelves clean of essential household items and medical supplies (Chen et al., 2016). Importantly, this stockpiling is considered a socially undesirable form of herd behavior (Steven et al., 2014). It creates sporadic surges in demand for consumer goods and thus contributes to supply chain disruptions, stockouts, and price increases (Yuen et al., 2020).

In addition, stockpiling prevents other customers and vulnerable groups in society from accessing daily necessities and medical supplies from retail markets (Wessler, 2020). Largely motivated by observations during the COVID-19 pandemic, customer behavior research on stockpiling intentions during pandemic conditions has continued to advance (Kirk & Rifkin, 2020). This research is based on the views and assertions of medical professionals, academics, and journalists, as well as content on social media platforms (Yap & Chen, 2020). Nevertheless, the extant literature and understanding of stockpiling intentions during pandemic conditions remain quite limited. Even more scarce is empirical evidence on the causes of stockpiling intentions during a pandemic (Yuen et al., 2020) and the influence of customer well-being on those intentions.

Noting these gaps in the extant research and the continued effects of COVID-19 on customers' behavioral intentions across the globe (Demetriou, 2020), this study synthesizes the scant and disjointed literature on stockpiling (Bronfenbrenner Center for Translational Research, 2020) and contributes new empirical knowledge on antecedent factors that influenced customers' stockpiling intentions during COVID-19. Rather than taking a cursory view and providing superficial insight into the complex phenomenon of stockpiling intentions with a single-theory approach—for example, the theory of planned behavior (TPB)—in a single model, we employ a broader approach.

We synthesize several elements into a more integrated model, these being the influence of threat severity and fear of COVID-19, competing theories (i.e., the competitive arousal theory and TPB) and their associated constructs, as well as the multidimensional facets of customer well-being (i.e., subjective, psycho-social, and financial well-being and life satisfaction). In so

doing, we aim to better explain how these theories and constructs relate to stockpiling intentions and how these intentions are driven by the tested constructs and dimensions. Extending the TPB and developing a comprehensive framework grounded in theory allows deeper insights into customer stockpiling intentions and the impact of their various antecedents during the COVID-19 pandemic. This study generates crucial information for government entities and policymakers to devise effective responses to, and strategies for recovery from, the COVID-19 pandemic and similar health crises.

The remainder of this study is arranged as follows. First, we conduct a thorough review of the literature to develop this study's theoretical foundation and conceptual framework. We then propose and justify our hypotheses. Next, in the research methodology section, we detail the procedure adopted, including the participants, questionnaire design, and data analysis. We then specify and compare our results to those of prior studies. Finally, we present the study's implications, limitations, directions for future research, and conclusion.

2 | LITERATURE REVIEW, THEORETICAL AND CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

According to Murali (2017, p. 2), "Customer behavior is a complex, dynamic, multidimensional process," which has proven challenging to understand. Despite the complexity of determining antecedent, explanatory, and outcome variables, researchers often select only one theory in a single model (Weinstein, 1993). Although these researchers ignore other theories, some scholars have advocated for a broader approach that would involve synthesizing multiple theories and their associated constructs into more integrated models, thereby explaining a larger proportion of model variance (Slack et al., 2020a, 2020b). Responding to these calls, we introduce several theories and constructs considered most appropriate to develop and explain the proposed model and its variance and provide better insight into customer stockpiling intentions during the COVID-19 pandemic.

After an extensive review of the literature, we deemed the TPB proposed by Ajzen (1991) to be the most appropriate foundational theory for our purposes. The TPB has attracted extensive research interest and proven useful in explaining and predicting customer intentions under conditions perceived as normal (Hsu et al., 2017; Verma & Chandra, 2018) and those perceived as abnormal, such as natural disasters and pandemics (Daellenbach et al., 2018). The TPB (Ajzen, 1991) postulates that three independent determinants—an individual's attitude toward a perceived behavioral control, subjective norm, or behavior (Alhamad & Donyai, 2021)—predict their intention (subjective probability or inclination to perform a behavior; Ajzen & Fishbein, 1980). Furthermore, researchers espousing the TPB have proposed behavioral intention as an antecedent of the behavior itself (Steinmetz et al., 2016). Therefore, the stronger and more favorable an intention to perform a behavior is, the more likely they are to engage in the action (Ajzen & Fishbein, 1980).

According to Richards and Johnson (2014, p. 2), the first element of behavioral intentions is attitude, which refers to an individual's evaluation (either unfavorable or favorable) toward the behavior itself (Ajzen, 1991, p. 188). Hence, attitude is positive when the individual has a favorable assessment of the expected outcomes. The second element is subjective norms, which pertain to an individual's perception of social pressure to either engage or refrain from engaging in the behavior. The third determinant, perceived behavioral control, refers to an individual's

appraisal—based on previous experience and presumed obstructions—of the degree of ease or difficulty they will encounter in performing a certain behavior.

While previous research has shown that the TPB explains a large amount of variance in an individual's intentions to perform and their actual performance of a given behavior, others have noted that a substantial proportion of variance remains unexplained (Çoker & van der Linden, 2020). These findings suggest that other variables likely influence the independent determinants of an individual's intentions to perform and their actual performance of behaviors, thus explaining the unaccounted-for variance (Çoker & van der Linden, 2020; Richards & Johnson, 2014).

This study extends the TPB by adding two variables—threat severity and COVID-19 fear—to model their direct influence on attitudes toward stockpiling and the mediation influence of the fear of COVID-19 on the relationship between threat severity and attitudes toward stockpiling. We further extend the TPB with our addition of the variables scarcity and time pressure (derived from competitive arousal theory) and model their influence on stockpiling intentions. Finally, we model the impact of several customer well-being constructs (psycho-social, subjective, life satisfaction, and financial well-being) on stockpiling intentions; this effort also extends the TPB. In Table 1, we outline the variable descriptions and their sources, and Figure 1 presents the study's hypotheses and conceptual framework.

