



Social isolation and risk-taking behavior: The case of COVID-19 and cryptocurrency

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ABSTRACT

This study examines the impact of social isolation on risk-taking behavior in highly uncertain environments with the potential for significant gains and losses. We uncover both direct and indirect effects of social isolation on risk-taking behavior, mediated through perceived stress, sense of control, and neuroticism. The COVID-19 pandemic provides a pertinent context to explore these dynamics, while the volatile cryptocurrency market serves as a topical context for investigation. The analysis based on covariance-based structural equation modeling (CB-SEM) of survey responses from 216 consumers reveals that social isolation significantly increases risk-taking behavior, primarily mediated by heightened perceived stress. Contrary to expectations, sense of control and neuroticism did not mediate this relationship, indicating specific pathways through which isolation affects risk decision. This finding suggests that while social isolation intensifies perceived stress, yielding riskier purchase decisions, it does not universally impact other psychological aspects like resilience (sense of control) or vulnerability (neuroticism). The observed direct (main) and indirect (mediation) effects highlight the importance of targeted interventions to address psychological well-being, particularly at times of enforced isolation. Understanding these dynamics can help advisors (e.g., financial consultants), marketers, and policymakers (e.g., government agencies/lawmakers) formulate strategies to curb excessive risk-taking among isolated individuals, particularly in high-risk financial settings.

1. Introduction

A global experiment in social dynamics unfolded in the shadow of the COVID-19 pandemic, intensifying social isolation for billions (Lim, 2022; Hollebeek et al., 2021). This pervasive state of isolation, characterized by limited social connections and community engagement, has had significant psychological and behavioral repercussions (Erjavec and Manfreda, 2022; Huang et al., 2023). During lockdowns, traditional social outlets were curtailed, forcing individuals to navigate a world where face-to-face interactions were drastically reduced (Moldes et al.,

2022) and often replaced by virtual alternatives (Lim, 2023; Itani and Hollebeek, 2021). This disruption not only intensified loneliness but also reshaped consumer behavior, particularly in financial decisions, wherein the resulting social vacuum created fertile ground for the dramatic rise in cryptocurrency investment, as individuals sought alternatives to traditional financial systems and more direct control over their economic futures (Chaker et al., 2021). This shift is underscored by the significant increase in the price of Bitcoin, which soared over 700% from March 2020 to 2021 (Özdemir, 2022), mirroring the heightened demand for cryptocurrencies. The attraction to these high-risk investments can

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be linked to their perceived potential for high returns during times of economic instability and market volatility. More critically, the shift toward digital, decentralized financial platforms may also reflect a broader psychological response to social isolation: as traditional socioeconomic interactions become inaccessible or strained, individuals might gravitate toward more autonomous and seemingly empowering activities, such as trading in cryptocurrencies (Martin et al., 2022a, b; Steinmetz, 2023). This complex interplay between social isolation and altered behavior highlights an essential aspect of consumer psychology. Indeed, existing studies, such as those by Kim and Heacock (2021), Lyngdoh et al. (2023), and Yahya et al. (2024), have begun to explore how social isolation impacts decision-making, suggesting that it significantly influences an individual's propensity for risk-taking. These findings point to a critical need to understand how periods of social isolation and the accompanying shifts in market dynamics can catalyze changes in consumer decision-making, particularly in adopting new, and potentially riskier, behaviors.

In light of this, researchers across disciplines have intensively explored various dimensions of cryptocurrencies, including their technological foundations, market dynamics, and societal impacts. These studies range from examining the factors that influence consumer attitudes toward digital currencies, such as perceived behavioral control and financial self-efficacy, to the role of personality traits in shaping investment decisions during uncertain times (Hassan et al., 2022). Research has highlighted how the COVID-19 pandemic has accelerated interest in Bitcoin and other cryptocurrencies as consumers seek alternatives to traditional financial systems amidst widespread economic volatility and social isolation (Kim, 2021; Kumar et al., 2024). Furthermore, research has begun to unravel how darker personality traits—such as machiavellianism, narcissism, psychopathy, and sadism (Hollebeek et al., 2022)—may influence attitudes toward and intentions to purchase cryptocurrencies, reflecting complex interactions between personality, regulatory messages, and market behavior (Martin et al., 2022a, b). Previous studies, such as those by Yahya et al. (2024), have identified how social isolation can sharpen financial decision-making and increase attentiveness to investment opportunities like stocks. However, the impact of prolonged social isolation on risk-taking behavior, and the psychological mechanisms driving these decisions, remains notably underexplored, wherein a significant gap persists in understanding how prolonged social isolation directly and indirectly influences risk-taking behavior.

Addressing the identified gap is crucial as it could offer pivotal insights into how periods of social isolation impact risk-taking behavior, especially in contexts with serious repercussions like financial investments, which is increasingly relevant in today's digitally connected yet physically distanced world. A better understanding of these dynamics can inform strategies to mitigate the negative outcomes associated with increased risk-taking, including financial instability or loss, aiding advisors (e.g., financial consultants), marketers (e.g., agents, promoters), and policymakers (e.g., government agencies, lawmakers) to develop targeted interventions and tools that promote better decision-making among consumers navigating social isolation in the future. Accordingly, the conditions of the COVID-19 pandemic, marked by unprecedented levels of social disconnection and uncertainty, have created an urgent need, and in fact, a suitable social experiment, to explore consumer behavior in high-risk environments, wherein the volatile cryptocurrency market can serve as a suitable case. As such, this study aims to fill the said gap by using COVID-19 as a context for social isolation and cryptocurrency purchase as a case of risk-taking behavior to shed light on both the direct and indirect effects of social isolation on risk-taking behavior.

This study offers several noteworthy contributions. First, we extend understanding of the generalizability of the direct effect (e.g., Kim and Heacock, 2021) and pioneer understanding of the indirect effect (this study) of social isolation on risk-taking behavior. Second, this study extends prior studies that have looked at social isolation and risk-taking

behavior in a non-purchase scenario (e.g., sharing of personal information on social media; Degutis et al., 2023) to a purchase scenario (e.g., cryptocurrency; this study). Third, this study extends the range of risk-taking purchasing scenarios associated with social isolation, from low involvement (e.g., lottery; Duclos et al., 2013) to high involvement (e.g., cryptocurrency investment; this study) risk-taking purchase behavior. Fourth, this study extends understanding of social isolation in risky purchase scenarios, from transient (e.g., solo travel by females) to prolonged (e.g., COVID-19 and cryptocurrency; this study) social isolation. Fifth, this study extends the typology of consumer behavior in the COVID-19 literature, from panic buying (Lim et al., 2024) to risk-taking purchase behavior (this study). Finally, this study extends understanding of cryptocurrency behavior, from an individual psychology (e.g., personality; Martin et al., 2022b) to a social psychology (e.g., social isolation; this study) perspective. Together, these multifold contributions underscore the value of this study to diverse streams of knowledge and their stakeholders.

2. Literature review and hypothesis development

2.1. Social isolation and risk-taking behavior

Prior research illuminates the multifaceted influence of social isolation on an individual's propensity for risk-taking behaviors. The theoretical underpinning for this link is well-rooted in the literature, drawing upon findings that demonstrate a compelling association between the experience of isolation and an inclination toward high-risk, high-reward decisions (Erjavec and Manfreda, 2022; Yahya et al., 2024). Duclos et al. (2013) contend that social isolation may propel consumers to engage in riskier endeavors as a compensatory mechanism, potentially to regain a sense of connection or control, as per *compensatory control theory* (Kay et al., 2008). Notably, this behavioral shift stems from an innate response to the feelings of loneliness that accompany social detachment (e.g., being left out, ignored, or ostracized by others).

The transition from safe to speculative investments, such as cryptocurrency, represents an extension of risk propensity in the face of social isolation. While conventional financial wisdom advocates for conservative investment strategies epitomized by assets like government bonds, perceived as lower risk (Corbet et al., 2020; Zhao and Zhang, 2021), social isolation can skew preferences toward more speculative choices. Such behavioral changes are exemplified not only in financial domains, with increased lottery risk-taking (Duclos et al., 2013), but also in social behaviors, such as the willingness to disclose personal information on digital platforms (Lyngdoh et al., 2023). This evidences a broader impact of social isolation on decision-making processes.

The appeal of cryptocurrency to the socially isolated may be amplified by its decentralized nature and the absence of traditional regulatory oversight (Martin et al., 2022b), presenting an alternative for those disconnected from, or distrustful of, established financial systems. The ease of digital access to cryptocurrency markets compounds its attractiveness, obviating the need for the physical social interactions that the pandemic has disrupted (Steinmetz, 2023).

Given the heightened sense of uncertainty and disconnection brought about by the COVID-19 pandemic (Hollebeek et al., 2021; Lim, 2021a), it is posited that individuals experiencing social isolation may exhibit increased risk-taking behavior, including in their financial decisions (e.g., purchase of cryptocurrency). This supposition aligns with the broader narrative of the pandemic's psychological impacts, suggesting that COVID-19 has potential to exacerbate social isolation (Blackman et al., 2023) and risky behaviors (Tsai and Zeng, 2021). The assumption is that isolated individuals might adopt a 'nothing to lose' mindset that propels them toward higher-risk activities (Cobb-Clark et al., 2022). We posit.

H1. Social isolation positively influences risk-taking behavior.

2.2. Underlying mechanisms

In exploring the mechanisms by which social isolation influences risk-taking behavior, this study turns to a trio of mediating factors: perceived stress, sense of control, and neuroticism. These constructs offer a valuable lens through which we can understand and evaluate the complexities of risk-taking behavior under social isolation engendered by the pandemic (Grabowski et al., 2021; Yoon et al., 2023; Zanini et al., 2021). The inclusion of these mediators is also underpinned by theories that elucidate the psychological stress process and its impact on behavior, as well as the role of personality traits in shaping individuals' responses to such stressors.

As per the *transactional model of stress and coping* by Lazarus and Folkman (1984), perceived stress is a critical mediator that may explain variations in behavioral responses to environmental demands. The model postulates that the appraisal of a stressor as challenging or threatening, and the subsequent stress response, significantly influences coping behaviors (Hollebeek et al., 2023a), which could include engaging in risk-taking activities. In the context of the COVID-19 pandemic, social isolation is likely to be appraised as a significant stressor, which may alter decision-making patterns, particularly in high-stakes scenarios, reflecting the heightened cognitive and emotional challenges individuals face during crises (Caci et al., 2020; Shinan-Altman and Levkovich, 2022).

Conservation of resources theory by Hobfoll (1989) posits that individuals strive to obtain, retain, and protect valuable resources, one of which is a sense of control, which has been shown to significantly affect how individuals perceive and engage with their environment (Hollebeek et al., 2023a), especially under conditions that disrupt established norms (Crawford and Caltabiano, 2011; Gunthert et al., 1999). In situations of social isolation, especially during the COVID-19 pandemic, the perceived loss of control may motivate individuals to engage in behaviors that could potentially restore their sense of agency (Lim, 2021b), such as investing in high-risk, high-return ventures like cryptocurrency.

