

## The Impact of Crisis on Consumers' Value Systems -Psychological Pathways to Sustainable Behavior-

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### Abstract

Through the recent pandemic, this study examined the theory of awe, which explains that external crises affect people's value systems and consequential behaviors. During the pandemic, some consumers expressed a growing interest in equity, while others pursued the consumption of materialistic items, such as luxurious fashion goods. According to the theory of awe, both of these phenomena could be coping responses to the crisis. Based on this, we attempted to understand the psychological processes behind the pandemic's effect on these two different consumers value systems thereby influencing sustainable consumption intentions: one through the new ecological paradigm (NEP) that emphasizes consumers' increased consciousness, and the other through materialism that emphasizes consumers' self-centered side. The results obtained from a survey of 382 U.S. consumers revealed that the degree of pandemic experience increased consumers' NEP and materialism, which also increased their economic and ethical CSR expectations. These CSR expectations then enhanced consumers' sustainable consumption intentions. As sustainable consumption and CSR are important agendas for the fashion industry, this study will provide useful insights for researchers and practitioners in the fashion field.

**Key words:** Value system, Theory of awe, Crisis, Sustainable behavior, New ecological paradigm

### I. Introduction

The recent pandemic crisis was an unprecedented event that drastically impacted our society as a whole. In the consumer market, two distinctive phenomena emerged during the crisis. First, the crisis brought sustainable consumption into a sharper focus than ever (McKinsey & Company, 2020). Under conditions of uncertainty and resource shortage, consumers decreased spending on fashion clothes and beauty prod-

ucts, while instead increasing their interest in organic food, the secondhand market, and anti-consumption (Accenture, 2020). On the contrary, some consumers' materialistic and indulgent desires exploded amid the crisis. Despite the severe recession due to the crisis, the only segment of the retail market that rebounded sales was luxury fashion goods, as the long lines of consumers waiting to purchase limited luxury goods amidst the crisis made headlines (Lee et al., 2021).

Researchers explained that both phenomena are possible coping responses of consumers toward the crisis. McKinsey and Company (2020) hypothesized

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that the crisis boosted sustainable consumption trends, causing consumers to re-structure their value systems and become more conscious about ecological justice. According to one market expert's statements in their report, "the virus brought to light what is wrong with the society and taught people to slow down and to change their ways of consumption" (McKinsey & Company, 2020, p. 19). In fact, in Accenture's (2020) survey of 8,800 consumers from around the world during the pandemic, more than half (54%) reported that they would make more sustainable choices when shopping in the future. However, some researchers posited that the crisis rather provoked consumers' self-centered mindset (Chae, 2021), such as the exploded desire for luxurious fashion and valuables, stemming from people's frustration with the crisis (Zheng et al., 2021). Would the pandemic actually cause these two contrasting psychological responses among consumers? How are these two contrasting responses related to consumers' views toward sustainable consumption?

The theory of awe, an established psychological theory, offers theoretical grounds to explain how the pandemic would affect consumers' value systems, thus influencing sustainable consumption intentions. The theory posits that when people face a life-threatening crisis like the pandemic, they adjust their fundamental value systems in response (Keltner & Haidt, 2003). Because the crisis creates a sense of a loss of control (Gordon et al., 2017), consumers are triggered to reflect on what is truly important in life, reflecting the concept of the New Ecological Paradigm (NEP) in literature—a fundamental view about humans' imperfectness before the rule of nature (Dunlap et al., 2000). On the other hand, these impacts on value systems could go in the other direction as well, provoking consumers' needs for self-protection and feeling empowered (Chae, 2021). Nevertheless, because there is limited research that has empirically examined the impact of the recent pandemic on consumers' value systems and sustainable consumption intentions, these discussions still remain propositions.

Therefore, based on the theory of awe, this study ex-

plores how a crisis experience, the recent pandemic, affected consumers' value systems and sustainable consumption intentions. Based on the two contrasting perspectives proposed above, this study examines the mental processes of two different value systems—NEP, which emphasizes consumers' increased consciousness and modesty, and materialism, which emphasizes the self-centered side of consumers—influence consumers' sustainable consumption intentions. In addition, this study examines the mediating role of consumers' corporate social responsibility (CSR) expectations, in which these value systems influence their sustainable consumption intentions, according to literature suggesting that consumers' behavioral intentions toward sustainable consumption are shaped by their CSR expectations (Park et al., 2017). When consumers' values toward sustainability increase, their expectation toward companies can increase and this would enhance sustainable consumption intentions (Park et al., 2017). Because sustainable consumption and CSR are important agenda for the fashion industry today (Park, 2017), this study will provide useful insights to the researchers and practitioners in the fashion field if consumers' sustainable consumption intention is increased by the recent crisis, and the causal processes among NEP, materialism, and CSR expectations toward it. With this, they could envision not only how to satisfy such increased consumer needs but also what kinds of psychic transitions consumers would experience toward consumption when similar crises come in the future.

## II. Literature Review and Hypothesis Development

### 1. Theory of Awe

Awe is a complex emotion that is often mixed with the submission, confusion, fear, and wonder that people feel in the presence of something extraordinary (Gordon et al., 2017). Awe can arise from various stimuli, such as social dominance (e.g., a powerful leader), natural phenomena (e.g., waterfalls and torna-

does), human art and artifacts (e.g., Monet's water lilies), and cognitive elicitors (e.g., grand theories such as evolutionary theory) (Keltner & Haidt, 2003). Keltner and Haidt (2003) theorized that all awe experiences share two core features: perceived vastness and the need for accommodation. Perceived vastness refers to the sense that a stimulus transcends one's worldview and frame of reference, which elicits the need for accommodation and adjusting fundamental beliefs in order to accommodate the extraordinary experience.