According to Rogers (1983), a threat is the perception of impending danger or harm as a result of a threatening event. Individuals cognitively evaluate the severity of a perceived threat in terms of the degree of risk or danger the threat poses to them. Based on their perception of the threat severity, the attitude of individuals toward preventive coping mechanisms will be either promoted or degraded (Richards & Johnson, 2014). Other researchers have confirmed the noticeable effect of an individual's cognitive evaluation of a threat on their attitudinal responses to protective behavior (Burns et al., 2017). Youn et al. (2021) found that consumers' COVID-19-threat-severity assessment motivated them to consider switching from in-store to online shopping channels. Researchers have also reported that customers who assessed the COVID-19-threat severity as high formed positive attitudes toward practicing protective behaviors, such as social distancing (Prasetyo et al., 2020), hand washing (Farooq et al., 2020), and stockpiling (Kim et al., 2020). Thus, customers who perceived the severity of the COVID-19 threat to be high were more likely to have positive attitudes toward stockpiling. Therefore, we hypothesize:

Hypothesis 1. Customers' perceived COVID-19 threat severity positively influences customers' attitudes toward stockpiling.

Fear has been described as the affective arousal (i.e., of strong feelings or emotions) of an individual, group, or society by the perception of imminent or anticipated threats – whether imagined or actual (Espinola et al., 2016). Fear, also described as an adaptive response to a threatening situation (Mertens et al., 2020, p. 2), is heightened by aversion to the threatened outcome, and the perception of a threat activates extreme emotions (Espinola et al., 2016). Studies have found that fear of the COVID-19 virus results from the threat people believe the virus poses to themselves and their significant others, the extent to which they are at risk of infection (Schimmenti et al., 2020; Taylor et al., 2020), uncertainty related to pandemic's trajectory and implications (Mertens et al., 2020) and its economic consequences (Taylor et al., 2020), and ongoing nature of the pandemic (Mertens et al., 2020). Therefore, the following hypothesis is proposed:

TABLE 1 Variable description and source.

Variable	Operational description	Source
Threat severity	The awareness of the perceived threat of COVID-19 that motivates a customer to take protective action to cope with or overcome the threat	Rogers (1983)
Fear of COVID-19	An intense emotion aroused by concern (Cori et al., 2021) with being infected or infecting others with COVID-19 (Ahorsu et al., 2020)	Cori et al. (2021) Ahorsu et al. (2020) Hartmann et al. (2013)
Attitude	The overall assessment of engaging in stockpiling behavior	Ajzen and Fishbein (1980)
Subjective norms	Being influenced by the actions of other members in the social group to engage in stockpiling behavior	Schepers and Wetzels (2007)
Perceived behavioral control	Customers' perception of the degree of control they have over engaging in stockpiling behavior	Ajzen and Fishbein (1980)
Scarcity	The shortage—due to COVID-19—in the supply of items the customer wants to purchase	Clee and Wicklund (1980)
Time pressure	The frenzied buying situation caused by COVID-19 that requires customers to make quick decisions to avoid the risk of products being unavailable	Shi et al. (2020)
Stockpiling intentions	The factors motivating customers to engage in or to intend to engage in stockpiling behavior	Ajzen and Fishbein (1980)
Psycho-social well-being	Customers' appraisal of how others in society will react to them intending to engage in stockpiling behavior	Keyes (1998)
Subjective well-being	Customers' evaluations of their activities and life after intending to engage in stockpiling behavior	Dagger and Sweeney (2006)
Life satisfaction	Customers' evaluations of life after intending to engage in stockpiling behavior	Krys et al. (2019)
Financial well-being	Customers' evaluations of their ability to meet their future and financial obligations after intending to engage in stockpiling behavior	Balderjahn et al. (2019)

Hypothesis 2. Customers' perceived COVID-19-threat severity positively influences customers' fear of COVID-19.

Prior studies have demonstrated the positive association between fear and attitudes toward the adoption of coping responses regarding vaccination (Dillard & Anderson, 2004), and nuclear opposition (Hartmann et al., 2013). More recently, researchers studying the psychological and affective consequences of the threat of COVID-19 discovered that consumers' COVID-19 fear

Conceptual Framework

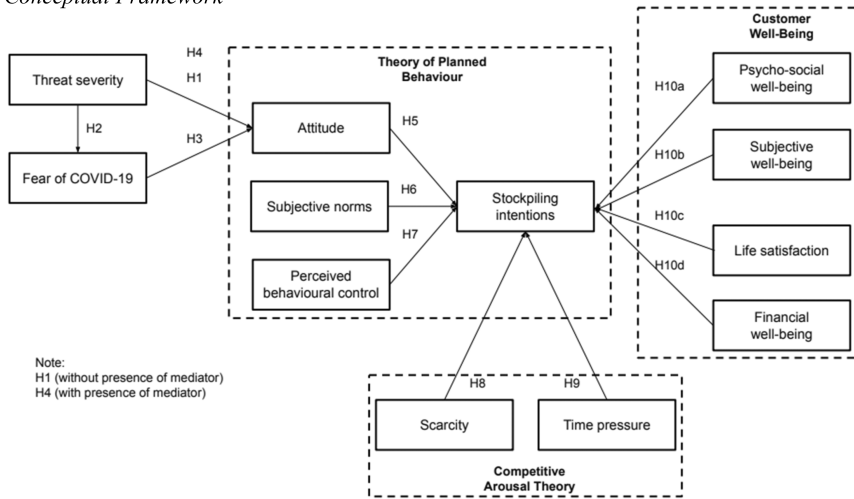


FIGURE 1 Conceptual framework.

positively influenced their attitude toward stockpiling intentions (Li et al., 2020). The perception of a threat and resultant fear drive individuals to mitigate the compound effect of the two through a heightened positive attitude toward coping responses (Mertens et al., 2020; Richards & Johnson, 2014). We thus propose the following hypotheses:

Hypothesis 3. Customers' perceived COVID-19 fear positively influences their attitudes toward stockpiling.

Hypothesis 4. Customers' perceived COVID-19 fear mediates the positive influence of COVID-19 threat severity on their attitudes toward stockpiling.

Attitude is defined as an individual's overall assessment of action as favorable or unfavorable (Chen et al., 2020) and, according to the TPB, is linked to their behavioral intentions (Ajzen & Fishbein, 1980). Bentler and Speckart (1979) and Bernheim (1994) found that an individual's attitude acts directly on their intentions toward that behavior (Lehberger et al., 2021). McKee et al. (2019) pre-COVID-19 findings confirmed the effect of consumers' attitudes on their intentions regarding food consumption behaviors. These findings were borne out by Lehberger et al. (2021), who found that during the COVID-19 pandemic, consumers' attitudes substantially influenced their intentions to stockpile nonperishable goods. Based on existing research, customers with positive attitudes toward stockpiling are more likely to develop stockpiling intentions (Lehberger et al., 2021; Shin et al., 2018). Therefore, we propose the following hypothesis:

Hypothesis 5. Customers' positive attitudes toward stockpiling have a positive influence on customers' stockpiling intentions.