The *big five personality traits* by scholars, including Costa and McCrae (1992) and Digman (1990), highlight neuroticism as a determinant of emotional stability and response to stress (Islam et al., 2017; Hollebeek et al., 2019). Highly neurotic individuals are more sensitive to stress and may exhibit different coping strategies, including risk-taking behaviors, compared to their less neurotic counterparts (Ikizer et al., 2022). In the context of social isolation, those exhibiting higher neuroticism may perceive a greater threat from this isolation, prompting a shift toward behavior perceived to mitigate such threats.

The selection of these mediators is further validated by empirical studies demonstrating their influence on individuals' responses to social isolation during the pandemic (Grabowski et al., 2021; Shinan-Altman and Levkovich, 2022; Yoon et al., 2023). This body of research indicates that stress, control, and personality traits are not only significant predictors of coping and adaptive behaviors but also pivotal in understanding risk-taking during crises. Notably, research has examined these factors within various psychological contexts, including coping mechanisms (Crawford and Caltabiano, 2011; Gunthert et al., 1999), personality traits (Ikizer et al., 2022), responses to perceived threats (S. Liu et al., 2021), and risk perceptions, rendering them suitable for investigating the psychological pathways underlying risk-taking purchases during a crisis (Caci et al., 2020; Zhang et al., 2022). Moreover, their association with risk-taking behavior across different domains further supports their inclusion as potential mediators between social isolation and risk-taking behavior (Hengen and Alpers, 2021; N. Liu et al., 2021; Miller and Mulligan, 2002). This preliminary discussion sets the stage for a deeper exploration of how these psychological constructs may interplay with social isolation to shape risk-taking behavior in the subsequent sub-sections.

2.2.1. Perceived stress

Perceived stress refers to an individual's appraisal of stress, reflecting

the degree to which situations in one's life are considered as overwhelming and exceeding one's adaptive capacities (Phillips, 2013), implying that it is the personal interpretation of stress, rather than the objective event, that often determines the stress response (Lazarus and Folkman, 1984). During the COVID-19 outbreak, social isolation became a pervasive stressor, disrupting routines and imposing an unprecedented sense of disconnection on a global scale (S. Liu et al., 2021). Empirical evidence suggests an association between the extent of social isolation during the pandemic and levels of perceived stress, wherein studies such as Nkire et al. (2021) have quantified this effect, finding that individuals subjected to social isolation were predisposed to moderate/high stress. The consequences of elevated perceived stress extend into various domains of behavior, notably including decision-making related to financial investments. Li et al. (2022) underline the direct impact of social isolation on perceived stress during lockdowns, indicating that such stress may catalyze changes in behavior that encompass financial risk-taking. Indeed, the literature posits that individuals under high stress might resort to more speculative investments, such as cryptocurrency, which are seen as high-risk but potentially high-reward financial instruments (Zhao and Zhang, 2021). The allure of such investments may be heightened under stress as individuals seek to regain control or alleviate negative emotional states through actions that promise quick and substantial returns. This phenomenon can be elucidated through the lens of stress-induced behavioral responses, where the pursuit of risky financial opportunities serves as a coping mechanism to counterbalance stressors, in this case, engendered by social isolation (Hengen and Alpers, 2021). Given these dynamics, we posit that perceived stress functions as a mediating variable in the pathway from social isolation to the propensity for engaging in risk-taking behavior. We hypothesize.

H2. Perceived stress mediates the relationship between social isolation and risk-taking behavior.

2.2.2. Sense of control

Sense of control reflects an individual's belief in their ability to influence events and outcomes in their lives (Hollebeek et al., 2023b), encompassing their perceived power over personal thoughts, emotions, behavior, and the external environment (Burger, 1989). This psychological concept assumes an essential role when individuals face situations that threaten their autonomy and predictability, as was the case during the pandemic (Itani and Hollebeek, 2021; Lim et al., 2024). With the advent of the pandemic, established routines were disrupted, leading to a significant reduction in perceived control (Park et al., 2022). The constraints on in-person social interactions and the widespread closure of public spaces have been documented to engender feelings of helplessness and diminished agency (Lyngdoh et al., 2023), while the disruption of daily life and the abrupt loss of control experienced by individuals during the pandemic, as outlined by Li and Qian (2022), aligns with Su et al. (2017), who articulate that social exclusion can substantially erode an individual's sense of control. This perceived loss may create a psychological void that individuals are compelled to fill, potentially leading them toward behaviors that promise a restoration of agency and autonomy. In response to this perceived loss of control, individuals may be drawn to decisions and behaviors that present a higher degree of risk as a form of compensatory behavior, as Freeman and Muraven (2010) suggest that a compromised sense of control can fuel risk-taking as a means to combat the ensuing helplessness and uncertainty. Cryptocurrency, in this context, represents a financial vehicle that, while riskier, also holds the allure of self-directed and autonomous investment, offering individuals a sense of empowerment and control over their financial futures (Corbet et al., 2020; Zhao and Zhang, 2021). Considering these insights, we posit that a diminished sense of control due to social isolation may incite individuals to engage with high-risk opportunities such as cryptocurrency investments, in an attempt to reclaim some measure of control over their circumstances. Therefore, we

posit the following hypothesis.

H3. Sense of control mediates the relationship between social isolation and risk-taking behavior.

2.2.3. Neuroticism

Neuroticism, characterized by a tendency toward negative emotional states such as anxiety and impulsiveness (Costa and McCrae, 1992), is a personality trait of significant relevance when examining the psychological effects of social isolation due to the COVID-19 pandemic. As the pandemic intensified, so did the incidence of anxiety and tension, with isolation measures like lockdowns amplifying feelings of loneliness and exacerbating neurotic tendencies (Mourelatos, 2023). Notably, the contribution of neuroticism to an individual’s behavioral responses, particularly in decision-making under uncertainty, has been underscored in various studies. Zanini et al. (2021) posit that sustained social isolation can foster psychological characteristics associated with neuroticism. Furthermore, the pandemic’s erosion of social support networks and routine interactions has been shown to deteriorate mental well-being, potentially heightening neurotic traits (Erjavec and Manfreda, 2022; Kim et al., 2021). In terms of financial decision-making, heightened neuroticism may induce stronger emotional responses (Islam et al., 2017), particularly in investment scenarios (Yahya et al., 2024). Despite the widespread perception of cryptocurrency as a riskier investment relative to traditional financial products, individuals with increased neuroticism during the pandemic may be compelled toward such investments, wherein the uncertainty and associated negative emotions stemming from COVID-19 could drive these individuals to seek out riskier financial ventures as a coping strategy, as the act of taking financial risks can provide a counterbalance to the pervasive insecurity, offering a sense of agency and empowerment that mitigates feelings of anxiety and depression (Buelow and Cayton, 2020). Indeed, empirical evidence supports the notion that individuals with higher levels of neuroticism may be inclined toward risk-seeking behavior, a stark contrast to the more risk-averse stance typically associated with those exhibiting lower levels of neuroticism (N. Liu et al., 2021). This propensity for risk-taking, exacerbated by the psychological impacts of the pandemic, positions neuroticism as a potential mediator between the experience of social isolation and the inclination to engage in risk-taking behaviors, such as cryptocurrency investment. We propose.

H4. Neuroticism mediates the relationship between social isolation and risk-taking.

The research model, depicted in Fig. 1, interconnects all the guiding theories, hypothesized effects, and hypothesized relationships.

3. Methods

3.1. Research context

This study is situated at the intersection of social isolation and risk-taking behavior. The COVID-19 pandemic has intensified social isolation globally (Lim, 2022; Hollebeek et al., 2021), significantly affecting behavioral patterns, including purchase decision-making (Byun et al., 2023; Chen et al., 2023). This period of unprecedented isolation, coupled with economic instability, has led to a notable shift toward high-risk investments, particularly in cryptocurrencies (Aytekin and Ulusoy, 2022).

Cryptocurrencies, inherently complex and volatile, have seen a surge in popularity and value, reflecting a societal shift toward alternative investments and digital solutions during uncertain times (Kumar et al., 2024; Shahzad et al., 2024). As digital assets on decentralized peer-to-peer networks, cryptocurrencies have experienced explosive growth in user engagement and market capitalization (Kumar et al., 2024). Secure and transparent blockchain transactions have bolstered trust and adoption (Anaza et al., 2024). By 2023, the total market capitalization of cryptocurrencies had escalated to approximately \$1049 billion, with around 300 million users globally—a dramatic increase from just 5 million in 2016 (Campbell, 2022; Coinmarketcap.com, 2023). This growth trajectory peaked during the pandemic, with market capitalization rising from about \$191 billion in January 2020 to \$769 billion in December 2020, and reaching approximately \$2953 billion in November 2021 (Statista, 2024). This unprecedented growth not only highlights the resilience of cryptocurrencies but also underscores the pandemic’s impact on risk-taking behavior. The surge in demand aligns with broader patterns of financial uncertainty and the search for alternative investment avenues (Haq et al., 2021).

Focusing on cryptocurrency—a prime example of high-risk, high-reward assets—this study endeavors to illuminate the direct and indirect pathways through which social isolation influences consumer risk decisions in purchase settings. This exploration responds to Lim et al.’s (2023b) call for new research that elucidates consumer behavior dynamics in an era marked by technological advancement and social disruption.