Theoretical conceptualizations of awe suggest that it can be purely positive or negative in valence. Positive awe is associated with greater feelings of positive emotions, such as happiness and amusement, as well as a sense of personal control over a given situation. It arises from positive stimuli, such as the vast size and beauty of nature (e.g., waterfalls) and an epitome of selflessness (e.g., a figure such as Mother Teresa). Unlike the positive variant, negative awe stems from appraisals of threat, and is thus also referred to as threat-based awe (Gordon et al., 2017). Threat-based awe is associated with a combination of wonder and strong negative responses, such as fear, powerlessness, uncertainty, and a lack of self-control (Gordon et al., 2017). It arises from extremely threatening stimuli, such as nature's destructive force (e.g., tornadoes) or a leader's dark brand of charisma (e.g., that of Adolf Hitler) (Piff et al., 2015). In sum, although both positive and threat-based awe arise from extraordinarily vast stimuli, they differ in their underlying appraisals and subjective experiences (Gordon et al., 2017; Piff et al., 2015). This study focuses on threat-based awe because it theoretically and empirically aligns with the nature and impact of crises (Sun et al., 2021).

## 2. Threat-Based Awe and Crisis Experience

According to the theory of awe, a crisis experience, such as the recent pandemic, qualifies as an extremely threatening event that could induce negative awe, and this has been supported by emerging empirical evidence (Sun et al., 2021). The pandemic has provoked feelings of uncertainty, fear, and anxiety (Campbell et al.,

2020; Li & Qian, 2022). These negative responses are driven by the pandemic's threat to life (Pyszczynski et al., 2021) and feelings of loss of control stemming from extreme difficulty with not only containing the virus, but also making a reliable prediction regarding its trajectory (Usher et al., 2020). The fight against the pandemic has been a humbling experience for humanity as a whole, as indicated by the sheer number of confirmed cases (545M as of June 2022) and deaths (6.33 M as of June 2022) as well as the overwhelmed health system. This is likely to create a sense of a small self, which is consistent with the outcomes of awe (Gordon et al., 2017). The pandemic has transcended our ordinary frame of reference, forcing unprecedented lockdowns and large-scale behavioral changes, such as social distancing (Bavel et al., 2020). Prior findings have shown that people's subjective experiences of the pandemic are associated with the perception that it is something grand and difficult to mentally process (Li & Qian, 2022), and this appraisal of vastness distinguishes threat-based awe from pure fear (Chaudhury et al., 2022).

There is emerging evidence that an effective response, particularly with feelings of threat-based awe, is positively associated with sustainable consumption behaviors (Sun et al., 2021). This is consistent with past research that has demonstrated the significant role of awe in explaining various attitudinal, cognitive, and behavioral responses, such as product preferences (Yang et al., 2021), risk perception (Septianto et al., 2020), prosocial behaviors (Piff et al., 2015), and sharing intentions (L. Wang et al., 2022). While prior findings have shown that threat-based awe is an emotion that can be induced by natural disasters such as the pandemic (M. Wang et al., 2022), we know little about why such awe-inducing events impact individuals' sustainable consumption.

Based on the pandemic's alignment with threat-based awe and awe's two core features (i.e., perceived vastness and the need for accommodation), coupled with prior findings that a value system is a significant predictor of specific beliefs, such as how companies should behave (CSR expectations), this study posits

that the pandemic has reshaped individuals' fundamental beliefs (the NEP and materialism), which in turn has influenced consumer expectations regarding CSR and consequent intentions regarding sustainable consumption.

The pandemic experience is not limited to one domain of life; the experience encompasses individual, familial, and broader community. For instance, the COVID-19 pandemic has threatened the health and safety of not only oneself but also friends and family. It has also disrupted lifestyles, forcing changes in daily routines and social interactions. Additionally, the pandemic's economic impact has jeopardized job security as various industries struggled with disruptions in business operations. The global scale of the pandemic highlights its widespread influence across diverse facets of life, including health and safety, job security, lifestyle, and the economic health of the town. Consistent with these lived experiences, prior research has shown that the pandemic experience indeed extends across an individual's health and lifestyle as well as family and friends and the surrounding community (e.g., Rana et al., 2021).

### 3. The Impact of the Pandemic Crisis on Value Systems

Individuals' value systems remain stable over time but are subject to change in response to life-altering crises, such as the pandemic (Jiang et al., 2021). For example, there is emerging evidence that the pandemic, a crisis experience, has led individuals to change their values, including an increased openness to change, a stronger focus on self-direction, stimulation, and conservation, and closer attention paid to order and stability (Daniel et al., 2022; Rosenfield & Tomiyama, 2021). The roles that value systems play has received limited attention, and the extant research has primarily focused on cognitive factors, such as health consciousness (H. Wang et al., 2022), perceived corporate commitments to sustainable business practices (Vătămănescu et al., 2021), and behavioral control (Alexa et al., 2021), as well as social factors, such

as subjective norms regarding sustainable consumption (Alexa et al., 2021). Thus, we focus on the two antithetical consumer values related to sustainable consumption: NEP and materialism: NEP urges prompt ecological action, recognizing resource limits (Dunlap et al., 2000), while materialism drives the excess use of resources and consumption, counter to environmental preservation (Richins, 2004).