A subjective norm (also known as a social norm) is the expected standard of appropriate behavior in a group situation (McDonald & Crandell, 2015, p. 147). Subjective norms serve as standards that influence groups' and individuals' beliefs, attitudes, and actions (Bernheim, 1994).

The actions of other members of the social group, such as family, friends, peers, and colleagues, help to shape these norms (Rindfleisch et al., 1997; Schepers & Wetzels, 2007). Deviations from subjective norms have been shown to lead to compelled conformity (Festinger, 1950). Various studies have demonstrated that customers are influenced by the behaviors of their significant others (Shin et al., 2018) and were likely to align their purchasing behaviors with the others' norms.

Addo et al. (2020) study, undertaken in the course of the COVID-19 pandemic, identified subjective norms as the main motivators of consumers' intentions to purchase and consumers' actual purchases of personal protective equipment. Lehberger et al. (2021) similarly highlighted that subjective norms supporting stockpiling significantly promoted participants' intentions to stockpile nonperishable goods. Conversely, Uysal (2022) observed that social norms against stockpiling made individuals less prone to stockpiling. Hence, previous research suggests that customers who are influenced by subjective norms that support stockpiling are more likely to form stockpiling intentions. Therefore, we hypothesize as follows:

Hypothesis 6. Subjective norms that support stockpiling have a positive influence on customers' stockpiling intentions.

An individual's perceived behavioral control relates to their beliefs regarding the opportunities and resources required to engage in an action. Chiou (1998, p. 299) argued that perceived behavioral control comprises two components: the evaluation of resources availability (e.g., money and time) required to engage in a certain behavior and the confidence in their ability to execute the behavior. Marketing scholars have demonstrated that the intention to purchase is influenced by perceived behavioral control (Hsu et al., 2017; Johe & Bhullar, 2016). We argue that customers who perceive that they have access to the necessary resources and have confidence in their ability to engage in stockpiling are more likely to form stockpiling intentions. We thus postulate as follows:

Hypothesis 7. Higher perceived behavioral control will result in greater stockpiling intentions.

We adopt the competitive arousal theory as that preferred to explain behavioral intentions and decision-making (Wu et al., 2020). The competitive arousal theory proposes that disparate factors, such as perceived time pressure and competition, drive an individual's intentions and thus function as a fundamental neurophysiological basis for human information processing, behavior (Bagozzi et al., 1999), and decision-making (Ku et al., 2005). During the COVID-19 pandemic, store shelves were stripped bare as shoppers stockpiled essential items (e.g., toiletries, canned goods, pasta products, and rice). Due to particular products being limited, restricted in-store hours of operation, and competition among customers, customers' behavioral intentions to panic-buy increased (Singh, Aiyub, et al., 2021; Singh, Slack, et al., 2021). This study investigates the impact of underlying customer perceptions of product scarcity and time pressure on their stockpiling intentions.

Previous studies on customer behavior (Bagozzi et al., 1999; Islam, Islam, et al., 2021; Islam, Pitafi, et al., 2021; Wu et al., 2020) have confirmed that increases in product scarcity increase customers' behavioral intentions to purchase scarce products. Moreover, during times of product shortages, consumers do not know how many units of a product are available or how many of their perceived rivals (other shoppers) are competing to purchase the product; in the context

of this uncertainty, consumers' intentions to compete for and purchase the product tend to increase (Wu et al., 2020). Other studies have revealed a positive association between perceived customer rivalry and intentions to purchase a product perceived to be scarce (Ku et al., 2005). Research has also shown that customers perceive other shoppers as threats, which engenders more aggressive purchase intentions and behaviors (Kristofferson et al., 2017). Shi et al. (2020) and Gereffi (2020) found that the presence of a competitive shopping environment driven by product scarcity aroused customers to prioritize their self-interest over the welfare of others and to develop selfish stockpiling intentions. As such, we argue that customers who perceive a desired product as scarce are more likely to form stockpiling intentions. Therefore, we hypothesize as follows:

Hypothesis 8. Greater perceived product scarcity will result in greater stockpiling intentions.

Time pressure refers to the time available to make a purchase and is another factor influencing customers' behavioral intentions (Islam, Islam, et al., 2021; Islam, Pitafi, et al., 2021). Prior studies have found that customer-perceived time pressure increased customers' behavioral intentions to purchase a product (Islam, Islam, et al., 2021; Islam, Pitafi, et al., 2021, p. 5). Carnevale and Lawler (1986) also found that customers who believed they had a short window of time in which to purchase a product experienced greater time pressure and sensed the need to make purchasing decisions more quickly. During the COVID-19 pandemic, researchers identified the time pressure faced by customers as a result of the forced introduction of customer-perceived deadlines (Wu et al., 2020); this perception resulted from public-health stay-at-home orders and limitations on in-store hours of operation and shopping times. Under these unique COVID-19 conditions, customers have experienced increased time pressure and behavioral intentions to stockpile necessities (Islam, Islam, et al., 2021; Islam, Pitafi, et al., 2021). Furthermore, because any delay in acting on their purchase intentions could prevent them from making a purchase (Azimi et al., 2020) or lead to the product being unavailable (Shi et al., 2020), customers have felt compelled to make decisions rapidly by limiting their cognitive deliberations. Thus, existing research has demonstrated a positive association between time pressure and customers' stockpiling intentions (Islam, Islam, et al., 2021; Islam, Pitafi, et al., 2021; Serman & Dogan, 2015). This study proposes the following hypothesis:

Hypothesis 9. Greater perceived time pressure will result in greater stockpiling intentions.

While increased research attention has focused on well-being, there is still little detailed understanding of customers' well-being perceptions (Tuzovic et al., 2021, p. 2). Most studies have accounted for a wide range of antecedents of well-being (Lomas & Ivztan, 2016; Smith & Dsiekmann, 2017; Sramova & Pavelka, 2019). However, these studies have expressed contradictory and ambiguous positions in terms of the causal direction and effect of the relationship between well-being and stockpiling intentions (Kasser et al., 2014). Recognizing that our study cannot cover all possible long and short-term effects on well-being or all directions of causality, we support the understudied viewpoints of researchers such as Lin and Chang (2020), who determined that well-being created strong behavioral intentions, and Kim et al. (2012), who found well-being to be the strongest determinant of behavioral intentions.