3.2. Research design

This study conducted a survey using a questionnaire as the primary tool for data collection. To assess feelings of social isolation, we employed a single-item measure, asking respondents to rate their sense of social isolation on a 7-point scale (1 = not at all, 7 = very much). The decision

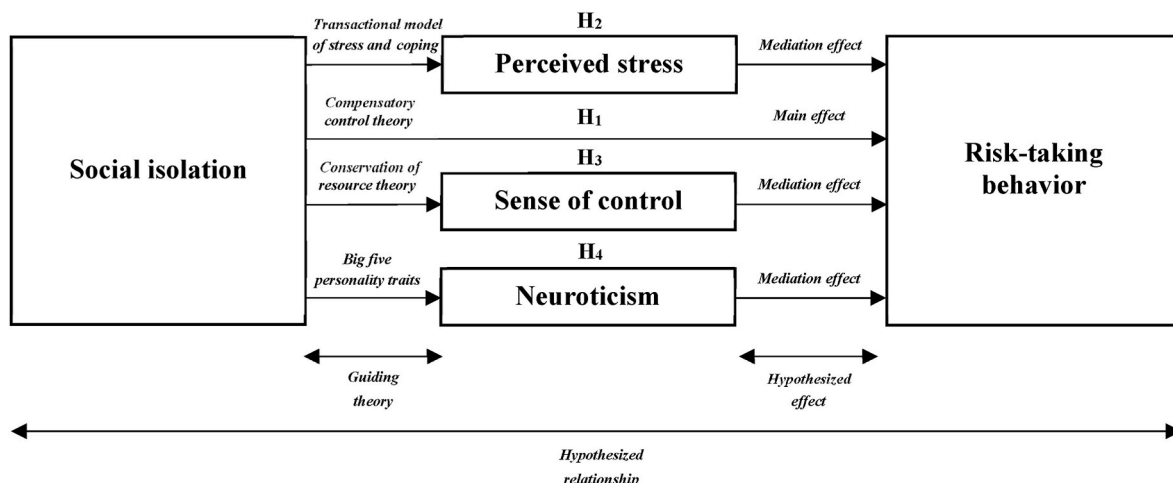


Fig. 1. Research model.

to use a single-item measure for social isolation is substantiated by its conceptual clarity as a construct and is supported by the argument from Hair et al. (2019) that when the construct is straightforward and the research context is clear, a single-item measure can sufficiently capture the essence of the construct. Furthermore, evidence suggests that single-item measures can exhibit a high level of reliability and validity, and function effectively within structural equation modeling (SEM) (Bergkvist and Rossiter, 2007; Diamantopoulos and Sarstedt, 2012). We then quantified *perceived stress* using a 10-item measure adapted from Cohen and Williamson (1988), with responses recorded on a 5-point scale (0 = never, 4 = very often). Next, *sense of control* was determined using a six-item measure adapted from Lachman and Weaver (1998), with responses ranging from 1 (strongly disagree) to 7 (strongly agree). Subsequently, *neuroticism* was evaluated via an 8-item measure adapted from John and Srivastava (1999), with items rated on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Finally, *risk-taking behavior* was scrutinized using a 3-item measure adapted from Martin et al. (2022b), which respondents rated on a 7-point scale ranging from 1 (unlikely/impossible/improbable) to 7 (likely/possible/probable). The decision to employ scales with varying points was informed by the nature of the constructs being measured and the scale sensitivity required to capture respondent experiences and evaluations. Each scale was selected based on its established psychometric properties, including reliability and validity in previous research, and their proven effectiveness in capturing the complexities of the constructs within SEM. This approach ensures that the measures are both appropriate for the constructs in question and conducive to a comprehensive understanding of the interrelationships being studied. Therefore, utilizing scales that are attuned to the specific requirements of each construct enables this study to capture the subtle variations in respondents' experiences and evaluations with the requisite depth and precision.

3.3. Research sample

Data collection took place from December 1st to 12th, 2022, during a lockdown period enforced for residents in Australia. We recruited 318 participants using Prolific, a platform commonly used in online surveys (Brüns and Meißner, 2024; Otterbring and Folwarczny, 2024) offering a small monetary compensation as a token of appreciation for their participation. The selection process involved a stringent eligibility screening designed to ensure that participants had a requisite level of understanding of the study's focus. This screening included four key questions aimed at assessing each participant's awareness of, familiarity with, and current investment status in cryptocurrency, along with one instruction-checking question to confirm their attention and comprehension.

From the initial pool, 102 participants were excluded based on their responses: five were disqualified for failing the instruction-checking question, indicating potential comprehension or attention issues. The remaining 97 were excluded based on their lack of awareness or familiarity with cryptocurrency, or because they were currently investing in cryptocurrency. These criteria were applied to ensure that participants had a foundational understanding of the subject without being currently invested, which could skew their perceptions or introduce bias related to personal financial stakes.

The final sample comprised 216 participants who were both aware of and familiar with cryptocurrency but were not current investors. This targeted selection was guided by past studies (Martin et al., 2022a, b), which emphasize the importance of participant awareness and familiarity for generating meaningful data. Focusing on respondents who are potential future investors, rather than current investors, we aimed to capture unbiased perceptions and insights into the challenges and opportunities within the cryptocurrency market. This approach not only ensures the applicability and relevance of the responses but also enhances the generalizability of the findings to a broader population interested in cryptocurrency investment (Hadan et al., 2024).

The final sample is presented in Table 1. The largest age group was 20–29 years old, accounting for 34.7% (75 participants), and the majority were female, comprising 60.6% (131 participants). Most held a bachelor's degree (41.2% or 89 participants), with 19.4% (42 participants) earning between AUD \$100,000–\$149,999, and 13.9% (30 participants) earning AUD \$150,000–\$199,999. While 44% (95 participants) were single, 32.4% (70 participants) were married, though most (75.9%, 164 participants) did not have dependent children. Most reported not currently investing in cryptocurrency (97.7% or 211 participants), while a small minority (2.3% or 5 participants) indicated that they owned cryptocurrency, potentially received as a gift rather than through direct investment. These sample characteristics are essential in providing context to the findings of this study, ensuring that the results are interpreted with an understanding of the demographic and socio-economic backdrop of the participants.

To ensure statistical robustness, we conducted a power analysis following the guidelines outlined by Cohen (1988) and updated resources such as Soper (2023) and Westland (2010). This analysis considered several critical parameters. Based on prior empirical research and theoretical considerations, a medium effect size of 0.3 was anticipated for the relationships within the model. This estimate aligns with Cohen's (1988) standards, where a medium effect size is typical for behavioral sciences research. We aimed for a power level of 0.80, which is generally recommended for social science research to minimize the risk of Type II errors (failing to reject a false null hypothesis), and the

Table 1
Sample characteristics (N = 216).

Characteristic	N (%)	
Age (years)	20–29	75 (34.7)
	30–39	59 (27.3)
	40–49	40 (18.5)
	50–59	25 (11.6)
	60 and above	17 (7.9)
Gender	Female	131 (60.6)
	Male	85 (39.4)
Highest level of education	Some high school or less	5 (2.3)
	High school graduate	28 (13.0)
	Vocational school or some college	20 (9.3)
	Associate diploma or diploma	17 (7.9)
	Bachelor's degree	89 (41.2)
	Master's degree	36 (16.7)
	Doctoral degree	13 (6.0)
Household income (last financial year before tax)	Professional degree (JD, MD)	5 (2.3)
	Other	3 (1.4)
	Less than AUD \$ 30,000	28 (13.0)
	AUD \$30,000–\$49,999	31 (14.4)
	AUD \$50,000–\$79,999	40 (18.5)
	AUD \$80,000–\$99,999	25 (11.6)
	AUD \$100,000–\$149,999	42 (19.4)
	AUD \$150,000–\$199,999	30 (13.9)
Marital status	More than AUD \$200,000	20 (9.3)
	Single	95 (44.0)
	Married	70 (32.4)
	Cohabiting	35 (16.2)
	Divorced	11 (5.1)
Number of dependent children	Widowed	5 (2.3)
	0	164 (75.9)
	1	17 (7.9)
	2	26 (12.0)
	3	8 (3.7)
Ownership (cryptocurrency)	4	1 (0.5)
	Yes	5 (2.3)
	No	211 (97.7)

Notes: USD \$1 = ± AUD \$1.5. Ownership of cryptocurrency may be gifted rather than invested.

alpha level was set at 0.05, which is standard practice for maintaining a reasonable balance between Type I and Type II error rates in hypothesis testing. The power analysis, as per Soper (2023), suggested that a minimum sample size of 150 participants was required. Therefore, the sample size of 216 not only meets but exceeds the recommended threshold for conducting SEM with the specified model complexity and expected effect size. This adequacy supports the validity of the SEM analyses and the generalizability of the study findings.

4. Results

We reviewed all measurement items and reverse-coded them as necessary. The data were analyzed using covariance-based SEM (CB-SEM) in AMOS v. 26. Following the two-step SEM approach recommended by Anderson and Gerbing (1988) and Hair et al. (2019), we first assessed the measurement model and then examined the structural model.

4.1. Measurement model

Model fit. We conducted confirmatory factor analysis (CFA) to evaluate the measurement properties of five latent constructs: social isolation, perceived stress, sense of control, neuroticism, and risk-taking behavior. The initial measurement model yielded the following fit to the data ($\chi^2(341) = 960.40, p < 0.001$; comparative fit index [CFI] = 0.84; Tucker-Lewis index [TLI] = 0.82; incremental fit index [IFI] = 0.84; goodness of fit index [GFI] = 0.73; root mean square error of approximation [RMSEA] = 0.092). Although the standardized factor loadings for all items exceeded the recommended minimum value of 0.50, consistent with guidelines from Anderson and Gerbing (1988) and Hair et al. (2019), items were removed if they exhibited higher standardized residuals (>2.5), suggesting a potentially unacceptable level of error. This led to the removal of four items from the perceived stress scale, two items from the sense of control scale, and two items from the neuroticism scale (Appendix). The revised model showed a notably improved fit: $\chi^2(161) = 370.25, p < 0.001$; CFI = 0.92 (≥ 0.90); TLI = 0.91 (≥ 0.90); IFI = 0.92 (≥ 0.90); GFI = 0.85 (≈ 0.90); RMSEA = 0.078 (≤ 0.08).

Internal consistency or reliability. In assessing the internal consistency or reliability of the measurement model, we calculated Cronbach's alpha and composite reliability for each construct. Both metrics consistently exceeded the commonly accepted minimum benchmark of 0.70 (Hair et al., 2019; Nunnally and Bernstein, 1994). This is reflected in the results of the revised model, where all latent constructs demonstrated good adherence, with values presented in Table 2, thus affirming the internal consistency or reliability of the measures.

Convergent validity. In evaluating the convergent validity of the measurement model, the analysis revealed that all standardized factor loadings in the revised model ranged from 0.52 to 0.97, which are well above the recommended minimum of 0.50 (Hair et al., 2019). Additionally, the average variance extracted (AVE) for each construct exceeded the minimum 0.50 threshold (Fornell and Larcker, 1981), which indicates a satisfactory level of convergent validity. Furthermore, all items associated with their respective constructs demonstrated statistically significant *t*-values, ranging from 7.06 to 35.82, all significant at the $p < 0.001$ level (Anderson and Gerbing, 1988). These results confirm that each item converges well to measure its intended construct.

Discriminant validity. To test for discriminant validity of the measurement model, we utilized Fornell and Larcker's (1981) criterion, which suggests that the AVE for each construct should be greater than any squared correlation between constructs. The results, detailed in Table 3, confirm that the AVE for each construct exceeded the squared correlations between all pairs of constructs. For instance, the highest squared correlation observed was between perceived stress and neuroticism (0.41), which was less than their respective AVEs of 0.51 and 0.52. This effectively confirms the discriminant validity of our

Table 2
Assessment of convergent validity and reliability.