The relevance of sustainable consumption during the pandemic relates to the cause of the coronavirus and the modern variant, i.e., COVID-19. The virus has been attributed to zoonotic viruses that have mutated to become dangerous to humans (Johns Hopkins Medicine, 2022). A major factor that has increased the risk of zoonotic viruses is human interaction with animals via unsustainable activities, such as intensive agricultural and livestock farming, uncontrolled urbanization, and the excessive extraction of natural resources, all of which lead to biodiversity loss, habitat fragmentation, and deforestation (Mishra et al., 2021). As a result, consumers may see an even greater need for sustainable consumption. Some industry reports on consumer surveys have pointed to consumers' heightened interest in making more sustainable purchases (Accenture, 2020; McKinsey & Company, 2020). This trend has been supported by empirical findings in consumer research. Prior findings have shown that consumers' perceived impact of the pandemic is associated with increased awareness, behavioral intentions, and actual consumption behaviors regarding sustainability (Alexa et al., 2021; H. Wang et al., 2022). People have reported higher awareness regarding their environmental impact on the Earth and the effect of environmental protections for future generations (Severo et al., 2021), as well as higher intentions to purchase sustainable products (Alexa et al., 2021; H. Wang et al., 2022). The pandemic also led to more sustainable consumption by changing habits, such as reducing waste through reuse and recycling (Severo et al., 2021).

The significance of changing value systems, particularly in the context of sustainable consumption, is also supported by findings that value systems influence

consumer CSR expectations. CSR expectations are defined as consumer beliefs about how businesses should behave with regard to their social responsibilities (Golob et al., 2008). This study focuses on two dimensions of CSR expectations: economic and ethical. The economic dimension of CSR refers to a company's responsibility to maximize profitability, whereas the ethical dimension refers to abiding by societal ethical standards (Kim et al., 2019). CSR is often conceptualized as a spectrum spanning these two domains, which are traditionally viewed as dichotomous yet increasingly are seen as complementary, particularly in response to growing consumer demands for holistic corporate responsibility. The economic dimension embodies a shareholder-centric approach where corporate responsibility is towards maximizing profitability and shareholder value (Friedman, 2007). In this domain, consumer expectations are geared towards activities that ensure the financial returns and growth of the business, such as offering competitive products and services and continual innovation (Kim et al., 2019). The ethical dimension aligns with the stakeholder approach, wherein companies consider the well-being of all key stakeholders within society (Jamali, 2008). Ethical CSR expectations thus focus on activities geared toward various stakeholders including the environment, employees, and consumers, including ethical labor practices, initiatives to minimize environmental harm, and meaningful community outreach programs (Kim et al., 2019). For example, high self-enhancement values were positively related to economic CSR expectations, whereas high self-transcendent values were positively related to legal, ethical, and discretionary CSR expectations. Past research has posited that these expectations explain the effect of consumers' values regarding purchasing behaviors (Ijabadeniyi & Govender, 2019). Therefore, this study examines how the pandemic has reconfigured consumers' NEP and materialistic value systems and how these changes' consequent impact on CSR expectations as the antecedents of sustainable consumption intentions.

#### **4. The Pandemic Crisis and the New Ecological Paradigm (NEP)**

The NEP is a fundamental view about humans' relationships with nature, specifically the existence of limits for growth of human societies, humanity's right to rule over nature and humanity's ability to upset the balance of nature (Dunlap et al., 2000). The NEP believes that human interference will yield disastrous consequences and disavows human dominance over nature, thereby supporting the prompt need to preserve the ecological environment (Dunlap & Jones, 2002). The NEP is thus characterized by a sense of the small self, stemming from fears of nature's power and looming catastrophes, which is consistent with the experiences of awe that have been induced by the pandemic (Keltner & Haidt, 2003). The theory of awe suggests that powerful stimuli, such as the experience of the pandemic, that defy our current ways of living can induce threat-based awe, allowing people to change their fundamental value systems (Keltner & Haidt, 2003). People who rethought what was truly important in their lives during the pandemic by decreasing their spending on fashion clothing and investing more into their inner selves instead (Accenture, 2020) demonstrate this value system adjustment. Because the cause of the pandemic is posited to be directly related to the ecological environment, the pandemic's devastating impacts may lead consumers to see a greater need to accommodate what has transpired by adjusting their fundamental beliefs regarding the environment (Johns Hopkins Medicine, 2022). The dominant view suggests that the pandemic may be a catastrophic consequence of unchecked human interference with the ecological environment, highlighting the urgent need to impose limits on human exploitation, which is consistent with the NEP (Mishra et al., 2021). As such, those who believe that they were severely affected by the pandemic are more likely to see a greater need to adjust their fundamental views of the relationship between people and the ecological environment and to adopt this new paradigm.

*H1: Pandemic experience positively influences the NEP.*

## 5. The Pandemic Crisis and Materialism

While the NEP supports a prompt need to preserve the ecological environment (Dunlap et al., 2000), materialism prioritizes accumulating and consuming material goods, which is contrast to conservation (Richins, 2004). Materialists view the acquisition and possession of luxurious material goods as a primary source of life satisfaction and feelings of well-being (Richins & Dawson, 1992). Furthermore, such consumers prize material goods for their signaled value, which is the ability to signal their success and social status to others (Goldsmith & Clark, 2012). The theory of awe suggests that the threat-based awe induced by the pandemic would put people in a negative psychological state and thus susceptible to the allure of material goods. Threat-based awe induces a sense of powerlessness (Gordon et al., 2017). The pandemic's scale and unpredictability have likely made individuals feel powerless as life becomes uncontrollable and uncertain—a natural cognitive response to such threats (Magee & Galinsky, 2008). This sense of diminished control is especially acute in the stressful context of a global crisis, aligning with findings that link the perceived threat of the pandemic to a heightened sense of powerlessness (Deng & Feng, 2022; Zhang et al., 2022). Previous studies have shown that threats to power perceptions heighten consumers' sense of materialism. That is, people show intentions to pay a premium for status-signaling items in order to restore that lost sense of power when power is threatened (Rucker & Galinsky, 2008).