Historically, “well-being” has broadly referred to “how well our life is going” (Marsh et al., 2020, p. 3). Scholars have measured this concept using a single question (Cantril, 1965), which resulted in a single number and provided only a broad understanding of an individual's well-being and life. More recently, scholars have largely accepted that capturing the diversity of well-being characteristics and processes underpinning well-being and gaining deeper insight into individual well-being (Marsh et al., 2020, p. 7) requires a multidimensional view of the well-being phenomenon (Balderjahn et al., 2019; Pinar, 2019; Tuzovic et al., 2021). The various dimensions of well-being are also necessary for measuring and explaining individuals' well-being in disparate contexts (Pinar, 2019; Strout & Howard, 2012; Tuzovic et al., 2021). This study adopts the four dimensions of well-being advanced by Balderjahn et al. (2019) as valid and reliable measures of consumer, psycho-social, subjective, and financial well-being and life satisfaction.

Diener et al. (2010) described psycho-social well-being as an individual's need to maintain positive relationships (i.e., relationships in which empathy and affection are reciprocated) and support others' needs. Keyes (1998), meanwhile, defined the concept as an individual's ability to function positively in society (Keyes, 1998). The psycho-social impact of extreme events—whether natural (e.g., cyclones and earthquakes) or socioeconomic (e.g., the 2008 global financial crisis)—alter consumer behavior (Bentall et al., 2021). While disruptive events such as hyperinflation led to stockpiling as a form of rational adaptation (Sheth, 2020), stockpiling in the absence of actual scarcity is considered irrational (Bentall et al., 2021) and the result of emotions (e.g., anxiety coping mechanisms, perceived threat and fear) and social influences (Yuen et al., 2020) impairing consumers' decision-making.

Research has also shown that scarcity cues, psychological inclinations (e.g., distress, depression, and neuroticism) (Bentall et al., 2021), and herd mentality (i.e., the phenomenon in which networked consumers make decisions based on the behaviors and choices of others) (Easley & Kleinberg, 2010), adversely impact consumers' psycho-social well-being (Loxton et al., 2020) and promote their stockpiling intentions (Bentall et al., 2021). Beyond extreme life events, so-called normal stressors can also lead to extreme concern and panic, psycho-socially burdened individuals and communities and increased stockpiling intentions (Dubey et al., 2020). Therefore, we hypothesize as follows:

Hypothesis 10a. Customers' psycho-social well-being is negatively related to their stockpiling intentions.

As defined by Diener et al. (2002, p. 63), subjective well-being refers to an individual's affective and cognitive evaluation of their life. Subjective well-being encompasses two distinct components (Diener, 1994, p. 106) that coexist but overlap (Stone & Mackie, 2013). First, the affective—the intuitive and experiential (“feelings”) component—refers to the lack of unpleasant affect (i.e., depression, stress, anger, worry, anxiety, sadness) and a person's hedonic evaluation of a pleasant or positive affect (i.e., joy, contentment, happiness, and optimism) (Diener et al., 1999; Richins & Dawson, 1992; Ryan & Deci, 2001, at p. 143; Su et al., 2020; Tov, 2018) in their life. Second, the cognitive component—analytical and rational (or thinking and judgment)—involves a person's evaluation of the degree to which their actual life aligns with their expectations (Diener, 1984; Diener et al., 1985).

Individuals are driven to pursue subjective well-being by their desire to experience pleasure and happiness while avoiding sadness and pain (Van Hoorn, 2007). The extant literature has shown that, under adverse circumstances, the affective system influences individuals'

judgments and preferences (Chen & Bargh, 1999), with individuals typically utilizing their instantaneous feelings to evaluate adverse situations and determine their intentions (Pham et al., 2001). Experiencing frequent negative affect and limited positive affect (Hagger, 2010) has drastic ramifications for a person's subjective well-being (Cheng et al., 2020). In particular, individuals with limited positive affect and frequent negative affect experience low subjective well-being (Diener et al., 1999) and strong feelings, which activate their stockpiling intentions (Freedy et al., 1994). Therefore, we postulate as follows:

Hypothesis 10b. Customers' subjective well-being is negatively associated with their stockpiling intentions.

Life satisfaction refers to the subjective cognitive process of assessing oneself in terms of life as a whole (Sousa & Lyubomirsky, 2001) and, based on their chosen criteria, their quality of life (Shin & Johnson, 1978, p. 478). Life satisfaction is also an outcome of many situational circumstances (Erdogan et al., 2012) and is a factor responsible for a myriad of life outcomes (Jayawickreme et al., 2012). Research has confirmed that the ability to implement effective coping strategies to address difficult life circumstances increases individuals' life satisfaction and quality of life (Smedema et al., 2010). In contrast, ineffective strategies result in life dissatisfaction – typified by distress, anxiety, and depression (Sliter et al., 2013).

According to the extant research, consumers develop stockpile intentions (Yuen et al., 2020) to reduce their dissatisfaction with life (Gonzalez-Bernal et al., 2021) and minimize perceived uncertainty and risk. When individuals deem themselves unable to control the cause(s) of their discomfort and dissatisfaction with life, they are likely to attempt to control other aspects of their lives that they can control (such as stockpiling intentions) (Loxton et al., 2020). In doing so, they hope to experience comfort and security and relieve their stress (Hagger, 2010). We thus hypothesize as follows:

Hypothesis 10c. Customers' degree of life satisfaction is negatively related to their stockpiling intentions.

Financial well-being, as defined by Muir et al. (2017, p. vi), is the state of being in which individuals feel financially secure and sufficiently in control to meet their future and current financial obligations, absorb financial shocks, maintain desired standards of living and enjoy life through their choice and financial freedom. Unfavorable life circumstances, such as financial hardship and stress (Basyouni & El Keshky, 2021), have been shown to exert negative consequences on individuals' financial well-being (Lee et al., 2018). Individuals who feel out of control, financially insecure (Van Steenburg & Naderi, 2020), and uncomfortable and anxious (Basyouni & El Keshky, 2021), experience low levels of financial well-being (Choi et al., 2020). Scholars have reported that individuals with reduced financial well-being are motivated to engage in stockpiling in an attempt to gain some degree of control in their lives (Yuen et al., 2020). Further, when individuals are unable to control their financial discomfort, they are likely to utilize coping mechanisms (e.g., stockpiling) to gain financial control (Loxton et al., 2020). Although individuals who experience low financial well-being are thus likely to exhibit stockpiling intentions, financial constraints may thwart those intentions. Thus, we hypothesize as follows:

Hypothesis 10d. Customers' degree of financial well-being is negatively related to their stockpiling intentions.