Construct and item	Convergent validity		Internal consistency or reliability	
	Standardized factor loading	Average variance extracted	Coefficient alpha	Construct reliability
Perceived stress ^a		0.51	0.85	0.86
PS1	0.69			
PS2	0.75			
PS3	0.52			
PS4	0.73			
PS5	0.67			
PS6	0.85			
Sense of control ^a		0.57	0.83	0.84
SE1	0.89			
SE2	0.88			
SE3	0.64			
SE4	0.55			
Neuroticism ^a		0.52	0.86	0.87
NE1	0.80			
NE2	0.62			
NE3	0.70			
NE4	0.76			
NE5	0.70			
NE6	0.74			
Risk-taking behavior		0.92	0.97	0.97
RTB1	0.97			
RTB2	0.95			
RTB3	0.96			

Notes: All constructs are measured on a 7-point scale, except for perceived stress (5-point) and neuroticism (5-point). All standardized factors loaded significantly ($p < 0.001$) on their respective constructs. Abbreviations: PS = Perceived stress. SE = Sense of control. NE = Neuroticism; PI, purchase intention of cryptocurrency.

^a Four items measuring perceived stress, two items measuring sense of control, and two items measuring neuroticism were removed due to higher standardized residuals (>2.5). All retained and removed items can be found in the Appendix.

measurement model, indicating that the constructs are distinct and measure different dimensions as intended.

Common method bias. To mitigate the possibility of common method bias (CMB), we adopted a combination of procedural and statistical measures as recommended by Podsakoff et al. (2003). Procedurally, we implemented randomized question order, maintained simplicity in question wording, varied scale formats, and assured participant anonymity by not collecting identifying information, all underscored by mentioning confidentiality in the participant information sheet. Additionally, the questionnaire was thoroughly reviewed to enhance the clarity of its items. Statistically, we first employed Harman's single-factor test, which assesses the extent of CMB by determining if a single latent factor accounts for the majority of the variance in the variables. We conducted an exploratory factor analysis (EFA) including all five latent variables of the measurement model, and an unrotated factor solution revealed that the first factor explained only 34.36% of the variance, which is below the maximum 50% threshold suggested by Podsakoff et al. (2003), indicating a minimal influence of CMB. Furthermore, we applied the marker variable technique as per Lindell and Whitney (2001) to further assess CMB. The number of dependent children, which was considered theoretically unrelated to at least one of the constructs, served as the marker variable. Using the partial correlation technique, we compared the zero-order correlations among the constructs to their partial correlations, adjusted for the marker variable. The findings, as presented in Table 3, show that all significant zero-order correlations (below the diagonal) remained significant after adjusting for the marker variable (above the diagonal), confirming that CMB did not significantly influence our results.

Table 3
Assessment of discriminant validity.

Construct	Average variance extracted	Social isolation	Perceived stress	Sense of control	Neuroticism	Risk-taking behavior
Social isolation	NA		0.260	-0.088	0.145	0.171
Perceived stress	0.51	0.270		-0.508	0.632	0.074
Sense of control	0.57	-0.092	-0.510		-0.438	0.140
Neuroticism	0.52	0.157	0.637	-0.440		-0.038
Risk-taking behavior	0.92	0.167	0.069	0.141	-0.043	
Number of dependent children (marker variable)		-0.100	-0.138	0.050	-0.144	0.031
Mean		3.31	1.73	5.07	3.09	2.93
Standard deviation		1.72	0.77	1.22	0.79	1.49

Notes: All constructs are measured on a 7-point scale, except for perceived stress (5-point) and neuroticism (5-point). All correlations, except for values in italics, are statistically significant at $p < 0.05$. Correlations adjusted for common method bias are displayed above the diagonal while zero-order correlations between the constructs are reported below the diagonal. Social isolation is a single item measure. NA = Not applicable.

4.2. Structural model

Model fit. We executed the structural model analysis using AMOS v.26, incorporating bootstrapping with a sample of 5000 and a 95% bias-corrected confidence interval (CI) following Hayes (2022). All five constructs previously tested in the measurement model were included (Fig. 2). The model displayed a reasonable fit to the data: $\chi^2 (157) = 424.06, p < 0.001$; CFI = 0.90 (≥ 0.90); TLI = 0.88 (≈ 0.90); IFI = 0.90 (≥ 0.90); GFI = 0.85 (≈ 0.90); RMSEA = 0.089 (≈ 0.08).

Main effects. In examining the paths within the structural model, several notable direct effects were observed. In particular, social isolation was found to have a significantly positive effect on risk-taking behavior ($b = 0.14, p < 0.05$), thereby supporting H₁). In addition, there was a significantly positive relationship between the social isolation and perceived stress ($b = 0.29, p < 0.001$), which, in turn, significantly positively affected risk-taking behavior ($b = 0.18, p < 0.05$). While social isolation did not significantly influence sense of control ($b = -0.08, p > 0.05$), a significantly positive effect of sense of control on risk-taking behavior was noted ($b = 0.27, p < 0.001$). Whereas, social isolation had a significantly positive effect on neuroticism ($b = 0.19, p < 0.05$); despite this, neuroticism showed an insignificant effect on risk-taking behavior ($b = -0.05, p > 0.05$).

Mediation effects. We also explored the potential mediating roles of perceived stress, sense of control, and neuroticism between social isolation and risk-taking behavior. In addition to the direct effects previously discussed, the analysis revealed significant mediating dynamics. In particular, there was a noteworthy indirect effect of perceived stress on risk-taking behavior ($b = 0.05, 95\% \text{ CI: } 0.01 \text{ to } 0.12, p < 0.05$), thus supporting H₂. In contrast, the indirect effects of sense of control ($b = -0.02, 95\% \text{ CI: } -0.07 \text{ to } 0.01, p > 0.05$) and neuroticism ($b = -0.01, 95\% \text{ CI: } -0.05 \text{ to } 0.02, p > 0.05$) did not reach statistical significance, refuting H₃ and H₄.

To ascertain whether the mediation was full or partial, we followed the criteria outlined by Iacobucci et al. (2007). Full mediation is

indicated when only the indirect effect is significant, whereas partial mediation is evident when both direct and indirect effects are significant. Given the significant direct and indirect effects observed for perceived stress, it is concluded that perceived stress partially mediates the association between social isolation and risk-taking behavior. We also calculated the total effect of social isolation on risk-taking behavior by summing the direct and indirect effects, wherein the inclusion of the indirect effect through perceived stress increased the total effect ($b = 0.19, 95\% \text{ CI: } 0.06 \text{ to } 0.30, p < 0.01$).

Post-hoc analysis. We conducted two follow-up analyses to explore whether the mechanisms of sense of control and neuroticism could mediate the relationship between social isolation and risk-taking behavior in scenarios excluding perceived stress. In the first additional SEM, we tested sense of control as the sole mediator between social isolation as the independent variable and risk-taking behavior as the dependent variable. This model demonstrated a good fit: $\chi^2 (18) = 44.82, p < 0.001$; CFI = 0.98 (≥ 0.90); TLI = 0.97 (≥ 0.90); IFI = 0.98 (≥ 0.90); GFI = 0.95 (≥ 0.90); RMSEA = 0.083 (≈ 0.08). However, the results indicated that sense of control did not significantly mediate the relationship between social isolation and risk-taking behavior ($b = -0.02, 95\% \text{ CI: } -0.06 \text{ to } 0.01, p > 0.05$). In the second SEM, where neuroticism was positioned as the mediator between the same independent and dependent variables, the model also showed good fit: $\chi^2 (30) = 59.43, p < 0.001$; CFI = 0.98 (≥ 0.90); TLI = 0.97 (≥ 0.90); IFI = 0.98 (≥ 0.90); GFI = 0.95 (≥ 0.90); RMSEA = 0.068 (≤ 0.08). Similarly, the findings from this analysis revealed that neuroticism did not mediate the relationship ($b = -0.01, 95\% \text{ CI: } -0.05 \text{ to } 0.01, p > 0.05$).

These results from both structural models indicate that neither sense of control nor neuroticism acts as a mediator in the relationship between social isolation and risk-taking behavior when perceived stress is not considered in the model. Thus, the initial findings that perceived stress acts as a mediator are further underscored by the lack of mediation by the other two variables when analyzed independently.

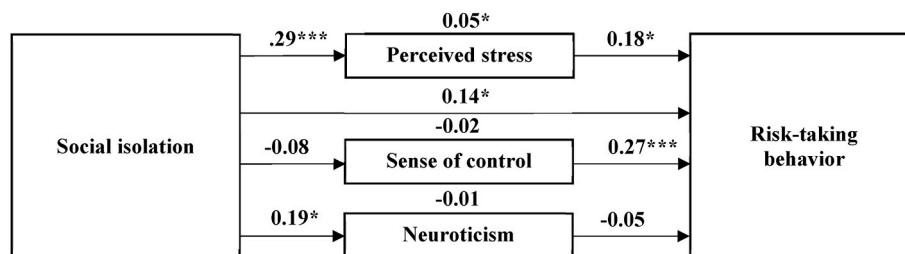


Fig. 2. Structural model

Notes: Total effect through perceived stress: $b = 0.19, 95\% \text{ CI: } 0.06 \text{ to } 0.30, p < 0.01$. Indirect effect through perceived stress: $0.05, 95\% \text{ CI: } 0.01 \text{ to } 0.12, p < 0.05$. Indirect effect through sense of control: $-0.02, 95\% \text{ CI: } -0.07 \text{ to } 0.01, p > 0.05$. Indirect effect through neuroticism: $-0.01, 95\% \text{ CI: } -0.05 \text{ to } 0.02, p > 0.05$. * = $p < 0.05$. ** = $p < 0.01$. *** = $p < 0.001$.

5. Discussion

This study explored how social isolation impacts risk-taking behavior in purchase scenarios, particularly under conditions enforced by the pandemic, and to identify the underlying mechanisms driving these behaviors. Our analysis focused on the propensity of individuals feeling socially isolated to engage in the risk-taking behavior of purchasing cryptocurrency, along with the psychological drivers behind this inclination.

Social isolation and risk-taking behavior. The findings corroborate the predicted main effect that social isolation directly influences the risk-taking behavior of purchasing cryptocurrency. Specifically, we observed that increased feelings of social isolation correlate positively with a greater likelihood of individuals engaging in cryptocurrency transactions. This association is supported by [Duclos et al. \(2013\)](#) and [Lyngdoh et al. \(2023\)](#), who likewise report that social isolation can lead to heightened risk-taking behaviors, such as a preference for riskier lotteries and the propensity to share personal information on social media platforms. The results further align with the hypothesis that individuals with limited financial expertise might be particularly attracted to the high-risk and largely unregulated nature of cryptocurrencies ([Martin et al., 2022b](#)). Moreover, the ease of access provided by online platforms facilitates the engagement of socially isolated individuals in cryptocurrency markets ([Hollebeek et al., 2021](#)), offering them a means to potentially counteract feelings of isolation or regain a sense of control ([Steinmetz, 2023](#)). Thus, the direct effect of social isolation on risk-taking behavior underscores the complex interplay between psychological distress and decision-making, suggesting that social isolation not only *increases susceptibility to high-risk ventures* but also possibly serves as a *catalyst for seeking change or novelty as a coping mechanism*.