Similarly, other negative psychological states, such as anxiety and the sense of insecurity associated with threat-based awe, lead people to pursue material possessions as coping mechanisms (Rindfleisch et al., 2009). Consistent with this finding, recent studies have shown that anxiety induced by the pandemic has led to materialism (Moldes et al., 2022) as well as unhealthy consumption behaviors, such as the obsessive pursuit

of luxurious fashion (Lee et al., 2021), impulse buying (Wang et al., 2021), and hoarding (Mishra et al., 2022). Additionally, the perceived threat of COVID-19 has led to a greater importance being placed on achieving material success (Zheng et al., 2021). Therefore,

*H2: Pandemic experience positively influences materialism.*

## 6. Value Systems' Impact on CSR Expectations and Sustainable Consumption Intentions

Since the NEP is characterized by collective vulnerability to nature and high extents of perceived risks (Dunlap et al., 2000; Xue et al., 2018), people who strongly subscribe to the NEP tend to want to mitigate risk by building up a collective resilience, which is the ability to absorb and recover from shocks, including natural disasters such as the pandemic. Economic resilience becomes a critical factor in the response to potential natural disasters, as they inevitably accompany economic crises (Kousky, 2014). For example, according to the World Bank's estimate, the pandemic crisis's impact on the world economy rivals that of the Great Depression and both world wars (The Economist, 2021). Prior findings have shown that consumers perceive a company's strong financial performance as a meaningful contribution to society (Stanaland et al., 2011). As such, consumers with a strong belief in the NEP tend to expect brands to help health and stability of society by remaining highly profitable. Moreover, given that consumers tend to hold larger companies with more resources to higher environmental and social CSR standards (Green & Pelozo, 2014), consumers with stronger NEP may emphasize the financial stability of companies because such companies are better positioned to use their financial strength responsibly and in ways that benefit the environment. Consumers who support the need to preserve the ecological environment thus are more likely to expect companies to be financially sound as they are more capable of making significant contributions to environmental

conservation. Therefore,

*H3a: The NEP positively influences economic CSR expectations.*

Prior studies that examined the impact of the NEP on consumer attitudinal and behavioral responses have suggested that consumers with a strong belief in the NEP are likely to expect brands to keep high ethical standards while reducing their business activities' negative environmental effects (Xiao et al., 2019). The NEP has been shown to be a significant predictor of specific attitudes, beliefs, and behavioral intentions regarding environmental sustainability, including attitudes toward renewable energy (Larson & Krannich, 2016), the perceived risk of global warming (Xue et al., 2018), and consumers' willingness to pay a price premium for climate-friendly products (Ziegler, 2017). Furthermore, consumers with strong beliefs in the NEP were more likely to adopt more sustainable lifestyles, such as taking shorter showers to save water and cultivating good recycling practices, as well as to make conscious purchase decisions, such as purchasing products with less plastic packaging and avoiding buying products from a company that is not committed to reducing its negative impacts (Derdowski et al., 2020). Consistent with attitudinal and behavioral changes, consumers with strong beliefs in the NEP are likely to expect companies to act ethically in order to minimize harm to the environment. This is supported by prior findings that consumers tend to prefer brands that align with their personal values, often placing more importance on this alignment than on compatibility with personality traits like openness and conscientiousness (Voorn et al., 2021). Therefore, those who value ecological preservation are more likely to hold companies to higher expectations regarding their commitment to ethical and environmental practices. Accordingly,

*H3b: The NEP positively influences ethical CSR expectations.*

Materialism is negatively associated with consumer susceptibility to normative influence pertaining to product and brand choices (Goldsmith & Clark, 2012). In other words, materialistic consumers are likely to weigh heavily on the majority opinion when making purchase decisions because they tend to be concerned with others' opinions (Richins, 2017) as well as risk-averse, particularly in social contexts (Islam et al., 2022). As such, materialistic consumers may support profitable brands which imply strong consumer demand and social desirability. Considering the association between a company's financial health and its market performance, materialistic consumers may hold higher expectations for a company's economic CSR. This is because strong market performance is often backed by robust market demand and a significant market share, fulfilling materialistic consumers' preference for products and services that are socially endorsed (Goldsmith & Clark, 2012). Furthermore, brands that command a significant market share and wield influence are likely to resonate with materialistic consumers' aspirations to be seen as socially influential, reinforcing their ideal self-image, a notion consistent with prior findings that consumers favor brands that align with their aspired self-image (Astakhova et al., 2017). Following this logic,

*H4a: Materialism positively influences economic CSR expectations.*

Simultaneously, materialism is a positive driver of consumer ethics, and materialistic consumers are more likely to take civil action to promote sustainability via boycotts and purchase decisions (Rahima et al., 2020). This may be because sustainable products have become a new metric of status, as they tend to cost more and are more socially desirable (Berger, 2019). An alternative route to materialistic consumers' ethical consumption practices may be compensatory behaviors to reduce guilt for their splurge purchases (Fitzmaurice, 2008). Consumers often engage in what is known as emotion regulation consumption, which involves making consumption choices to alleviate, re-

pair, or manage emotions in the short term (Kemp & Kopp, 2011; Kemp et al., 2014). For instance, feeling guilty about harming the environment due to their purchasing decisions might lead someone to buy environmentally friendly products to mitigate that guilt (Culiberg et al., 2023). In this light, consumers may expect companies to provide options that allow them to manage their negative emotions such as guilt through their purchase decisions. The extant literature has suggested that there are multiple pathways to ethical consumption for materialistic consumers, and prior findings have shown that materialistic consumers have higher CSR expectations of companies (Tascioglu et al., 2017). Thus,

