



Impact of digital burnout on the use of digital consumer platforms[☆]

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ABSTRACT

As digital transition processes occur at a high speed, new models and business opportunities are emerging. One such phenomenon is the explosion of digital consumer platforms that are changing consumption patterns, as well as the boundaries of commercial exchange. The onset of the COVID-19 pandemic resulted in exponential growth of this consumption model, while the motivation for the use of digital platforms intensified. The intensive use of digital devices also threatens the mental health of digital users, enhancing states of stress, anxiety, and digital burnout. Therefore, this study analyses the effects of motivators and digital burnout on customers' use of digital platforms in a post-pandemic context. The sample comprised 202 participants who voluntarily completed a web-based survey. The digital burnout level of the study participants was lower than the theoretical midpoint of the scale and was significantly influenced by their Internet Addiction. Contrary to expectations, digital burnout has a significant positive effect on the use of digital consumer platforms, which is partially mediated by utilitarian motivation. The results highlight the need to consider predictors that potentially lead to digital burnout in consumers and the subsequent identification of the necessary factors to ensure the prevention and management of digital burnout.

1. Introduction

The digital variant of burnout syndrome is an impactful emergent problem that gained prominence and rapidly intensified during the COVID-19 pandemic, when the world witnessed an overwhelming use of internet consumption as people turned to digital platforms to enable work, leisure, and social activities, while companies, businesses, and schools had to close their doors (Sharma et al., 2020). The concept of digital burnout has been identified as a syndrome in which individuals may experience physical, psychological, and social problems due to their excessive use of digital sources, including low levels of productivity, fatigue, an incapacity to control their emotions, and an inability to cope with their routine (Erten and Özdemir, 2020). As a result, the digital world has taken on a dual role, enabling connectivity, productivity, interactions, and access to information, goods, and services, while simultaneously contributing to digital exhaustion and stress.

Online shopping was one of the activities that experienced a significant increase, largely facilitated by digital consumer platforms (DCP). It is a useful, convenient, and safe way to purchase goods and services

during a period of lockdown, mandatory teleworking, and fear of infection (Inoue and Todo, 2023; Mason et al., 2020). Over the last few decades, digital platforms have proven to be an effective business model, enabling companies to expand their sales of goods and services across the most diverse sectors of activity as an alternative method of selling (Reinartz et al., 2019a, 2019b; Ata et al., 2022). Similarly, these companies' values are directly related to the number of users accessing their services through digital devices (Bonina et al., 2021). For this reason, several researchers have attempted to identify the motivators that influence people to use DCP rather than stationary channels for consumption (e.g., Babin et al., 1994; Martínez-López et al., 2014; Osei-Frimpong, 2019). Among those motivators identified, it is possible to highlight the 'utilitarian motivators', which include autonomy, convenience, and ease of access (Martínez-López et al., 2014; Osei-Frimpong, 2019), as well as the 'hedonic motivators', namely the enjoyment and the emotional value of shopping (Babin et al., 1994).

The subsequent excessive use of digital devices poses a threat to individuals' mental health and overall well-being (Bosanac and Luic, 2021), leading to stress, fatigue, loneliness, depression, and addiction

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(Bozkurt and Sharma, 2020; Kurniasanti et al., 2019; Mäkinen et al., 2021). In critical situations, a lack of digital literacy can worsen stress and frustration associated with the use of digital media (Wang et al., 2021). Internet addiction is a consequence of the constant use of the Internet and digital devices, where an imbalance occurs and serious psychological problems, namely digital burnout, can be triggered (Karddefelt-Winther, 2014).