Perceived stress as a significant mediator. The results identify perceived stress as a positive and partial mediating factor between feelings of social isolation during the COVID-19 pandemic and risk-taking behavior (i.e., purchasing cryptocurrency), thus aligning with [Li et al. \(2022\)](#) and [Nkire et al. \(2021\)](#). Overall, this result suggests that social isolation can significantly elevate perceived stress, thereby increasing risk-taking behaviors ([Hengen and Alpers, 2021](#)). A plausible explanation for the significant mediating role of perceived stress, despite the non-significant mediating effect of sense of control, could relate to the psychological concept of *stress-induced impulsivity*. Research suggests that heightened stress levels can impair decision-making processes, leading individuals to make more impulsive decisions, including financial ones ([Porcelli, 2009](#); [Porcelli and Delgado, 2009](#)). In the context of cryptocurrency, which is perceived as a high-risk but high-reward investment ([Kumar et al., 2024](#); [Shahzad et al., 2024](#)), the stress induced by social isolation may push individuals toward making quicker, less deliberated investment decisions as a way to regain a sense of agency or potential financial gain. Moreover, the *activation of the fight-or-flight response under stress* might also explain this phenomenon. When individuals perceive a threat—such as the social and economic threats posed by a pandemic—their physiological and psychological stress responses are heightened, which can shift their behavior toward taking more risks as a way to “fight,” asserting control in other areas of their life when their general environment feels uncontrollable ([McCarty, 2016](#)). This might be particularly relevant in scenarios where traditional coping mechanisms or the ability to exert control are limited, as might be the case during prolonged periods of isolation. Moreover, the allure of cryptocurrencies as a novel and somewhat speculative asset might also play into *cognitive biases heightened by stress*, such as overconfidence or the illusion of control—where stressed individuals overestimate their ability to influence or benefit from volatile markets ([Rahman and Gan, 2020](#)). This aspect of stress influencing financial decisions could be particularly pronounced in individuals with limited direct control over their immediate social or professional environments during the pandemic. Therefore, the significant effect of perceived stress on risk-taking behaviors related to cryptocurrency purchasing can be attributed to a combination

of *stress-induced impulsivity, activation of the fight-or-flight response, and heightened susceptibility to cognitive biases under stress*, which are not necessarily mitigated by a sense of control over the situation.

Sense of control as a non-significant mediator. The results diverge from our initial hypotheses based on earlier studies suggesting that social isolation reduces one’s sense of control ([Su et al., 2017](#)), potentially leading to increased risk-taking behavior ([Freeman and Muraven, 2010](#)). This discrepancy may stem from the *complexities involved in assessing sense of control* during periods of isolation. Unlike the direct emotional impact that triggers perceived stress, sense of control involves more layered cognitive evaluations ([Wang et al., 2021](#)). It is possible that individuals engage in various coping mechanisms, such as seeking social support or practicing mindfulness, to mitigate the effects of isolation on their perceived control. These adaptive strategies could dilute the influence of social isolation on sense of control, resulting in its non-significant mediation effect in our study. Moreover, the *variability in individual adaptability and resilience* could also explain the non-significant results. Individuals with high resilience may better maintain their sense of control ([Morrison and Pidgeon, 2017](#)) despite facing adverse conditions like social isolation, which would diminish the expected negative effects on risk-taking behavior. Alternatively, the baseline levels of perceived control may be inherently low due to *pre-existing psychological conditions or life stressors* unrelated to the pandemic for other individuals ([Vally et al., 2023](#)). For these individuals, any further decrease in sense of control due to social isolation might not be as impactful or might be masked by other dominating psychological dynamics. Moreover, sense of control might also not directly translate to risk-taking behavior as straightforwardly as perceived stress. While stress can provoke immediate and emotional responses conducive to risk-taking ([Porcelli, 2009](#); [Porcelli and Delgado, 2009](#)), the effect of a diminished sense of control might be more subtle or delayed, influencing long-term planning or decision-making patterns ([Moeini-Jazani et al., 2019](#)) rather than spontaneous high-risk behaviors, thereby underscoring the *inherent misalignment between sense of control and risk*. Finally, the *temporal dynamics* of sense of control could also be influential. As the COVID-19 pandemic, which was declared in 2020, progressed, individuals might have adapted to the “new normal” (at the time of data collection in 2022), regaining a sense of control over time, which could reduce the immediacy and strength of its impact on decision-making behaviors like purchasing cryptocurrency. Thus, the insignificant mediating effect of sense of control on the relationship between social isolation caused by the pandemic and risk-taking behavior related to cryptocurrency purchasing may be attributed to a combination of *complexities involved in assessing sense of control, individual differences in adaptability and resilience, pre-existing psychological conditions or life stressors, inherent misalignment between sense of control and risk, and temporal dynamics related to sense of control*.

Neuroticism as a non-significant mediator. While pandemic-induced social isolation has been reported to exacerbate neuroticism ([Mour-elatos, 2023](#)), potentially leading to risk-prone decisions ([Buelow and Cayton, 2020](#)), our study did not find significant mediation effects of neuroticism on the risk-taking behavior of purchasing cryptocurrency. This might be due to the *predominant influence of immediate stressors* overshadowing the mediating role of neuroticism, as individuals may focus more on immediate emotional distress rather than underlying personality traits when making investment decisions in crisis or uncertain situations ([Loxton et al., 2020](#)). Alternatively, the non-significant effect of neuroticism could also be explained by the *heterogeneous nature of the cryptocurrency market* ([Fung et al., 2022](#)), which may appeal differently to highly neurotic individuals under different conditions. For instance, while neuroticism typically heightens sensitivity to threat and risk ([Hirsh and Inzlicht, 2008](#)), the volatile and somewhat anonymized nature of cryptocurrency markets could paradoxically offer a sense of detachment or escapism for individuals feeling socially isolated, thereby mitigating the usual risk-averse tendencies associated with high neuroticism. Individuals high in neuroticism also have a greater

tendency to experience decision paralysis when faced with high-risk choices (Wang, 2024), potentially leading to inaction rather than active risk-taking. This could further dilute any clear patterns of risk-taking behavior linked to neuroticism in such a complex investment landscape. Therefore, the insignificant mediating effect of neuroticism on the relationship between social isolation caused by the pandemic and risk-taking behavior related to cryptocurrency purchasing may be associated with the *predominant influence of immediate stressors* and the *heterogeneous nature of the cryptocurrency market*.

(Continuing) relevance of insights. While acknowledging that the acute phase of the COVID-19 pandemic has subsided, it is crucial to underscore the generalizability of these findings beyond this specific temporal context. Research indicates that the psychological implications of significant events often endure well beyond their immediate occurrences (Li et al., 2023; Siddiqi et al., 2022; Verhoef et al., 2023). Consequently, feelings of social isolation and stress can persist, exerting a lasting influence on consumer behavior even after the conclusion of the precipitating event (Wang, 2023). This underscores the timeless nature of these phenomena, suggesting that the insights from our study retain relevance beyond the pandemic's specific timeframe.

Moreover, sources of social isolation can arise from various circumstances unrelated to pandemics, such as excessive technology and social media usage (Al-Kandari and Al-Sejari, 2021). Moreover, stress can manifest in different non-pandemic situations, including academic pressures, financial uncertainties, health crises, natural disasters, and work-related challenges (Hollebeek et al., 2023a; Canboy et al., 2023; Liu et al., 2023). These contexts can also provoke risk-taking behaviors similar to those observed in our study concerning cryptocurrency investments, which have been documented in various situations beyond the pandemic (Martin et al., 2022a).

Therefore, the findings possess broad applicability to a range of non-pandemic contexts, reflecting the pervasive influence of social isolation and stress on consumer behavior across different scenarios. In light of these considerations, we advocate for subsequent research that tests the generalizability of these findings in diverse contexts to enhance understanding of these psychological impacts and underscore the broader relevance of these insights. Future studies could explore how these dynamics play out across different cultures, socio-economic settings, and during various types of global or personal crises, further enriching understanding of the complex interplay between social isolation, stress, and risk-taking behavior.

5.1. Theoretical contributions

This study makes significant theoretical contributions to the fields of consumer behavior and social psychology, as well as behavioral finance and crisis management, by leveraging compensatory control theory (Kay et al., 2008), transactional model of stress and coping (Lazarus and Folkman, 1984), conservation of resource theory (Hobfoll, 1989), and big five personality traits (Costa and McCrae, 1992; Digman, 1990) to explain how social isolation shapes risk-taking behavior, and the roles of perceived stress, sense of control, and neuroticism in this relationship.

First and foremost, this study extends the generalizability of the direct effects of social isolation on risk-taking behavior, previously documented in non-purchase scenarios (e.g., sharing of personal information on social media; Lyngdoh et al., 2023) to one involving the purchase of cryptocurrency. In doing so, this study also pioneers the exploration of indirect effects of social isolation mediated through perceived stress, expanding on the transactional model of stress and coping (Lazarus and Folkman, 1984). This adds a new dimension to our understanding of how individuals appraise and respond to stressors in a crisis, adjusting their behaviors in ways that reflect both the immediate stress response and a broader attempt to regain control over their environment.

The findings also highlight the role of perceived stress as a critical mediator in the dynamics of risk-taking behavior, substantiating that

heightened stress during periods of enforced isolation can lead to individuals to engage in riskier financial behaviors as a form of compensatory control (Kay et al., 2008). This insight is crucial for developing models that predict consumer behavior under stress and provides a foundation for interventions aimed at mitigating undue risk-taking.

Moreover, we delve into the nuances of how sense of control and neuroticism interact within the relationship of social isolation and risk-taking behavior. Despite the non-significant mediating effect of sense of control and neuroticism, our exploration contributes to the literature by suggesting that the presence of significant stress can override the traditional risk aversion that might be mediated through these constructs. This finding challenges and refines existing theories like the conservation of resources theory (Hobfoll, 1989), which posits that individuals strive to protect their resources (e.g., sense of control) in stressful situations. Our results suggest that when under significant stress, individuals might prioritize immediate coping mechanisms over long-term resource conservation, leading to behaviors that might ordinarily be considered inconsistent with their personality traits or usual risk thresholds.

Furthermore, this study substantially advances the cryptocurrency literature by methodically exploring how feelings of social isolation during the COVID-19 pandemic influence investment decisions within this volatile market. We offer novel empirical insights into the psychological factors driving cryptocurrency adoption during a global crisis, thereby extending existing work in this space (Anaza et al., 2024; Kim, 2021; Martin et al., 2022b). By unveiling the complex relationship between social isolation, perceived stress, and cryptocurrency purchasing behavior, this study fills a notable void in existing research and provides a deeper understanding of how crises can alter financial behaviors (Erjavec and Manfreda, 2022; Martin et al., 2022b).