3 | METHODOLOGY

3.1 | Participants and procedure

A cross-sectional survey design is used that employs an online questionnaire to gather data from respondents. We created the online questionnaire using SurveyMonkey and conducted a pilot test with 10 students at a university in Australia. The pilot test revealed the need for small changes to the questionnaire that were implemented to enhance readability.

We utilized an online snowball, non-probability method of sample selection to distribute the survey link to Australian residents. As Waters (2015) suggested, a sufficiently varied initial set of the researchers' prior professional and personal contacts within the area of interest seeded a diverse snowball sample. Quantitative researchers (King, 1994) have supported the use of non-probability sampling methods, like snowball sampling, as irreplaceable and necessary (Waters, 2015, p. 367).

We contacted the potential survey respondents via email and clearly informed them of the study's objectives and research ethics (e.g., the confidentiality and anonymity of their responses together with the survey's voluntary nature). Subsequently, using email, the potential participants were sent the link to the online questionnaire. We asked these potential respondents to share the study details with anyone they thought might be interested in participating. Respondents required an average of 11 min to complete the survey. The study was conducted between May and August 2020.

The curve of COVID-19 cases began to flatten in Australia in May 2020. This led the Australian government to announce a three-stage plan to ease restrictions across the country. By mid-June, however, a second wave of infections emerged in the state of Victoria, and rising cases prompted the additional lockdown of several Melbourne neighborhoods in June and July. In early August, Premier Andrews declared a state of disaster in Victoria, which closed businesses and schools and imposed severe restrictions, such as night-time curfews and mandatory mask-wearing in public spaces. These restrictions made the use of an online survey with online snowballing an effective form of data collection. The respondents' IP addresses revealed that the majority were based in Victoria.

3.2 | Questionnaire design

The online questionnaire adopted here included a total of 58 items. We adopted scales related to the fear of COVID-19 (five items) and threat severity (two items) from Hartmann et al. (2013). We drew the scales for the three TPB constructs—perceived behavioral control (three items), attitude (five items), and subjective norms (five items)—from Ajzen and Fishbein (1980). Perceived scarcity (five items) was drawn from Brock (1968), while perceived time pressure (three items) was drawn from Oppewal and Holyoake (2004) and Herrington and Louis (1995). We adopted the well-being scales from the following studies: psycho-social well-being (eight items; Diener et al., 2010), subjective well-being (four items; Lyubomirsky & Lepper, 1999), life satisfaction (five items; Chen et al., 2016) and financial well-being (eight

items; Prawitz et al., 2006). We derived stockpiling intentions (five items) from Venkatesh et al. (2012). The survey asked respondents to rate each construct based on their perceptions on a seven-point Likert scale. In addition to these items of interest, we included a total of three demographic items (age, gender, and income).

3.3 | Analysis

We analyzed the data using AMOS (Version 25.0) and Statistical Package for the Social Sciences (Version 25.0). In our analysis, we test our hypothesis by examining the measurement model using confirmation factor analysis, followed by covariance-based structural equation modeling. Prior studies (Singh, Aiyub, et al., 2021; Singh, Slack, et al., 2021) have employed a similar method of data analysis. We further evaluated the online survey data for unengaged and missing responses, multicollinearity, skewness, and kurtosis. We removed 12 responses identified as outliers on the basis of their respective Z-scores. The items' kurtosis and skewness values, which fell within the threshold recommended by Hair et al. (2010), suggest that the data were distributed normally. The absence of multicollinearity was also verified (tolerance values > 0.1 and

TABLE 2 Respondents' profile.

	<i>N</i>	%
<i>Age (in years)</i>		
18–20	109	22.90
21–30	168	35.29
31–40	73	15.34
41–50	48	10.08
51–60	33	6.93
61 and above	29	6.09
Do not wish to indicate	16	3.36
<i>Gender</i>		
Male	259	54.41
Female	211	44.33
Do not wish to indicate	6	1.30
<i>Income</i>		
Do not earn a fixed income	307	64.50
Less than \$15,000	56	11.80
\$15,000–\$29,999	32	6.70
\$30,000–\$44,999	13	2.70
\$45,000–\$59,999	5	1.10
\$60,000–\$74,999	3	0.60
\$75,000–\$89,999	6	1.30
\$90,000+	4	0.80
Do not wish to indicate	50	10.50

variance inflation factors < 5). Table 2 outlines the respondents' demographic profile. The subsequent section analyses the remaining 476 responses.

4 | RESULTS

4.1 | Common method bias

Harman's single factor test showed a 34.21% variance, which is lower than the 50% recommended threshold established by Podsakoff et al. (2003), establishing the non-existence of common method bias in the study.

4.2 | Measurement model

Cronbach's alpha values confirmed that the study's constructs have internal consistency. According to Fornell and Larcker (1981), values for Cronbach's alpha and composite reliability (Table 3) ought to exceed 0.70. The above results met this requirement. Consistent with Hair et al. (2010) recommendation, all factor loadings were above 0.70 (Table 4).

The values for average variance extracted (AVE) verified convergent validity. All of these were greater than 0.50 while being less than their corresponding composite reliability amounts (Table 3). Because the square roots of the AVE values were higher than their inter-construct correlations, the presence of discriminant validity was assured (Fornell & Larcker, 1981). We also determined a good model fit using confirmatory factor analysis [$\chi^2/df = 2.81$, CFI = 0.91; TLI = 0.92; RMSEA = 0.05]. These indices met the minimum requirements suggested by Hair et al. (2006).

4.3 | Control variable effect

Age, gender, and income were controlled in the model. The results revealed that none of these control variables exerted any confounding influence on the endogenous variable.