*H4b: Materialism positively influences ethical CSR expectations.*

Sustainable consumption is a holistic term that includes sustainable management of resources, waste reduction, and also ethical practices that respect human rights and labor standards (United Nations, 2023). Sustainable consumption intentions thus refer to consumers' intentions to "being thoughtful about what they buy and choose a sustainable option whenever possible", meaning buying from brands with commitments to environmentally and socially responsible practices and such products/services (United Nations, 2023). As consumers favor brands that align with their personal values (Voorn et al., 2021), consumer expectations tied to personal values are likely to dictate consumer behavioral intentions. Specifically, the relationship between a company's commitment to CSR and positive consumer attitudinal and behavioral responses has been well-documented (Mercadé-Melé et al., 2018). For example, when a company is committed to promoting economic sustainability, consumers evaluate the company more favorably and have higher purchase intentions (Choi & Ng, 2011). As sustainable brands satisfy the growing demand for sustainable products, consumers who perceive profitability is important are likely to support brands that offer in-demand products. Similarly, consumers with higher ex-

pectations regarding ethical CSR are more likely to shop from sustainable brands because of their commitment to upholding high ethical standards to protect the well-being of important stakeholders, including the workers, suppliers, the ecological environment, and customers (Park et al., 2017). Furthermore, consumers who possess a strong sense of self-efficacy, which is the belief in their own ability to influence outcomes, are more proactive in their interactions with brands. For example, they are more likely to lodge complaints in response to service failures (e.g., Bodey & Grace, 2007; McKee et al., 2006; Tajurhim et al., 2020). Similarly, self-efficacy may lead consumers to expect and demand higher economic and ethical performance from companies. These consumers are more likely to have stronger intentions to take actions in keeping with their beliefs, such as intentions to reduce food waste reduction (Ding, 2022) and other pro-environmental behaviors including buying local products and reducing the use of plastic bags (Huang, 2016). Therefore,

*H5: Economic CSR (H5a) and ethical CSR (H5b) expectations positively influence sustainable consumption intentions.*

### III. Methods

#### 1. Sample and Data Collection

This study sampled consumers aged 18 and above who were living in the United States, which is one of the largest consumer markets and one of the countries that was most significantly affected by the pandemic crisis (Global data, 2020). Following Institutional Review Board (IRB) approval, data were collected via an online survey questionnaire in 2021. The questionnaire was distributed by a nationwide research firm, Qualtrics, among its consumer panel, which represents the general U.S. population. To maximize the sample's representativeness, Qualtrics assigned quotas based on age, gender, and household income level. As a result, 382 consumers completed the question-



naire who were diverse in terms of gender and age.

## 2. Measurements

First, the degree to which these particular consumers were affected by the pandemic was measured by six items developed by the authors. All other variables were measured by adapting items from previous studies. NEP was measured by 15 items from Dunlap et al. (2000). Materialism was measured by three items from Richins (2004). To measure economic and ethical CSR expectations, the survey asked, "how much do you believe the following responsibility is important to businesses?" and provided three economic responsibilities and four ethical responsibilities. These were borrowed from Kim et al.'s (2019) study. Sustainable consumption intention was measured by adapting five items from Keller (2001). Lastly, demographic variables, including age, gender, ethnicity, education level, and household income level, were measured at the end of the questionnaire.

## IV. Results

### 1. Sample Characteristics

The average age of the 382 respondents was 47.82 years old, and the age 30-39 group was the most represented (19.4%), followed by the age 40-49 group (18.3%). Male respondents totaled 178 (46.6%), and female respondents totaled 200 (52.4%). With regards to ethnicity, more than half of the respondents were European and Caucasian American (N = 262, 68.6%). In terms of education level, 194 respondents (50.8%) held college degrees. And regarding annual household income, 95 respondents (24.9%) answered that they earned \$30,000 or less, followed by the \$50,000-\$69,000 (N = 60, 15.7%) and \$30,000-\$49,000 (N = 58, 15.2%) groups.

### 2. Preliminary Analyses

Before conducting main analyses, a single-factor

test was conducted to ensure common method variance. Since the result revealed that a majority of the variance was not determined by the single factor (35.45%), we deemed common method variance was not problematic in this study (Podsakoff et al., 2003).

A confirmatory factor analysis (CFA) was conducted to ensure the reliability and validity of the measurement model in Amos 25.0. The items that were reversely measured (seven items of NEP and one item of sustainable consumption intention) had very low factor loadings, so they were candidates for deletion given that all standardized factor loadings should be greater than .5 (Hair et al., 2010). Several studies argued the measurement problems associated with the reversed items including low item-total correlations, reliability, model fit, complex factor structure etc. (Weijters & Baumgartner, 2012). Additionally, Zhu and Lu (2017) proved that the reverse items of the NEP scale had low measurement precision. Therefore, we consider the exclusion of the reversely measured items to be a reasonable approach. Two items of pandemic experience also had low factor loadings and a significant number of modification indices. After deleting these items, CFA was re-ran ( $\chi^2 = 587.00$ ,  $df = 284$ ,  $\chi^2/df = 2.07$ ,  $p < .001$ , CFI = .95, TLI = .95, RMSEA = .05) (Table 1), and the results showed that all standardized factor loadings were greater than .50. In addition, average variance extracted (AVE) of all variables were above .50, and composite reliability (CR) of all variables was close to .70, which are acceptable thresholds. Cronbach's alphas ranged from .83 to .92, indicating acceptable construct reliability as well as convergent validity. Discriminant validity was satisfactory considering that the correlation estimates were lower than the square root of the AVEs of the constructs (Fornell & Larcker, 1981) (Table 2).