The earlier and later discussion herein also collectively broadens the potential application of these insights and the range of theories underpinning them beyond the pandemic, suggesting that the psychological impacts of social isolation and stress on decision-making are not confined to health crises but could also apply to other stress-inducing scenarios such as economic downturns, personal crises, and technological disruptions. This extension is supported by our review of the broad range of contexts in which risk-taking behavior occurs, from the relatively low involvement of purchasing lotteries (Duclos et al., 2013) to high involvement activities like cryptocurrency trading (Shahzad et al., 2024).

Moreover, by integrating these theoretical insights in a cohesive framework, this study not only underscores the complexity of risk-taking behavior in times of crisis but also offers a robust template for future research to explore the interplay of psychological factors in other forms of crisis-induced isolation and stress. This can help in designing more effective advisories and interventions that are tailored to the needs of individuals experiencing isolation and stress.

Finally, this study illustrates how pandemics—and potentially other large-scale crises—can spur interest in digital assets among consumers. As individuals grapple with feelings of disconnection and uncertainty, the allure of digital currencies may represent a novel means of engagement and empowerment. This finding builds upon previous research showcasing the pandemic's impact on consumer behavior and preferences and emphasizes the growing importance of understanding digital economies in behavioral research (Byun et al., 2023; Merdin-Uygur and Ozturkcan, 2023).

5.2. Managerial implications

This study provides crucial insights that can assist professionals across various sectors in understanding and mitigating the impacts of social isolation on risk-taking behavior. This approach aligns with stakeholder theory (Mahajan et al., 2023), emphasizing the importance of considering the diverse influences and outcomes of managerial decisions on multiple stakeholders.

First, *advisors* (e.g., financial consultants) are better equipped to understand the psychological triggers, such as social isolation and perceived stress, that could influence their clients' decision-making process. Recognizing these factors can lead to more empathetic and effective client interactions, where advisors proactively address emotional drivers of decision-making. For instance, advisors could implement more personalized communication and advisory strategies during times of crisis to better manage clients' stress levels and prevent hasty decisions.

Second, *marketers* (e.g., agents, promoters), especially those in high-risk products like cryptocurrencies, can use these insights to tailor their strategies. Knowing that social isolation can increase interest in such products, marketers can design campaigns that do more than just sell a product; they can provide a sense of community and connection. Marketing strategies could include creating online forums or webinars that not only educate but also connect potential customers, thereby reducing feelings of isolation and fostering a more informed customer base.

Third, for *policymakers* (e.g., government agencies, lawmakers), this study underscores the importance of considering the broader psychological impacts of social isolation when designing economic and public health policies. Policies could be crafted to support economic stability and mental health by integrating access to financial advice and psychological support into public health responses, especially during or following crises that lead to widespread social isolation.

Fourth, this study highlights the need for *businesses* to consider the psychological well-being of their consumers or clients. They could develop tools and resources that help individuals understand and manage their risks in stressful situations. These tools could range from stress management workshops to planning apps that incorporate behavioral insights to encourage informed decision-making and prudent behaviors.

Finally, the study's insights also extend to the development of regulatory frameworks for emerging technologies and platforms. *Regulators* can use this knowledge to ensure that new products, like cryptocurrencies, have robust consumer protections that consider the psychological factors affecting consumer decisions. This is particularly important to mitigate the risks associated with impulsive or poorly considered decisions that might be exacerbated by social isolation.

Collectively, our findings offer pertinent managerial implications. They offer a framework for professionals across various fields to approach the challenges posed by social isolation and stress with strategies that not only mitigate risk but also enhance consumer well-being. This approach not only aids in navigating current challenges but also prepares individuals and organizations for future crises that may disrupt social norms and influence consumer behavior.

5.3. Limitations and future research

This study contributes valuable insight into the relationship between social isolation and risk-taking behavior in the context of cryptocurrency investment during the COVID-19 pandemic. However, there are several limitations that offer avenues for further investigation.

First, while this study provides an in-depth analysis of enforced social isolation due to COVID-19, social isolation can arise in various other contexts that are not induced by pandemics. Future research could explore social isolation resulting from non-enforced situations such as changes in social habits due to technology use, urban living, and voluntary seclusion. Contexts or situations characterized by excessive technology and social media usage, where social isolation occurs (Al-Kandari and Al-Sejari, 2021), would also be worthwhile exploring. Examining these different contexts could enhance the generalizability of our findings and offer a broader understanding of how social isolation impacts behavior in less extreme, everyday circumstances.

Second, our study focused on the intention to purchase cryptocurrency as a measure of risk-taking behavior. However, intentions do not always translate directly into actual behavior (Lim and Weissmann,

2023). Future studies should consider examining actual behavior, such as real investment transactions, including the frequency of risky behavior. This approach would provide a more concrete understanding of how social isolation affects actual behavior and could explore factors like the recurrence of such behavior over time.

Third, while our cross-sectional design provided a snapshot of the effects of social isolation during the COVID-19 pandemic, it is limited in its ability to track changes over time. A longitudinal approach could compare pre- and post-pandemic behavior, offering insights into the lasting impacts of social isolation on financial decisions. Such an approach would also be valuable in understanding the dynamics of consumer behavior in anticipation of or response to potential future pandemics or similar global crises (Behl et al., 2022).

Fourth, the findings on the mediating roles of perceived stress, sense of control, and neuroticism present mixed results. While perceived stress was a significant mediator, sense of control and neuroticism were not. Future research should further explore these relationships, possibly incorporating experimental designs to manipulate social isolation and test its direct effects on these mediators. This could help clarify the causal pathways and confirm the roles of these psychological factors in decision-making processes.

Fifth, considering other potential antecedents and moderators could enrich the current model. For example, distrust in governmental stability, increased online engagement, and shifts toward remote work could influence the turn toward digital assets like cryptocurrency. Including marketing variables such as brand familiarity (Treiblmaier and Garaus, 2023) and product types (e.g., bonds, cryptocurrencies, non-fungible tokens, stocks) (Kim, 2021; Kumar et al., 2024; Martin et al., 2022b) and psychological factors like fear of missing out (Lim et al., 2023a) could yield deeper insights into the complex interplay between social isolation and risk-taking behavior.

Finally, extending the sample to include both investors and non-investors in cryptocurrency could uncover nuanced differences in how social isolation impacts those already engaged with these financial products compared to those not yet involved.

Overall, while this study lays the groundwork for understanding the impact of social isolation on risk-taking behavior through the lenses of COVID-19 and cryptocurrency, the scope for further research is vast and varied. Future studies are encouraged to build on this foundation, exploring the enduring effects of social isolation and broadening the contexts to include a wider range of socioeconomic circumstances.

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CRediT authorship contribution statement

Thusyanthy Lavan: Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Brett A.S. Martin:** Writing – review & editing, Supervision. **Weng Marc Lim:** Writing – review & editing, Conceptualization, Supervision. **Linda D. Hollebeek:** Writing – review & editing, Supervision, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Appendix. Measurement items

Perceived stress

In the past month, how frequently have you ...

- PS1... been upset because of something that happened unexpectedly?
- PS2. ... felt that you were unable to control the important things in your life?
- PS3. ... felt that things were going your way? ^a
- PS4. ... found that you could not cope with all the things that you had to do?
- PS5. ... been angered because of things that were outside of your control?
- PS6. ... felt difficulties were piling up so high that you could not overcome them?
- been able to control irritations in your life? ^{a, b}
- felt confident about your ability to handle your personal problems? ^{a, b}
- felt nervous and "stressed"? ^b
- felt that you were on top of things? ^{a, b}

Sense of control

- SE1. I can do just about anything I really set my mind to.
- SE2. When I really want to do something, I will find a way to succeed at it.
- SE3. There is little I can do to change the important things in my life. ^a
- SE4. Other people determine most of what I can and cannot do. ^a
- I often feel helpless in dealing with the problems of life. ^{a, b}
- What happens in my life is beyond my control. ^{a, b}

Neuroticism

- NE1. I see myself as someone who is relaxed, handles stress well. ^a
- NE2. I see myself as someone who can be tense.
- NE3. I see myself as someone who worries a lot.
- NE4. I see myself as someone who is emotionally stable, not easily upset. ^a
- NE5. I see myself as someone who remains calm in tense situations. ^a
- NE6. I see myself as someone who gets nervous easily.
- I see myself as someone who can be moody. ^b
- I see myself as someone who is depressed, blue. ^b

Risk-taking behavior

- RTB1. Unlikely-likely.
- RTB2. Definitely would not-definitely would.
- RTB3. Improbable-probable.

Notes.

^aItem reverse coded.

^bItem deleted because of higher standardized residuals (>2.5) and these deleted items were not labeled/numbered.