Despite literature suggesting that the use of DCP for online shopping has decreased with the lifting of pandemic restrictions (Inoue and Todo, 2023), the effect of digital burnout syndrome on individuals' use of such digital platforms remains unknown. Based on a sample of Portuguese participants, this study aims to fill this research gap by examining the effects of digital burnout on the frequency of shopping through DCP in the aftermath of the pandemic, in which physical stores are now open despite the continued intense use of digital technologies. Building on the complexity and multifaceted nature of the burnout syndrome, this study takes inspiration from the existence of coping strategies, which emerge as a common thread across various complementary theories (Edú-Val-sania et al., 2022). The principles of digital detox, digital disconnection, and unplugging (e.g., Morris and Pickens, 2017; Radtke et al., 2022; Nassen et al., 2023) are coping strategies that allow us to explore whether individuals dealing with the negative effects of excessive digital consumption, namely digital burnout, would intentionally reduce their activities on online platforms, such as online shopping, which can be easily replaced by traditional shopping channels, resulting in reduced online shopping behaviours. Following this transition, this study aims to explore the influence of Internet addiction and digital literacy on the development of digital burnout, as well as to understand the mediation effect of utilitarian motivations on online shopping frequency.

This study makes valuable contributions to the understanding of digital burnout and its relationship with online consumption. This reveals that digital burnout remains more frequent among digitally exhausted individuals and is more influenced by Internet addiction than by digital literacy. Utilitarian motivations can act as rational reflections that reduce impulsive purchases. Considering these results, retailers can benefit from developing communication strategies that prioritize social responsibility in the online shopping process. This study calls attention to the importance of monitoring and managing Internet usage to achieve a more balanced and healthier relationship with digital technology.

In the following section, we present a literature review underlying the motivators for the use of DCP and identify the variables that potentially contribute to digital burnout in consumers. Following this review, we present the research hypotheses and models. After discussing the results, we conclude by summarising the key findings and emphasising the main implications for theory and practice. Finally, we address the limitations and directions for further research.

2. Literature review

2.1. Digital consumer platforms

The global evolution of technological innovation has facilitated numerous digital transformation processes in various areas. In the organizational context, digital transformation involves significant changes that combine "information, computing, communication, and connectivity technologies" (Vial, 2019, p.118). Nevertheless, digital transformation processes encompass more than just the adoption of new technologies (Porter and Heppelmann, 2015; Khan and Tao, 2022), as they require changes in key areas such as strategy, business processes, business models, or social capital (Arribas and Alfaro, 2018; Dery et al., 2017; Porter and Heppelmann, 2015; da Fonseca et al., 2023; Troilo, 2023; Lyu et al., 2022). As a result, organisations benefit not only by simplifying procedures in the entire value chain but also by facilitating connections that generate more efficient business models (Mahraz et al., 2019; Riasanow et al., 2018; Vial, 2019; Kanski and Pizon, 2023).

From the customer's perspective, these processes enable greater

interaction with the organisation, which in turn can deliver better and more targeted services and thus provide a superior level of service quality (Bouwman et al., 2019; Huang et al., 2017; Reinartz et al., 2019a, 2019b; Jiang and Stylos, 2021). Accordingly, specific digital tools, known as 'digital platforms', need to be developed if these changes are to be brought about (Hossain and Lassen, 2017). Gawer and Cusumano (2014, p. 420) defined platforms as "products, services, or technologies developed by one or more firms, and which serve as foundations upon which a larger number of firms can build further complementary innovations and potentially generate network effects". These technology-based tools enable actors (internal and external) to share information, develop products, and match supply and demand (Veile et al., 2022). This enhances consumers' and suppliers' interconnections, increases their online consumption, and facilitates trading in different channels, namely business-to-consumer (B2C), business-to-business (B2B), and consumer-to-consumer (C2C) (Spagnolletti et al., 2015; de Reuver et al., 2018; Jiang and Stylos, 2021).

Among the various types of platforms suggested in the literature, transactional platforms aim to transact products and services among different users, buyers, and suppliers (e.g., Cusumano et al., 2019; Evans and Gawer, 2016). These platforms can be further categorised according to their main purpose, such as social media platforms, e-commerce, the 'gig' economy platforms, online portals, and app stores (Bonina et al., 2021). To overcome the diversity of nomenclatures and types of platforms, the term 'digital consumer platforms' (DCP) is used in this study to refer to all transactional platforms that share the common objective of exchanging products and services.