### 3. Hypotheses Testing

Using the maximum likelihood estimation method in Amos 25.0, the hypotheses were tested by structural equation modeling ( $\chi^2 = 828.68$ ,  $df = 331$ ,  $\chi^2/df = 2.50$ ,  $p < .001$ , CFI = .93, TLI = .91, RMSEA = .06). Since

**Table 1. Confirmatory factor analysis results of the measurement model**

Measurement items	Factor loadings (t-value)
<b>Pandemic experience: Cronbach's <math>\alpha = .90</math>, CR = .74, AVE = .71</b> (1: strongly disagree, 7: strongly agree)	
COVID-19 pandemic has directly affected my family's health and safety.	.93 (-)
COVID-19 pandemic has directly affected my health and safety.	.91 (28.52)
COVID-19 pandemic has directly affected my friends' health and safety.	.87 (25.02)
COVID-19 pandemic has directly affected my lifestyle.	.65 (14.73)
<b>New ecological paradigm (NEP): Cronbach's <math>\alpha = .89</math>, CR = .76, AVE = .52</b> (1: strongly disagree, 7: strongly agree)	
Humans are severely abusing the environment.	.84 (-)
If things continue on their present course, we will soon experience a major ecological catastrophe.	.83 (12.03)
The balance of nature is very delicate and easily upset.	.78 (11.93)
When humans interfere with nature it often produces disastrous consequences.	.70 (11.50)
The Earth is like a spaceship with very limited room and resources.	.70 (10.79)
Plants and animals have as much right as humans to exist.	.69 (10.74)
We are approaching the limit of the number of people the Earth can support.	.58 (10.60)
Despite our special abilities, humans are still subject to the laws of nature.	.56 (9.09)
<b>Materialism: Cronbach's <math>\alpha = .85</math>, CR = .63, AVE = .67</b> (1: strongly disagree, 7: strongly agree)	
I like a lot of luxury in my life.	.88 (-)
I admire people who own expensive homes, cars, and clothes.	.84 (17.85)
I'd be happier if I could afford to buy more things.	.73 (15.23)
<b>Economic CSR expectation: Cronbach's <math>\alpha = .83</math>, CR = .73, AVE = .63</b>	
How much do you believe the following responsibility is important to businesses? (1: Not important at all, 7: Very important)	
Controlling their production costs strictly	.86 (-)
Maximizing profits	.78 (15.05)
Always improving economic performance	.74 (14.56)
<b>Ethical CSR Expectation: Cronbach's <math>\alpha = .88</math>, CR = .75, AVE = .66</b>	
Committing to well-defined ethics principles	.88 (-)
Ensuring that respect of ethical principles has priority over economic performance	.87 (20.19)
Focusing on ethical concerns, even if they negatively affect economic performance	.82 (19.95)
Avoiding compromising ethical standards in order to achieve corporate goals	.65 (13.58)
<b>Sustainable Consumption Intention: Cronbach's <math>\alpha = .92</math>, CR = .84, AVE = .76</b> (1: strongly disagree, 7: strongly agree)	
I would buy as much of sustainable brand as I can.	.91 (-)
I would buy sustainable brands whenever I can.	.90 (26.91)
Sustainable brands would be the ones I would prefer to buy/use.	.87 (24.39)
I would go out of my way to use sustainable brands.	.80 (20.81)

Model fit.  $\chi^2 = 587.00$ ,  $df = 284$ ,  $\chi^2/df = 2.07$ ,  $p < .001$ , CFI = .95, TLI = .95, RMSEA = .05

All t-values are significant at the .001 level.

All items utilized a 7-point Likert scale (i.e., 1 = strongly disagree, 7 = strongly agree).

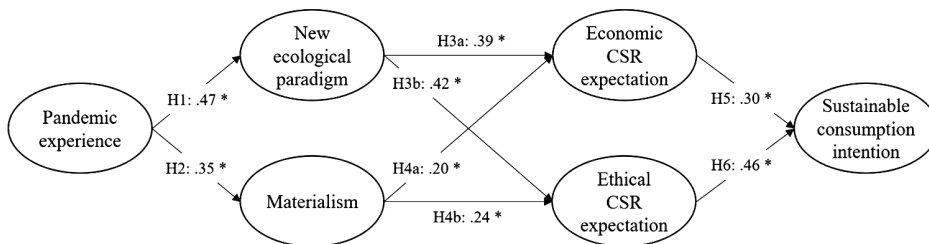
**Table 2. Correlation analysis and discriminant validity results**

	Mean (SD)	1	2	3	4	5	6
1. Pandemic experience	4.61 (1.63)	<b>.84</b>					
2. NEP	4.71 (0.91)	.48	<b>.72</b>				
3. Materialism	3.93 (1.67)	.34	.52	<b>.82</b>			
4. Economic CSR expectation	5.35 (1.18)	.20	.49	.28	<b>.79</b>		
5. Ethical CSR expectation	4.92 (1.35)	.34	.51	.32	.24	<b>.81</b>	
6. Sustainable consumption intention	4.78 (1.20)	.48	.66	.47	.41	.54	<b>.87</b>

Diagonal values = The square root of the AVE of each variable, SD = Standard deviation  
All coefficients are significant at the .001 level.