References

- Al-Kandari, Y., Al-Sejari, M., 2021. Social isolation, social support and their relationship with smartphone addiction. *Inf. Commun. Soc.* 24 (13), 1925–1943.
- Anaza, N., Upadhyaya, B., Bennett, D., Ruvalcaba, C., 2024. Is it FOMO or is it ME? The influence of personality traits on cryptocurrency consumption. *Psychol. Market.* 41 (1), 184–202.
- Anderson, J., Gerbing, D., 1988. Structural equation modeling in practice: a review and recommended two-step approach. *Psychol. Bull.* 103 (3), 411–423.
- Aytekin, B., Ulusoy, T., 2022. A netnography study examined consumer perception towards cryptocurrency investment during the COVID-19 pandemic. *Business and Management Studies: Int. J.* 10 (4), 1380–1396.
- Behl, A., Nair, A., Mohagaonkar, S., et al., 2022. Threat, challenges, and preparedness for future pandemics: a descriptive review of phylogenetic analysis based predictions. *Infect. Genet. Evol.* 98, 105217 <https://doi.org/10.1016/j.meegid.2022.105217>.
- Bergkvist, L., Rossiter, J., 2007. The predictive validity of multiple-item versus single-item measures of the same constructs. *J. Market. Res.* 44 (2), 175–184.
- Blackman, L., Wang, D., Krase, K., Roberson-Steele, J., Clarke-Jones, A., Attis, L., 2023. Adaptability of older adults at the onset of COVID-19. *High Educ. Res. Dev.* 1–15. <https://doi.org/10.1080/01924788.2023.2230703>.
- Brüns, J., Meißner, M., 2024. Do you create your content yourself? Using generative artificial intelligence for social media content creation diminishes perceived brand authenticity. *J. Retailing Consum. Serv.* 79, 103790.
- Buelow, M., Cayton, C., 2020. Relationships between the big five personality characteristics and performance on behavioral decision making tasks. *Pers. Individ. Differ.* 160, 109931.
- Burger, J., 1989. Negative reactions to increases in perceived personal control. *J. Pers. Soc. Psychol.* 56, 246–256.
- Byun, K., Park, J., Yoo, S., Cho, M., 2023. Has the COVID-19 pandemic changed the influence of word-of-mouth on purchasing decisions? *J. Retailing Consum. Serv.* 74, 103411.
- Caci, B., Miceli, S., Scrima, F., Cardaci, M., 2020. Neuroticism and fear of COVID-19. The interplay between boredom, fantasy engagement, and perceived control over time. *Front. Psychol.* 11 <https://doi.org/10.3389/fpsyg.2020.574393>.
- Campbell, S., 2022. How many people use cryptocurrency in 2023? <https://thesmallbusinessblog.net/how-many-people-use-cryptocurrency/>.
- Canboy, B., Tillou, C., Barzantny, C., Güçlü, B., Benichoux, F., 2023. The impact of perceived organizational support on work meaningfulness, engagement, and perceived stress in France. *Eur. Manag. J.* 41 (1), 90–100.
- Chaker, N., Nowlin, E., Walker, D., Anaza, N., 2021. Alone on an island: a mixed-methods investigation of salesperson social isolation in general and in times of a pandemic. *Ind. Market. Manag.* 96, 268–286.
- Chen, D., Wang, C., Liu, Y., 2023. How household food shopping behaviors changed during COVID-19 lockdown period: evidence from Beijing, China. *J. Retailing Consum. Serv.* 75, 103513.
- Cobb-Clark, D., Dahmann, S., Kettlewell, N., 2022. Depression, risk preferences, and risk-taking behavior. *J. Hum. Resour.* 57 (5), 1566–1604.
- Cohen, J., 1988. *Statistical Power Analysis for the Behavioral Sciences*, 2e. Erlbaum.
- Cohen, S., Williamson, G., 1988. Perceived stress in a probability sample of the United States. In: Spacapan, S., Oskamp, S. (Eds.), *The Social Psychology of Health*. Sage Publications, Inc, pp. 31–67.
- Corbet, S., Larkin, C., Lucey, B., 2020. The contagion effects of the COVID-19 pandemic: evidence from gold and cryptocurrencies. *Finance Res. Lett.* 35, 101554.
- Costa, P., McCrae, R., 1992. Four ways five factors are basic. *Pers. Individ. Differ.* 13 (6), 653–665.
- Crawford, S., Caltabiano, N., 2011. Promoting emotional well-being through the use of humour. *J. Posit. Psychol.* 6 (3), 237–252.
- Degutis, M., Urbonavicius, S., Hollebeek, L., Anselmsson, J., 2023. Consumers' willingness to disclose their personal data in e-commerce: a reciprocity-based social exchange perspective. *J. Retailing Consum. Serv.* 74 (Sept), 103385.
- Diamantopoulos, A., Sarstedt, M., 2012. Guidelines for choosing between multi-item and single-item scales for construct measurement: a predictive validity perspective. *et al. J. Acad. Market. Sci.* 40 (3), 434–449.

- Digman, J., 1990. Personality structure: emergence of the five-factor model. *Annu. Rev. Psychol.* 41, 417–440.
- Duclos, R., Wan, E., Jiang, Y., 2013. Show me the honey! Effects of social exclusion on financial risk-taking. *J. Consum. Res.* 40 (1), 122–135.
- Erjavec, J., Manfreda, A., 2022. Online shopping adoption during COVID-19 and social isolation: extending the UTAUT model with herd behavior. *J. Retailing Consum. Serv.* 65, 102867.
- Fornell, C., Larcker, D., 1981. Evaluating structural equation models with unobservable variables and measurement error. *J. Market. Res.* 18 (1), 39–50.
- Freeman, N., Muraven, M., 2010. Self-control depletion leads to increased risk taking. *Soc. Psychol. Personal. Sci.* 1 (2), 175–181.
- Fung, K., Jeong, J., Pereira, J., 2022. More to cryptos than bitcoin: a GARCH modelling of heterogeneous cryptocurrencies. *Finance Res. Lett.* 47, 102544.
- Grabowski, J., Stepien, J., Wszak, P., et al., 2021. Social isolation during COVID-19 pandemic. Perceived stress and containment measures compliance among Polish and Italian residents. *Front. Psychol.* 12 <https://doi.org/10.3389/fpsyg.2021.673514>.
- Gunther, K., Cohen, L., Armeli, S., 1999. The role of neuroticism in daily stress and coping. *J. Pers. Soc. Psychol.* 77 (5), 1087.
- Hadan, H., Zhang-Kennedy, L., Nack, L., Mäkelä, V., 2024. Comprehending the crypto-curious: how investors and inexperienced potential investors perceive and practice cryptocurrency trading. *Int. J. Hum. Comput. Interact.* <https://doi.org/10.1080/10447318.2023.2239556>.
- Hair, J., Black, W., Babin, B., Anderson, R., 2019. *Multivariate Data Analysis*, eighth ed. Cengage Learning, Boston, MA.
- Haq, I., Maneengam, A., Chupradit, S., Suksatan, W., Huo, C., 2021. Economic policy uncertainty and cryptocurrency market as a risk management avenue: a systematic review. *Risks* 9 (9), 163.
- Hassan, M., Hasan, M., Halim, Z., Maroney, N., Rashid, M., 2022. Exploring the dynamic spillover of cryptocurrency environmental attention across the commodities, green bonds, and environment-related stocks. *N. Am. J. Econ. Finance* 61, 101700. <https://doi.org/10.1016/j.najef.2022.101700>.
- Hayes, A., 2022. *Introduction to Mediation, Moderation, and Conditional Process Analysis a Regression-Based Approach*, third ed. Guilford Press, New York.
- Hengen, K., Alpers, G., 2021. Stress makes the difference: social stress and social anxiety in decision-making under uncertainty. *Front. Psychol.* 12 <https://doi.org/10.3389/fpsyg.2021.578293>.
- Hirsh, J., Inzlicht, M., 2008. The devil you know: neuroticism predicts neural response to uncertainty. *Psychol. Sci.* 19 (10), 962–967.
- Hobfoll, S., 1989. Conservation of resources: a new attempt at conceptualizing stress. *Am. Psychol.* 44 (3), 513–524.
- Hollebeek, L., Hammedi, W., Sprott, D., 2023a. Consumer engagement, stress, and conservation of resources theory: a review, conceptual development, and future research agenda. *Psychol. Market.* 40 (5), 926–937.
- Hollebeek, L., Islam, J., Macky, K., Taguchi, T., Costley, C., 2019. Personality-based consumer engagement styles: Conceptualization, research propositions & implications. In: Hollebeek, L., Sprott, D. (Eds.), *The Handbook of Research on Customer Engagement*. Edward Elgar.
- Hollebeek, L., Kumar, V., Srivastava, R., Clark, M., 2023b. Moving the stakeholder journey forward. *J. Acad. Market. Sci.* 51, 23–49.
- Hollebeek, L., Smith, D., Kasabov, E., et al., 2021. Customer brand engagement during service lockdown. *J. Serv. Market.* 35 (2), 201–209.
- Hollebeek, L., Sprott, D., Urbonavicius, S., Sigurdsson, V., Clark, M., Riisalu, R., Smith, D., 2022. Beyond the big five: the effect of machiavellian, narcissistic, and psychopathic personality traits on stakeholder engagement. *Psychol. Market.* 39 (6), 1230–1243.
- Huang, K.-J., Chang, Y.-H., Landau, M., 2023. Pandemic nostalgia: reduced social contact predicts consumption of nostalgic music during the COVID-19 pandemic. *Soc. Psychol. Personal. Sci.* 15 (1), 12–21.
- Iacobucci, D., Saldanha, N., Deng, X., 2007. A meditation on mediation: evidence that structural equations models perform better than regressions. *J. Consum. Psychol.* 17 (2), 139–153.
- Ikizer, G., Kowal, M., Aldemir, İ., et al., 2022. Big five traits predict stress and loneliness during the COVID-19 pandemic: evidence for the role of neuroticism. *Pers. Individ. Differ.* 190, 111531.
- Islam, J., Rahman, Z., Hollebeek, L., 2017. Personality factors as predictors of online consumer engagement: an empirical investigation. *Market. Intell. Plann.* 35 (4), 510–528.
- Itani, O., Hollebeek, L., 2021. Light at the end of the tunnel: visitors' virtual reality (versus in-person) attraction site tour-related behavioral intentions during and post-COVID-19. *Tourism Manag.* 84, 104290.
- John, O., Srivastava, S., 1999. The big five trait taxonomy: history, measurement, and theoretical perspectives. In: Pervin, L., John, O. (Eds.), *Handbook of Personality: Theory and Research*. Guilford Press, New York, pp. 102–138.
- Kay, A., Gaucher, D., Napier, J., Callan, M., Laurin, K., 2008. God and the government: testing a compensatory control mechanism for the support of external systems. *J. Pers. Soc. Psychol.* 95 (1), 18–35.
- Kim, J., Han, H., Ariza-Montes, A., 2021. The impact of hotel attributes, well-being perception, and attitudes on brand loyalty: examining the moderating role of COVID-19 pandemic. *J. Retailing Consum. Serv.* 62, 102634.
- Kim, M., 2021. A psychological approach to Bitcoin usage behavior in the era of COVID-19: focusing on the role of attitudes toward money. *J. Retailing Consum. Serv.* 62, 102606.
- Kim, Y., Heacock, H., 2021. Effect of social isolation on COVID-19 risk taking behavior. *BCIT Environmental Public Health Journal.* <https://doi.org/10.47339/ephj.2021.189>.
- Kumar, S., Sureka, R., Lucey, B., Dowling, M., Vigne, S., Lim, W., 2024. MetaMoney: exploring the intersection of financial systems and virtual worlds. *Res. Int. Bus. Finance* 68, 102195.
- Lachman, M., Weaver, S., 1998. The sense of control as a moderator of social class differences in health and well-being. *J. Pers. Soc. Psychol.* 74 (3), 763–773.
- Lazarus, R., Folkman, S., 1984. *Stress, Appraisal, and Coping*. Springer, New York.
- Li, J., Zhou, L., Van der Heijden, B., Li, S., Tao, H., Guo, Z., 2022. Lockdown social isolation and lockdown stress during the COVID-19 pandemic in China: the impact of mindfulness. *Front. Psychol.* 13 <https://doi.org/10.3389/fpsyg.2022.778402>.
- Li, O., Qian, D., 2022. An analysis of the relationship between risk perceptions and willingness-to-pay for commodities during the COVID-19 pandemic. *J. Consum. Aff.* 56 (1), 257–275.
- Li, X., Xu, M., Zeng, W., Tse, Y., Chan, H., 2023. Exploring customer concerns on service quality under the COVID-19 crisis: a social media analytics study from the retail industry. *J. Retailing Consum. Serv.* 70, 103157.
- Lim, W.M., 2021a. History, lessons, and ways forward from the COVID-19 pandemic. *Int. J. Qual. Innovat.* 5 (2), 101–108.
- Lim, W.M., 2021b. Toward an agency and reactance theory of crowding: insights from COVID-19 and the tourism industry. *J. Consum. Behav.* 20 (6), 1690–1694. <https://doi.org/10.1002/cb.1948>.
- Lim, W.M., 2022. Toward a theory of social influence in the new normal. *High Educ. Res. Dev.* 46 (1), 1–8.
- Lim, W.M., 2023. Transformative marketing in the new normal: a novel practice-scholarly integrative review of business-to-business marketing mix challenges, opportunities, and solutions. *J. Bus. Res.* 160, 113638.
- Lim, W., Weissmann, M., 2023. Toward a theory of behavioral control. *J. Strat. Market.* 31 (1), 185–211.
- Lim, W.M., Sahoo, S., Agrawal, A., Vijayvargy, L., 2023a. Fear of missing out and revenge travelling: the role of contextual trust, experiential risk, and cognitive image of destination. *J. Trav. Tourism Market.* 40 (7), 583–601.
- Lim, W., Kalantari, H., Perera, C., 2024. Commercial value of panic buying and its marketing implications. *J. Consum. Behav.* <https://doi.org/10.1002/cb.2331>.
- Lim, W., Kumar, S., Pandey, N., Verma, D., Kumar, D., 2023b. Evolution and trends in consumer behaviour: insights from journal of consumer behaviour. *J. Consum. Behav.* 22 (1), 217–232.
- Lindell, M., Whitney, D., 2001. Accounting for common method variance in cross-sectional research designs. *J. Appl. Psychol.* 86 (1), 114–121.
- Liu, N., Zhou, L., Li, A.-M., Hui, Q.-S., Zhou, Y.-R., Zhang, Y.-Y., 2021a. Neuroticism and risk-taking: the role of competition with a former winner or loser. *Pers. Individ. Differ.* 179, 110917.
- Liu, S., Lithopoulos, A., Zhang, C., Garcia-Barrera, M., Rhodes, R., 2021b. Personality and perceived stress during COVID-19 pandemic: testing the mediating role of perceived threat and efficacy. *Pers. Individ. Differ.* 168, 110351.
- Liu, Y., Yu, H., Shi, Y., Ma, C., 2023. The effect of perceived stress on depression in college students: the role of emotion regulation and positive psychological capital. *Front. Psychol.* 14 <https://doi.org/10.3389/fpsyg.2023.1110798>.
- Loxton, M., Trusket, R., Scarf, B., Sindone, L., Baldry, G., Zhao, Y., 2020. Consumer behaviour during crises: preliminary research on how coronavirus has manifested consumer panic buying, herd mentality, changing discretionary spending and the role of the media in influencing behaviour. *J. Risk Financ. Manag.* 13 (8).
- Lyngdoh, T., El-Manstrly, D., Jeesh, K., 2023. Social isolation and social anxiety as drivers of generation Z's willingness to share personal information on social media. *Psychol. Market.* 40 (1), 5–26.
- Mahajan, R., Lim, W., Sareen, M., Kumar, S., Panwar, R., 2023. Stakeholder theory. *J. Bus. Res.* 166, 114104.
- Martin, B., Chrysochou, P., Strong, C., 2022a. Crypto freedom! Effects of trait reactance and regulation content on intention to buy cryptocurrency. *Pers. Individ. Differ.* 194, 111659.
- Martin, B., Chrysochou, P., Strong, C., Wang, D., Yao, J., 2022b. Dark personalities and Bitcoin®: the influence of the Dark Tetrad on cryptocurrency attitude and buying intention. *Pers. Individ. Differ.* 188, 111453.
- McCarty, R., 2016. The fight-or-flight response: a cornerstone of stress research. In: *Stress: Concepts, Cognition, Emotion, and Behavior*. Academic Press, New York, pp. 33–37.
- Merdin-Uygur, E., Ozturkcan, S., 2023. Consumers and service robots: power relationships amid COVID-19 pandemic. *J. Retailing Consum. Serv.* 70, 103174.
- Miller, R., Mulligan, R., 2002. Terror management: the effects of mortality salience and locus of control on risk-taking behaviors. *Pers. Individ. Differ.* 33 (7), 1203–1214.
- Moeini-Jazani, M., Albaloochi, S., Seljeseh, I.M., 2019. Self-affirmation reduces delay discounting of the financially deprived. *Front. Psychol.* 10 <https://doi.org/10.3389/fpsyg.2019.01729>.
- Moldes, O., Dineva, D., Ku, L., 2022. Has the COVID-19 pandemic made us more materialistic? The effect of COVID-19 and lockdown restrictions on the endorsement of materialism. *Psychol. Market.* 39 (5), 892–905.
- Morrison, R., Pidgeon, A., 2017. Cultivating resilience and self-control among university students: an experimental study. *Universal Journal of Psychology* 5 (1), 1–7.
- Mourelatos, E., 2023. How personality affects reaction. A mental health behavioral insight review during the pandemic. *Curr. Psychol.* 42 (10), 8644–8665.
- Nkire, N., Mrklas, K., Hrabok, M., et al., 2021. COVID-19 pandemic: demographic predictors of self-isolation or self-quarantine and impact of isolation and quarantine on perceived stress, anxiety, and depression. *Front. Psychiatr.* 12 <https://doi.org/10.3389/fpsyg.2021.553468>.
- Nunnally, J., Bernstein, I., 1994. *Psychometric theory* (3e). McGraw-Hill.
- Otterbring, T., Folwarczny, M., 2024. Social validation, reciprocity, and sustainable orientation: cultivating “clean” codes of conduct through social influence. *J. Retailing Consum. Serv.* 76, 103612.