DCP acts as alternative sales channels, disrupting traditional consumer behaviour, by inspiring millions of people to interact and exchange goods, services, or social currency to a level never experienced before (Parker and Van Alstyne, 2017; Reinartz et al., 2019a, 2019b; Nyagadza et al., 2023). In addition, global access to the Internet and technological development has led individuals to spend more time in the virtual world (Singh et al., 2022). The key characteristic of network effects is that platforms become more valuable as the number of users increases. Therefore, it is crucial that the platform can efficiently motivate the combination of sellers and buyers in the market to create value (Evans and Gawer, 2016; Nyagadza et al., 2023).

2.2. Online shopping motivators

To be successful and profitable in the DCP, companies must attract digital consumers (Bonina et al., 2021). Together with the study of human behaviour and its decision-making process, understanding motivating factors and online buying patterns has now become key in the digital world, both for marketing professionals and retailers alike (Kumar and Kashyap, 2018).

Motivation is defined as the result of both internal needs and external stimuli, where greater satisfaction presses the need and energises behaviour towards a goal (Westbrook and Black, 1985). Generically, it is possible to distinguish between two types of motivations for online shopping: 'hedonic' and 'utilitarian' (Babin et al., 1994). Utilitarian motivations refer to functional, economic, and rational interests in which consumers perceive a product from a cost-benefit perspective. Hedonic motivations are related to emotional or experiential characteristics whereby users experience enjoyment and self-fulfilment during the shopping process (Babin et al., 1994).

Despite the large number of studies on the role of motivators in predicting online shopping, the relative importance of each type of motivator remains unclear (Koch et al., 2020). While several authors have established the importance of both hedonic and utilitarian motivators in explaining online shopping behaviour (e.g., Babin et al., 1994; Childers et al., 2001; Chiu et al., 2009; Picot-Coupey et al., 2021), others indicate that hedonic motivations are more relevant in the online shopping process (Koch et al., 2020), whereas others suggest that utilitarian motivations are more important (Overby and Lee, 2006; Shang

et al., 2005; To et al., 2007).

Bridges and Florsheim (2008) argued that DCP should be equipped with functionalities that help consumers achieve utilitarian purposes and make the online shopping process more profitable. Similarly, according to Kumar and Kashyap (2018), utilitarian motivation is one reason for conquering digital channels. These authors reinforce the hypothesis that utilitarian motivations have a greater impact on consumers than hedonic motivations do. Online retailers that provide utilitarian principles on their platforms have been shown to achieve higher states of well-being and large sales volumes (Bridges and Florsheim, 2008; To et al., 2007).

Building on these results, Martínez-López et al. (2014) used ten dimensions of utilitarian motivation to understand human behaviour in the use of digital shopping platforms. Their results showed that the level of online consumer satisfaction was higher in the presence of desire for control, autonomy, convenience, availability of assortment, economic utility, availability of information, personalisation, payment services, absence of social interaction, and anonymity.

With the onset of the COVID-19 pandemic, several authors reported significant changes in consumer behaviour (Kirk and Rifkin, 2020), as well as in consumption channels (Ranjan et al., 2021). Globally, governments have taken measures to impose social distancing, which frequently include the closure of non-essential stores (Ranjan et al., 2021; Shaw et al., 2022). In addition, fear of infection forces many people to self-isolate rather than physically go to stationary retailers (Mason et al., 2020). Consequently, online shopping has significantly increased worldwide (Shaw et al., 2022). In the post-pandemic context, this upward trend in online shopping growth is yet to be clarified. Although this trend is expected to continue in the coming years (Kirk and Rifkin, 2020), preliminary findings point back to a return to traditional shopping channels (Higueras-Castillo et al., 2023; Inoue and Todo, 2023).