4.4 | Structural model

The structural model exhibited good fit [$\chi^2/df = 1.81$; RMSEA = 0.03; CFI = 0.92; NFI = 0.92; TLI = 0.91]. Following this confirmation, we tested our hypotheses using the maximum likelihood method of estimation. Of the 12 estimated path coefficients, nine hypothesized paths were statistically significant at the 0.001, 0.01, or 0.05 level, as shown in Figure 2. The following paths showed significant relationships: threat severity was positively related to fear of COVID-19 ($\beta = 0.29$, $p < 0.001$), and fear of COVID-19 ($\beta = 0.35$, $p < 0.001$) was positively related to attitude toward stockpiling. Also, attitude ($\beta = 0.63$, $p < 0.001$), subjective norms ($\beta = 0.33$, $p < 0.001$), perceived behavioral control ($\beta = 0.28$, $p < 0.01$), scarcity ($\beta = 0.36$, $p < 0.001$) and perceived time pressure ($\beta = 0.30$, $p < 0.001$) were each positively related to stockpiling intentions. Psycho-social well-being ($\beta = -0.29$, $p < 0.05$) and subjective well-being ($\beta = -0.42$, $p < 0.01$) were found to be negatively related to stockpiling intention.

TABLE 3 Discriminant validity.

α	CR	AVE	MSV	MaxR(H)	ATT	SNB	PBC	SPI	PSY	SUB	FWB	LST	PSR	TPR	SVR	FOC
ATT	0.93	0.93	0.72	0.16	0.93	0.84										
SNB	0.96	0.96	0.81	0.25	0.96	0.54****	0.90									
PBC	0.88	0.84	0.64	0.15	0.85	0.38****	0.80									
SPI	0.95	0.95	0.81	0.61	0.95	0.48****	0.50****	0.90								
PSY	0.91	0.91	0.75	0.25	0.91	0.01	0.02	-0.04	0.87							
SUB	0.82	0.81	0.79	0.39	0.86	-0.06	0.06	0.03	0.50****	0.89						
FWB	0.81	0.83	0.71	0.20	0.90	0.13****	0.14****	0.14****	-0.09*	-0.23	0.84					
LST	0.84	0.84	0.87	0.39	0.86	0.01	0.07	0.23****	0.04	0.43****	0.32****	-0.45****	0.93			
PSR	0.82	0.82	0.74	0.31	0.84	0.28****	0.23****	-0.01	0.32****	0.08	0.09*	0.17***	0.10*	0.86		
TPR	0.82	0.84	0.64	0.31	0.88	0.42****	0.38****	0.04	0.45****	0.07	-0.04	0.25****	-0.05	0.56****	0.80	
SVR	0.92	0.74	0.72	0.32	0.77	0.02	0.09	-0.105*	0.24****	0.05	0.21****	-0.06	0.30****	0.30****	0.84	
FOC	0.91	0.96	0.82	0.33	0.98	0.24****	0.25****	-0.04	0.33****	0.16***	0.04	0.27****	-0.04	0.33****	0.45****	0.91

Note: Bolded figures are the square root of the variance shared between the variables and their measures. Off-diagonal elements are the correlations between constructs. Abbreviations: ATT, attitude; AVE, average variance extracted; CR, composite reliability; FOC, fear of COVID-19; FWB, financial well-being; LST, life satisfaction; MaxR(H), maximum reliability; MSV, maximum shared variance; PBC, perceived behavioral control; PSR, scarcity; PSY, psycho-social well-being; SNB, subjective norms; SPI, stockpiling intentions; SUB, subjective well-being; SVR, threat severity; TPR, time pressure; α , Cronbach's alpha. *means $p < 0.100$; **means $p < 0.050$; ***means $p < 0.010$; **** means $p < 0.001$.

TABLE 4 Confirmatory factor analysis.

Items	Model and item indices	
	SL	SMC
SVR1	0.86	0.74
SVR2	0.84	0.72
FOC1	0.81	0.66
FOC2	0.97	0.94
FOC3	0.97	0.95
FOC4	0.92	0.85
FOC5	0.84	0.70
ATT1	0.81	0.65
ATT2	0.85	0.73
ATT3	0.90	0.81
ATT4	0.88	0.78
ATT5	0.81	0.65
SBN1	0.84	0.71
SBN2	0.92	0.85
SBN3	0.95	0.90
SBN4	0.92	0.85
SBN5	0.87	0.75
PBC1	0.77	0.60
PBC2	0.81	0.66
PBC3	0.82	0.67
PSY1	0.80	0.64
PSY2	0.71	0.50
PSY3	0.77	0.60
PSY4	0.73	0.53
PSY5	0.77	0.59
PSY6	0.76	0.58
PSY7	0.78	0.60
PSY8	0.77	0.60
SUB1	0.87	0.76
SUB2	0.84	0.71
SUB3	0.77	0.60
FWB1	0.85	0.72
FWB2	0.90	0.82
FWB5	0.81	0.66
FWB6	0.82	0.67
FWB7	0.80	0.64
LST1	0.76	0.58

(Continues)

TABLE 4 (Continued)

Items	Model and item indices	
	SL	SMC
LST2	0.85	0.72
LST3	0.78	0.61
LST4	0.70	0.48
PSR1	0.81	0.65
PSR2	0.80	0.63
PSR3	0.72	0.51
PSR4	0.87	0.75
TPR1	0.76	0.58
TPR2	0.92	0.84
TPR3	0.72	0.52
PBI1	0.88	0.78
PBI2	0.87	0.75
PBI3	0.91	0.83
PBI4	0.91	0.83
PBI5	0.91	0.83

Abbreviations: SL, standardized loading; SMC, square multiple correlation.

Results

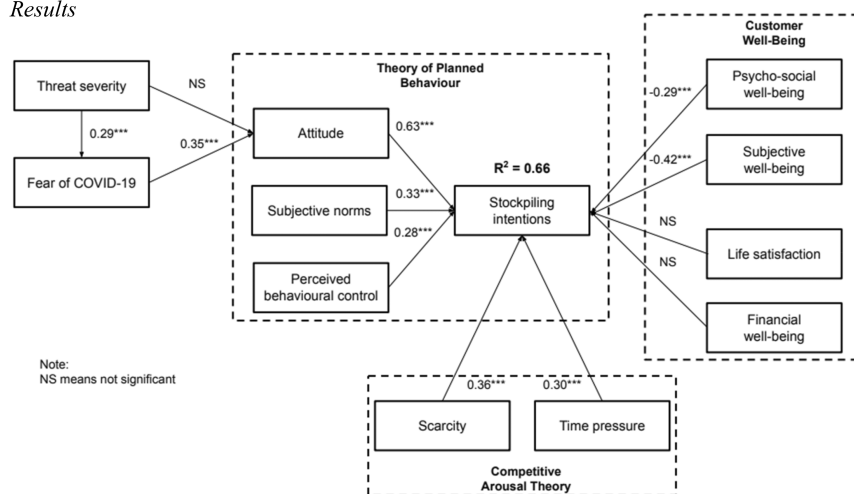


FIGURE 2 Results.