we found that variables in this model differed significantly according to level of education and annual household income, but the main purpose of this study was to investigate psychological pathways to increase sustainable behavior induced by the crisis, we added them as control variables. The results revealed that consumers who were strongly affected by the pandemic increased NEP ( $\beta = .47, t = 8.81, p < .001$ ) and materialism ( $\beta = .35, t = 6.36, p = .001$ ). That is, when people believed that they were severely affected by the pandemic, they were likely to show a higher need to accommodate and adopt the new paradigm and to have a greater desire to buy more luxury goods. These findings are consistent with the theory of awe, which suggests that threat-based awe can lead people to adjust their fundamental value systems (Keltner & Haidt, 2003) and that it induces a sense of powerlessness, leading people to pursue material possessions (Rind-

fleisch et al., 2009). Therefore, H1 and H2 were supported. We also found that NEP and materialism increased both economic (NEP:  $\beta = .39, t = 6.67, p < .001$ ; materialism:  $\beta = .20, t = 3.43, p < .001$ ) and ethical CSR expectations (NEP:  $\beta = .42, t = 7.67, p < .001$ ; materialism:  $\beta = .24, t = 4.49, p < .001$ ), respectively, in support of H3a, H3b, H4a, and H4b. These findings suggested that consumers with a strong belief in the NEP tend to expect brands to promote not only ethical initiatives, but also economic responsibility, such as financial performance. Similarly, materialistic consumers were more likely to believe that brands should fulfill the economic and ethical priorities. In support of H5 and H6, consumers' economic and ethical CSR expectations were found to boost their sustainable consumption intentions (economic:  $\beta = .30, t = 5.72, p < .001$ ; ethical:  $\beta = .46, t = 8.69, p < .001$ ). The results are presented in <Fig. 1>.



Model fit.  $\chi^2 = 828.68, df = 331, \chi^2/df = 2.50, p < .001, CFI = .93, TLI = .91, RMSEA = .06$   
\*  $p < .001$

Squared multiple correlations. New ecological paradigm = .26, materialism = .19, economic CSR expectation = .27, ethical CSR expectation = .31, sustainable consumption intention = .43

Education and annual household income levels were controlled in this model, but the results were not reported for the parsimonious presentation.

**Fig. 1. Hypotheses testing results.**

## V. Discussion

This study aimed to explore what changes in consumers' minds as they experienced the effects of a crisis, the recent pandemic, could lead to their growing interest in sustainable consumption. The theory of awe posits that a life-threatening incident induces changes in people's value systems, and therefore this study hypothesized that pandemic experience increased consumers' NEP and materialism, which also enhanced consumers' CSR expectations and sustainable consumption intentions. To test these hypotheses, 382 U.S. consumers were surveyed. The results are as follows.

First, the extent to which consumers believed that they were affected by the pandemic significantly increased NEP and materialism, supporting the theory of awe, which posits that a critical event like the pandemic provokes adjustments to prior beliefs and priorities (Keltner & Haidt, 2003). What is interesting, however, is that such adjustments were observed in both the NEP and materialism, which are two contrasting value systems. As previous researchers have posited (Dunlap & Jones, 2002), the pandemic caused consumers to respect the rule of ecology systems more than ever by observing the uncontrollable diffusion of the disease, thus increasing NEP. Concurrently, they became more materialistic in order to feel more secure, supporting previous studies that have argued that consumers tend to pursue material possessions more readily in insecure circumstances as a coping strategy (Rindfleisch et al., 2009). This result is also consistent with previous studies showing that consumers increased their desire for material possessions during the pandemic (Mishra et al., 2022; S. Wang et al., 2021; Zheng et al., 2021), as well as the growing interest in both sustainable consumption and materialistic consumption that we observed during the pandemic.

Next, the increase in NEP and materialism enhanced both economic and ethical CSR expectations, which increased consumers' sustainable consumption intention. This corresponds to previous studies implying that consumers' NEP is positively related to their

beliefs that companies' economic contributions (Stanaland et al., 2011) and ethical obligations (Xiao et al., 2019) are important to society. Additionally, this result is consistent with previous studies showing that consumers' materialism is positively related to their expectations regarding companies' economic performance (Rahima et al., 2020) and CSR (Tascioglu et al., 2017). The positive relation between CSR expectations and sustainable consumption intention also supports the literature that consistently posits that consumers with higher CSR expectations prefer sustainable options (Mercadé-Melé et al., 2018; Park et al., 2017).

Moreover, the results revealed which specific value systems and CSR expectations especially increased consumers' sustainable consumption intentions. Specifically, the influence of the NEP on both economic and ethical CSR expectations was greater than that of materialism on economic and ethical CSR expectations. Therefore, we found that although consumers' desire for material possessions can be a factor that enhances CSR expectations, it is still not greater than the prioritization of eco-friendly values (NEP). In addition, among the two types of CSR expectations, the influence of ethical CSR expectations on sustainable consumption intention was greater than that of economic CSR expectation, which supports prior findings of a close relationship between consumers' expectations regarding companies' altruism and their behavioral intentions (Mercadé-Melé et al., 2018; Park et al., 2017).

## VI. Conclusions

In conclusion, this study identified two processes underlying consumers' growing interest in sustainable brands while experiencing the pandemic crisis based on the theory of awe. First, pandemic experience was found to increase consumers' NEP, which enhanced sustainable consumption intentions through heightened economic and ethical CSR expectations of brands. Second, pandemic experience also increased consumers' materialism, which thus enhanced their

economic and ethical CSR expectations and sustainable consumption intentions as a consequence. Going back the questions proposed at the beginning of the study (Would the pandemic actually cause these two contrasting psychological responses among consumers? How are these two contrasting responses related to consumers' views toward sustainable consumption?), the pandemic experience did affect consumers' multiple value systems, NEP and materialism, and these value systems increased consumers' CSR expectations and sustainable consumption intentions.