Historically, previous global crises, such as earlier pandemics, brought about enormous changes in societies, including in consumers' decision-making and behaviours, which lasted for the following years (Kirk and Rifkin, 2020). Given this scenario, some authors call for evidence to determine how consumer expectations, priorities, and experiences evolve in the post-pandemic context (Kirk and Rifkin, 2020). However, few studies have even started to validate the importance of previously established motivators and triggers for online shopping (e.g., Koch et al., 2020). Preliminary results indicate that significant differences exist between motivators before and after the pandemic, which reinforces the need for further studies (Alhaimer, 2022; Higueras-Castillo et al., 2023; Shaw et al., 2022).

2.3. Digital burnout

Rapid technological evolution, access to increasingly powerful digital devices, and the global spread of the Internet have enabled an increasing number of people to develop digital lifestyles (Chang, 2016; Erten and Özdemir, 2020). In the organizational context, digitisation has accelerated both the ability to respond to market adversities and the speed at which tasks are performed. However, it also triggers mental, physical, and emotional exhaustion in workers (Staten, 2019). Evidence shows that the continuous flow of information available 24/7 on digital channels is making people increasingly exhausted and digitally dependent (Detecon, 2013).

This phenomenon has peaked during the COVID-19 pandemic outbreak. The most reported consequences include high levels of anxiety, loneliness, stress, depression, trauma-related symptoms, aggressive behaviour, anger, irritability, and sleep disturbances (Cao et al., 2020; Cielo et al., 2021; Fernández-Castillo, 2021; Liyanage et al., 2021; Mäkinen et al., 2021; Parola et al., 2020; Rudenstine et al., 2021; Zis et al., 2021).

To overcome government imposed restrictive measures to mitigate the spread of the virus, people were obligated to take a digital leap to

continue their work or educational activities, and leisure and social interactions (Durmuş et al., 2022), which abruptly increased the amount of time spent on digital media (Sharma et al., 2020). The scientific literature has also shown that the intensive use of technology can threaten an individual's well-being (Oksanen et al., 2021). Evidence indicates that the greater the amount of time spent in the digital world, the greater the likelihood of developing symptoms of addiction, anxiety, and depression (Marzilli et al., 2022). However, the demand to work remotely during the COVID-19 pandemic has resulted in endless online meetings and the need for multitasking in addition to all other activities that shifted online. This leads to fatigue, digital exhaustion, a lack of satisfaction, decreased productivity, technostress, and burnout (Oksanen et al., 2021; Sharma et al., 2020).

Consequently, the concept of digital burnout has emerged to represent an individual's burnout caused by the compulsive and overuse of technology during the lockdown (Sharma et al., 2020). Burnout is widely recognised as a syndrome provoked by chronic workplace stress that has not been successfully managed, where individuals lack internal resources and, hence, fall into a state of fatigue or frustration (Freudenberger, 1974; WHO, 2019).

This syndrome manifests as an increased feeling of emotional exhaustion, cynicism, or depersonalisation, and a perceived inability or failure to accomplish tasks (Maslach and Jackson, 1981). The effects of burnout are felt both physically (tiredness, body aches, sleep deprivation, shortness of breath, gastrointestinal disturbances) and behaviourally (short temper, disappointment, lack of control, emotional outburst) (Freudenberger, 1974). In the digital sphere, burnout results from an individual's inability to completely disconnect from their digital life, even during periods of rest (Grant-Marshall, 2014). Consequently, they lapse into a state of digital exhaustion, where they may experience symptoms of poor productivity, difficulty concentrating on performing tasks, an inability to deal with routines, constant fatigue, sleep deprivation, problematic relations at home and office, and an inability to control emotions (Chang, 2016; Erten and Özdemir, 2020). Thus, they might reject activities that they once performed in an online environment, such as shopping (Al-Youzbaky and Hanna, 2022).