The mediation effect of fear of COVID-19 on the association between threat severity and attitude toward stockpiling was examined. To perform this analysis, we employed the PROCESS macros (Model 6) with a confidence interval of 95% and bootstrap samples of five thousand as a means of evaluating the indirect effect significance. The results show that despite the direct relationship between threat severity and attitude toward stockpiling being insignificant (H2),

TABLE 5 Results of hypotheses testing.

Hypothesis	Path	β	<i>p</i>	Supported?
H1	SVR → ATT	−0.04	0.840	No
H2	SVR → FOC	0.29	****	Yes
H3	FOC → ATT	0.35	****	Yes
H5	ATT → SPI	0.63	****	Yes
H6	SBN → SPI	0.33	****	Yes
H7	PBC → SPI	0.28	***	Yes
H8	PSR → SPI	0.36	****	Yes
H9	TPR → SPI	0.30	****	Yes
H10a	PSY → SPI	−0.29	**	Yes
H10b	SUB → SPI	−0.42	***	Yes
H10c	FWB → SPI	0.01	0.683	No
H10d	LST → SPI	−0.03	0.851	No

* $p < 0.100$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$.

TABLE 6 Mediation analysis.

Path	β	<i>t</i>	<i>p</i>	LLCI	ULCI
SVR → ATT	0.19	2.42	0.01	0.0327	0.3791

the indirect effect through fear of COVID-19 as the mediator (H4) was significant ($\beta = 0.19$, $p < 0.01$) (Table 6).

Therefore, the empirical results supported H2, H3, H4, H5, H6, H7, H8, H9, and H10a and H10b. However, H1, H10c and H10d were not supported (Tables 5 and 6).

5 | DISCUSSION

In this study, we hypothesized threat severity and fear of COVID-19 as separate antecedents having a direct positive influence on an individual's attitude toward stockpiling. This study tested the direct effect of threat severity (without the presence of a mediator) on attitude toward stockpiling intentions. Our finding suggests this effect was insignificant and inconsistent with prior research, which identified a positive association (Rad et al., 2021; Youn et al., 2021). This inconsistency may be explained by this study being undertaken very early in the pandemic when individuals may still have been attempting to cognitively evaluate the threat severity (in terms of the degree of risk or danger the threat posed to them); other studies were carried out well into the pandemic when individuals may have already cognitively evaluated the severity of the COVID-19 threat. Our study also tested and confirmed a direct positive association between fear (of contracting COVID-19) and individuals' attitudes toward stockpiling. Recent studies have also found that fear of COVID-19 prompted a positive attitude toward stockpiling (Li et al., 2020). Thus, the findings suggest that individuals who exhibit an increased fear of COVID-19 are more prone to developing a positive attitude toward stockpiling.

Furthermore, and consistent with other study's findings, threat severity was tested and found to have a direct, positive effect on individuals' fear of COVID-19 (e.g., Espinola et al., 2016) and an indirect (with the presence of fear of COVID-19 as a mediator) positive effect on individuals' attitudes toward stockpiling (e.g., Mertens et al., 2020; Richards & Johnson, 2014). This suggests that individuals who perceived a higher degree of threat severity were affectively evaluated and experienced an increased fear of COVID-19 as a result and were more prone to developing a positive attitude toward stockpiling.

This study's findings reinforce the TPB by demonstrating that the more positive (i.e., more supportive) an individual's subjective norms and attitude are toward stockpiling and the higher the degree of perceived behavioral control an individual has over engaging in stockpiling, the more likely the individual is to form stockpiling intentions and vice versa. These results are consistent with the findings of several prior studies, which showed the positive influence of perceived behavioral control, subjective norms, and attitude on purchase intentions (Liu et al., 2021; Shin & Hancer, 2016); and, more specifically, on stockpiling intentions (Hsu et al., 2017; Lehberger et al., 2021). This study also demonstrated that consumer attitudes toward stockpiling had the strongest influence on stockpiling intentions compared to the influence of perceived behavioral control and subjective norms. Nevertheless, as Ajzen (1991) noted, it is important to recognize that different situations and behaviors are likely to show varying influences of perceived behavioral control, subjective norms, and attitude (Chiou, 1998, p. 299). Thus, the relative importance of these factors likely varied throughout the COVID-19 pandemic and across different countries with different social customs and facing different pressures.

This study's modeling of the scarcity and time pressure variables also extends the TPB by further explaining other significant factors that influence customers' stockpiling intentions. Our findings suggest that customers who experienced limited availability of products, product stockouts, restricted in-store hours of operation and shopping times, and competition with other shoppers for available products were more likely to experience increased stockpiling intentions. These results align closely with the findings from both pre-COVID-19 pandemic studies (e.g., Carnevale & Lawler, 1986; Ku et al., 2005) and studies undertaken amidst the COVID-19 pandemic (e.g., Islam, Islam, et al., 2021; Islam, Pitafi, et al., 2021; Singh, Aiyub, et al., 2021; Singh, Slack, et al., 2021).

Adopting a multidimensional perspective of customer well-being—with each dimension as a separate antecedent of stockpiling intentions—also extends the TPB and offers further insight into stockpiling intentions. Consistent with prior research (Freedy et al., 1994; Schiller et al., 2021), this study's findings confirmed that customers' psycho-social and subjective well-being are negatively related to their stockpiling intentions. This study's findings suggest that individuals who experience low psycho-social and subjective well-being as the result of life events are likely to activate strong feelings toward stockpiling intentions as a form of rational adaptation. It is further suggested that individuals who are psycho-socially, affectively, and cognitively burdened are driven by a desire to experience frequent pleasure and happiness and avoid sadness and pain; hence, they develop increased stockpiling intentions.