- Özdemir, O., 2022. Cue the volatility spillover in the cryptocurrency markets during the COVID-19 pandemic: evidence from DCC-GARCH and wavelet analysis. *Financial Innovation* 8 (1), 12. <https://doi.org/10.1186/s40854-021-00319-0>.
- Park, J., Kim, J., Jhang, J., Lee, J., Lee, J., 2022. The impact of infectious disease threat on consumers' pattern-seeking in sequential choices. *Psychol. Market.* 39 (2), 370–389.
- Phillips, A., 2013. Perceived stress. In: Gellman, M., Turner, J. (Eds.), *Encyclopedia of Behavioral Medicine*. Springer, Cham, Switzerland, pp. 1453–1454. https://doi.org/10.1007/978-1-4419-1005-9_479.
- Podsakoff, P., MacKenzie, S., Lee, J.-Y., Podsakoff, N., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88 (5), 879–903.
- Porcelli, A., 2009. Interactions between Acute Stress and Financial Decision-Making. Rutgers The State University of New Jersey, Graduate School-Newark, New Jersey.
- Porcelli, A., Delgado, M., 2009. Acute stress modulates risk taking in financial decision making. *Psychol. Sci.* 20 (3), 278–283.
- Rahman, M., Gan, S., 2020. Generation Y investment decision: an analysis using behavioural factors. *Manag. Finance* 46 (8), 1023–1041.
- Shahzad, M., Xu, S., Lim, W., Hasnain, M.F., Nusrat, S., 2024. Cryptocurrency awareness, acceptance, and adoption: the role of trust as a cornerstone. *Humanities and Social Sciences Communications* 11 (1), 1–14.
- Shinan-Altman, S., Levkovich, I., 2022. Are personal resources and perceived stress associated with psychological outcomes among Israeli teachers during the third COVID-19 lockdown? *Int. J. Environ. Res. Publ. Health* 19 (9), 5634.
- Siddiqi, U., Akhtar, N., Islam, T., 2022. Restaurant hygiene attributes and consumers' fear of COVID-19: does psychological distress matter? *J. Retailing Consum. Serv.* 67, 102972.
- Soper, D., 2023. A-priori sample size calculator for structural equation models [Software]. <https://www.danielsoper.com/statcalc>.
- Statista, 2024. Overall cryptocurrency market capitalization per week from July 2010 to March 2024. <https://www.statista.com/statistics/730876/cryptocurrency-market-value/>.
- Steinmetz, F., 2023. The interrelations of cryptocurrency and gambling: results from a representative survey. *Comput. Hum. Behav.* 138, 107437.
- Su, L., Jiang, Y., Chen, Z., Dewall, C., 2017. Social exclusion and consumer switching behavior a control restoration mechanism. *J. Consum. Res.* 44 (1), 99–117. <https://www.jstor.org/stable/26570373>.
- Treiblmaier, H., Garaus, M., 2023. Using blockchain to signal quality in the food supply chain: the impact on consumer purchase intentions and the moderating effect of brand familiarity. *Int. J. Inf. Manag.* 68, 102514.
- Tsai, C., Zeng, Y., 2021. Risky but alluring: severe COVID-19 pandemic influence increases risk taking. *J. Exp. Psychol. Appl.* 27 (4), 679–694.
- Vally, Z., Helmy, M., Fourie, L., 2023. The association between depression and addictive social media use during the COVID-19 pandemic: the mediating role of sense of control. *PLoS One* 18 (9), e0291034.
- Verhoef, P., Noordhoff, C., Sloot, L., 2023. Reflections and predictions on effects of COVID-19 pandemic on retailing. *J. Serv. Manag.* 34 (2), 274–293.
- Wang, J., 2023. The relationship between loneliness and consumer shopping channel choice: evidence from China. *J. Retailing Consum. Serv.* 70, 103125.
- Wang, K., Yang, H.-Y., Delgado, M., 2021. How perception of control shapes decision making. *Current Opinion in Behavioral Sciences* 41, 85–91.
- Wang, Y., 2024. Personality drives leaders' decision-making. In: *Leaders' Decision Making and Neuroscience: what Are You Thinking?* Emerald, Leeds, pp. 63–72.
- Westland, J.C., 2010. Lower bounds on sample size in structural equation modeling. *Electron. Commer. Res. Appl.* 9 (6), 476–487.
- Yahya, F., Shaohua, Z., Abbas, U., Waqas, M., 2024. COVID-19-induced returns, attention, sentiments and social isolation: evidence from dynamic panel model. *Global Bus. Rev.* <https://doi.org/10.1177/0972150921996174>.
- Yoon, D., Gallo, H., Gassoumis, Z., Joo, S., 2023. The mediating role of sense of control in the associations between remote contacts and loneliness among older adults. *Res. Aging* 46 (2), 167–175.
- Zanini, D., Peixoto, E., Andrade, J., Tramonte, L., 2021. Practicing social isolation during a pandemic in Brazil: a description of psychosocial characteristics and traits of personality during COVID-19 lockdown. *Frontiers in Sociology* 6. <https://doi.org/10.3389/fsoc.2021.615232>.
- Zhang, D., Fan, M., Meng, L., Zheng, X., 2022. Neuroticism and fear of COVID-19 during the COVID-19 pandemic: testing the mediating role of intolerance of uncertainty and sense of control among Chinese high school students. *Front. Psychol.* 13 <https://doi.org/10.3389/fpsyg.2022.1010767>.
- Zhao, H., Zhang, L., 2021. Financial literacy or investment experience: which is more influential in cryptocurrency investment? *Int. J. Bank Market.* 39 (7), 1208–1226.