The results of this study have implications for academic, managerial, and social realms. First, academically, the results of this study add empirical evidence to the theory of awe with the example of the recent pandemic. As the theory of awe posits, consumers' value systems changed in response to the crisis, resulting in their increased interest in sustainable brands. From this example, researchers can understand that experiencing a crisis causes reprioritizing in consumers' value systems and that can consequentially lead to cognitive and behavioral changes, such as, CSR expectations and sustainable consumption intention. Second, this study offers an initial research model that explains whether the pandemic crisis has changed consumers' value systems, CSR expectations, and ultimately sustainable consumption intention, as well as the psychological mechanisms behind these developments. Media and market experts have featured consumers' growing interest in sustainability during the pandemic as a noteworthy phenomenon, but its underlying causes have not been identified in the existing literature. Particularly, this study showed that the causes for this could be explained through two different routes: based on increased perceptions about the importance of the ecological system (NEP), or based on increased desires for materialistic consumption that signals one's interest in and ability to purchase sustainable brands (materialism). With this information, this study proposes not a single path, but rather multiple plausible paths to understanding the shift toward more sustainable consumption following the crisis experience by broadening our knowledge of con-

sumers' psychological processes and their adoption of different value changes as a result.

The results of this study also have managerial implications. First, it was confirmed that pandemic experience increased consumers' sustainable consumption intentions. This suggests that marketers should promote more brands that pursue sustainability in order to meet such growing interest after the pandemic. However, as mentioned previously, an important aspect of this finding was that increased sustainable consumption intentions were not rooted in a single cause but also in multiple value systems, such as NEP and materialism. This indicates that consumers' sustainable consumption intentions can be enhanced not only with a purely ethical appeal, but also by an appeal that fulfills consumers' desire for possessions and social recognition. For instance, consumers seek more symbolic meanings beyond just economic value from carrying Whole Foods reusable bags and Lululemon eco fashion bags, compared to those from Walmart (Elliott, 2013). Consumers' interest in vintage/secondhand clothes significantly increased during the pandemic, based on both motivations for sustainability and for vintage brand labels (Lee, 2022). Fair trade-branded products that respect the ecological system in their production processes, while clearly signaling the brand's premium value, can be another alternative that caters to the multi-faceted value systems of consumers.

In addition, important variables that bridge consumers' value systems and sustainable consumption intentions were consumers' economic and ethical CSR expectations, which proposes that pandemic experience was not the only factor that increased consumers' sustainable consumption intention, and that their increased CSR expectations toward brands was also a factor. Therefore, brands should demonstrate higher levels of CSR commitment in addition to offering sustainable brands and product lines in order to satisfy such heightened expectations. In particular, ethical responsibility was deemed more important than economic responsibility. Thus, for brands with sustainable positioning, although economic responsibility is a meaningful part of CSR, ethical responsibility is still

more effective in terms of gaining consumers' loyalty.

Finally, the results of this study offer implications for society at large. Although our study could not address all of the different consumer value systems, the results showed that certain aspects of the way consumers see the world have obviously changed as a result of a crisis experience, the pandemic; they now perceive it to be more important to respect the natural ecological system, perceive a greater need to hoard material possessions, and now hold higher CSR expectations toward companies. These changes were then manifested through their consumption behaviors as increased sustainable consumption intention, which indicates that the pandemic has not only immediately affected our society by requiring lockdowns, but has also left some long-term impacts after causing consumers to rethink where they live, what values they should pursue, and how they are going to change their consumption patterns based on these new considerations, which will appear as diverse social changes in the near future. Additionally, given that many consumers have suffered from poverty during the pandemic, it is ironic that this crisis has increased some consumers' desire for material possessions, such as sustainable brand's products that signal greater value. Therefore, we need to think about whether the growing interest in sustainable brands based on such psychological circumstances is truly healthy in the long-term, because if these changed consumption patterns are only based on a short-term interest to show off one's eco-consciousness and wealth during the crisis, it might aggravate the relative deprivation of those for whom survival was the priority during the pandemic crisis.

Despite the many important implications above, this study is not without limitations. First, this study measured the extent of consumers' pandemic experience by employing self-administered questions. Therefore, this metric and the values in this paper represent consumers' "perceived" levels of impact, which were important in their value systems in this study. However, these values may not exactly and fully present the factual level of impact that the pandemic had on their lives. Second, this study measured consumers'

sustainable consumption intentions in general, rather than toward a specific brand or particular product categories. Thus, even though the participants reported their general sustainable consumption intentions in this study, these perceptions may differ for a particular brand or a product category (sustainable "fashion" or "food") based on other kinds of perceptions that they hold toward a brand/category. Also, this study examined U.S. consumers as the sample for the survey, a decision that was made based on the fact that the United States represents one of the largest consumption markets and one of the countries that was most affected by the pandemic crisis. However, because the pandemic's level of impact and the market situations because of it were different across various countries, future research that features different sample countries may reveal different results from those of this study. Lastly, there could be other endogenous variables that may affect the proposed conceptual models in this study. For example, future research may investigate consumer characteristics that determine who follow the pathway of NEP and who follow the pathway of materialism, which of NEP and materialism outweighs the other when one increases the both, to understand the processes where this model is applied across consumers.

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Not applicable.

#### 2. Ethics and consent

This research was conducted under the approval and supervision of Institutional Review Board of North Carolina State University (IRB approval No: 23836).

#### 3. Availability of data and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

#### 4. Conflicting interests

Not applicable.

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## 6. Authors' contributions

HW developed research ideas and drafted the introduction, discussion, and conclusion parts. DCS developed research ideas/hypotheses, reviewed and drafted the literature part. SJ developed research ideas, conducted data analysis, and drafted the method and result parts. BEJ developed research ideas, managed the IRB approval process, and reviewed the draft. All authors read and approved the final manuscript.

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