Contrary to other studies (Loxton et al., 2020), however, our findings revealed no significant negative associations between life satisfaction and financial well-being with stockpiling intentions. These divergent findings may have resulted because, during the period of this study (i.e., in the early stages of the COVID-19 pandemic), individuals' perceptions of the long-term negative effects of COVID-19 on their life satisfaction and financial well-being remained unclear, and their focus may have tended to be on short-term changes resulting from the pandemic and on their feelings in response to the perceived hardships entailed. This study's

findings also suggest that life satisfaction involves an individual's longer-term view of life and is thus less prone to the short-term impact of adverse life events; likewise, financial well-being appears to be developed over an extended period of time. Hence, individuals' financial well-being and life satisfaction at this stage in the pandemic had likely not been sufficiently affected to drive individuals to develop stockpiling intentions.

5.1 | Theoretical implications

This article makes several theoretical contributions to the literature. First, rather than using one theory (e.g., the TPB) in a single model and thus taking a cursory view and providing superficial insights into the complex phenomenon of stockpiling intentions, this study took a broader approach: it develops an integrated model through a unique combination of antecedent factors, competing theories (i.e., the competitive arousal theory and TPB) and their associated constructs, as well as customer well-being dimensions. This allows us to better explain how these theories and the tested constructs and dimensions drive stockpiling intentions.

Second, this study sheds further light on the impacts of threat severity – both direct (without the presence of a mediator) and indirect (with the presence of fear of COVID-19 as a mediator) on attitude toward stockpiling intentions. Third, the novelty of this study lies in its examining the influence of various factors on customer stockpiling intentions during a pandemic. Previous studies have primarily explored customer stockpiling intentions under conditions perceived as normal (Hsu et al., 2017; Verma & Chandra, 2018). The COVID-19 pandemic presented unique circumstances and thus allowed us to develop new insight into customer stockpiling intentions.

Fourth, this study extends the TPB by showing that customers' stockpiling intentions are influenced by a complex combination of threat severity mediated by fear of COVID-19, scarcity, time pressure, customer well-being, and planned behavioral factors. These factors accounted for 66% of the variance in customers' stockpiling intentions. Fifth, prior studies have largely modeled customer well-being from a unidimensional perspective (Han et al., 2020; Lee et al., 2014; Troebs et al., 2018). In contrast, this study contributes to the thus far inadequately developed literature taking a multidimensional perspective on customer well-being during a pandemic. We do so by ascertaining the strong negative impact of, in particular, psycho-social and subjective well-being on customers' stockpiling intentions.

5.2 | Practical implications

This study's findings have implications for governments, policymakers, and retailers of essential items. First, by revealing that individuals' perceived fear of COVID-19 positively influences their attitude toward stockpiling, our study suggests that governments should focus on mitigation strategies to counter factors causing fear and promote citizens' attitudes to avoid stockpiling. This could be achieved by governments' timely provision of recommended preventive hygiene behaviors and effective treatments and vaccines to allay fears of high transmissibility, increasing cases, and high mortality rates. Such fear-mitigation strategies could also include the adoption of transparent public health policies and the issue of public health information updates that are science-based, accurate, and clear and that reflect the status of the pandemic in a timely manner and counter rumors and misinformation. The government could also provide time-limited financial-support mechanisms targeted toward citizens and businesses in need.

Second, this study demonstrates the significant influence of consumers' attitudes, subjective norms, and perceived behavioral control on their stockpiling intentions. Accordingly, we suggest that governments and retailers synchronize media strategies to repeatedly assure customers that efficient and effective national and local supply chain measures are in place to ensure continuity of supply for staple items. Furthermore, promotion by the government of a sense of kinship ("we are all in this together") could encourage social norms opposing stockpiling and lead individuals intending to stockpile to conform. Rationing of staple items by retailers could remove the opportunity and access of customers with intentions to stockpile items. It is suggested that these measures have the potential to sufficiently affect consumers' attitudes, subjective norms, and perceived behavioral control and, in so doing, reduce stockpiling intentions.

Third, this study found that customers who perceived products to be scarce and shopping opportunities limited were motivated to compete for products and developed stockpiling intentions. We thus urge governments to ensure that supermarkets and other retailers of essential items remain open during the COVID-19 pandemic. Supermarkets and retailers, in turn, should maintain hours of operation that are sufficient to prevent customers from feeling that their shopping time is limited. Further, they should adopt adequate strategies to ensure that shelves are well stocked at all times so that customers have access to essential items and are not deprived of necessities during times of crisis. We contend that implementing such proactive measures during the COVID-19 pandemic would have reduced customers' stockpiling intentions.

Fourth, our study has revealed that citizens with low psycho-social and subjective well-being were more prone to stockpiling intentions. Therefore, governments should respond through whole-of-society policies targeted toward promoting citizens' well-being. When combined with broader strategies, campaigns, and support services, this approach could enable citizens with low psycho-social and subjective well-being to address any perceived concerns, experience greater happiness and contentment, and function more positively in society, therein negating the need for stockpiling as a coping mechanism.

6 | LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Despite its grounding in empirically validated theories, this study has certain limitations, which, in turn, offer opportunities for future research. First, this study employed an online snowballing sampling technique. Due to the limitations on movement and interaction during the COVID-19 pandemic, other forms of data collection were not feasible. As such, this study's results should be interpreted with caution. Future studies should consider employing random sampling techniques for data collection. Second, this study's participants included only Australian respondents. Because customers' intentions toward a particular behavior (e.g., stockpiling) may differ across countries and cultures, future cross-national studies should explore the impact of various national cultures on customers' intentions toward stockpiling. Third, this study explored customers' stockpiling intentions during the COVID-19 pandemic. However, the unique circumstances of different disasters and crises are likely to impact customers' stockpiling intentions differently. Therefore, future studies should replicate this study during different disasters and crises to determine whether the factors affecting stockpiling intentions differ.

7 | CONCLUSION

This study's findings confirm that customer stockpiling intention is a complex consumer behavioral phenomenon affected by a diverse array of antecedents. Our empirical results confirm that threat severity (with the presence of fear of COVID-19 as a mediator) and fear of COVID-19 had a positive influence on an individual's attitude toward stockpiling. In addition, when subjective norms supported stockpiling, and customers perceived themselves as having a high degree of behavioral control, they were more likely to develop positive stockpiling intentions. Finally, the extreme life events and stressors of COVID-19 and the evident reduction in customers' psychosocial and subjective well-being may have positioned stockpiling intentions prominently among customers' coping mechanisms. This study's findings provide critical insight for governments, policymakers, and retailers of essential items, which could support the development of effective response and recovery strategies for the COVID-19 pandemic and other such crises.

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