Owing to its multifaceted nature, the literature on burnout is based on and benefits from multiple complementary theories, among which the following stand out: (a) social cognitive theory, (b) social exchange theory, (c) organizational theory, (d) structural theory, (e) job demands-resources theory, and (f) emotional contagion theory (Edú-Valsania et al., 2022). One topic that is generally cross-cut in theories is the coping strategies that individuals employ to deal with burnout syndrome as a way to combat stress and exhaustion. In the digital realm, faced with this feeling, individuals can engage in a set of activities known as digital detox, digital disconnection, or unplugging (e.g., Morris and Pickens, 2017; Radtke et al., 2022; Nassen et al., 2023). While the first term may carry a negative connotation, implying a judgment of being connected to something toxic, the other terms are more neutral (Nassen et al., 2023). In general, these activities advocate achieving a balance between online and offline activities (Sharma et al., 2020) and advise individuals to reduce their online activities by replacing them with offline events (Erten and Özdemir, 2020). Accordingly, it is plausible to consider that online shopping can easily be replaced by traditional offline shopping, especially at the end of COVID-19 restrictions and the subsequent reopening of physical stores. Therefore, the following hypotheses were developed:

H1. Digital burnout negatively influences the use of DCP for shopping.

Nevertheless, individuals' predispositions to make online purchases may be reinforced by the presence of certain motivators that confer significant advantages to online shopping. Previous studies of the effect of burnout on maintaining or increasing online shopping activities have shown contradictory results, suggesting that this phenomenon is more varied and responsive to environmental changes (Singla and Garg, 2021; Zhao et al., 2022). Therefore, individuals are expected to increase their

commitment to buy online in the presence of additional motivation, which leads them to complete this task. It is assumed that utilitarian motivations, which reflect the utility of a purchase, mediate an individual's willingness to buy online in burnout situations. It is plausible that in the presence of utilitarian motivations, individuals will not decrease their willingness to buy online. Accordingly, the following hypothesis was formulated:

H2. Utilitarian motivators positively mediate the effect of digital burnout on the use of DCP for shopping.

2.4. Internet addiction

Despite the undeniable benefits and innovations brought about by the Internet, the literature has already shown that the effects of excessive or problematic use of the Internet can be fairly harmful to individuals' well-being (e.g., Caplan, 2002; Kim et al., 2009; Mota et al., 2021), and that it can lead to the development of symptoms suggestive of addiction (Marzilli et al., 2022). According to Sharma et al. (2020), during the COVID-19 pandemic many people have used digital media nearly every waking hour, which represents an excessive use of technology and leads to severe health consequences.

However, studies on the problematic use of digital media began long before the onset of the pandemic. Young (1996) addressed Internet Addiction (IA) in the 1990s, defining it as a behavioural disorder at the level of impulse control, namely, an uncontrollable and obsessive-compulsive use of the Internet, with no toxic substances present. Kardefelt-Winther (2014) added that when individuals lose control of the amount of time they spend on digital media, they may experience negative effects in their lives with regard to their emotional, behavioural, and social functioning, just as it occurs in situations of any kind of addiction (Kurniasanti et al., 2019; Kuss and Griffiths, 2011).

Internet Addiction can be classified into two types: 'generalised' and 'specific'. Generalised dependence is characterised by multifaceted and abundant use of the Internet, in which individuals feel intrinsically interconnected and satisfied with their virtual existence. Specific addiction refers to the excessive use of certain Internet-derived topics such as gambling, social media, pornography, and stock trading (Davis, 2001).

Pre-pandemic studies have revealed a significant association between IA and other psychological problems such as depression and anxiety (Caplan, 2002; Kim et al., 2009). However, the pandemic has increased the prevalence of IA, particularly among young (female) adults (Zhao et al., 2022). This is mainly due to the abnormal number of hours spent online and accessibility to digital devices (Panova and Carbonell, 2018), but is also manifested as a strategy to cope with emotional difficulties and psychological distress (Marzilli et al., 2022; Servidio et al., 2021). According to Sharma et al. (2020), excessive time spent online incurs a major risk of IA and promotes digital exhaustion. Other studies show that unplugging from digital technologies leads individuals to experience the "fear of missing out" (FOMO) during this process, and the anxiety it provokes is similar to that experienced in other addictions (Morris and Pickens, 2017; Brown and Kuss, 2020). When this digital dependency is normalised and accepted, individuals suffer from a reduction in their ability to carry out activities that encourage them to disconnect from their digital devices. Consequently, digital burnout may occur (Erten and Özdemir, 2020). Accordingly, the literature leads us to consider that a relationship may exist between IA and digital burnout, as both are caused by excessive time spent online, which consequently leads to the formulation of the following hypothesis:

H3. Internet addiction positively influences digital burnout.

2.5. Digital literacy

The rapid evolution of technology requires individuals to become

digitally competent and adapt (Eshet, 2012; European Commission, 2020). This goes far beyond the simple ability to use technology (Reddy et al., 2020; Sánchez-Cruzado et al., 2021), and comprises a set of additional skills and knowledge that allow them to perform tasks in an increasingly complex digital environment (Lilian, 2022; Guerola-Navarro et al., 2023).

The set of cognitive, motor, sociological, and emotional skills necessary to master an increasingly complex digital world is called Digital Literacy (DL) (Eshet-Alkalai, 2004). Ng (2012) defined DL in a broader sense as the multiplicity of literacies associated with the use of digital technologies, namely technical (technical capacity of technology use), cognitive (existence of critical thinking during activities), and socio-emotional (use for social purposes).

Lack of digital literacy has often been associated with negative emotions and stress when using technology (e.g., Tu et al., 2007). One of the causes of this stress is the lack of the knowledge and skills necessary to use a new system or software. Even experienced employees often feel frustrated and distressed as they struggle to adapt to new and evolving technologies (Tu et al., 2005). However, when workers experience failure in their own resources to accomplish their tasks, it can lead to exhaustion and burnout (Oksanen et al., 2021).

During the COVID-19 pandemic, several authors have highlighted the importance of attitudes towards technology, digital literacy, and prior user experience with technologies in meeting working (Oksanen et al., 2021) and online learning requirements (Wang et al., 2021). Nazzari et al. (2021) also found DL to be important for better understanding and correctly interpreting the available information.

Digital literacy provides individuals with the ability to search for information more efficiently and with critical reasoning, using that knowledge to improve mental health (Bosanac and Luic, 2021). Similarly, digital literacy has been shown to reduce mental load, anxiety, and the associated frustration, which could otherwise lead to digital burnout (Wang et al., 2021). Thus, it is plausible to assume that digital literacy has a protective effect against the development of digital burnout syndrome. Therefore, the following hypothesis was formulated:

H4. Digital literacy negatively influences digital burnout.

Fig. 1 presents the research model proposed in this study.

3. Method

3.1. Data collection and sample

This study was based on a self-administered survey employing a precoded online questionnaire. First, a pretest was conducted among expert researchers and potential participants to validate whether the conceptualisation was clear and reliable. The questionnaire was shared on various social networks, and data were collected in June and July 2022. The research was based on a convenience sample by selecting participants from the population under analysis with greater availability, solidarity, and willingness to participate in the survey (Freitag, 2018).

In total, 265 responses were obtained. After preliminary analysis, the final sample yielded 202 valid responses. 63 questionnaires were eliminated because of incomplete completion or a response pattern of 80 % or more in a single option (Hair et al., 2019). Table 1 presents the socio-demographic characteristics of the sample.

3.2. Measures

Digital literacy was measured using an adaptation of Ng's (2012) scale. The original scale includes dimensions to assess students' attitudes towards learning through technological means (e.g., "I like using ICT for learning"), and the technical dimension of digital literacy (e.g., "I know how to solve my own technical problems"), as well as the cognitive dimension (e.g., "I am confident with my search and evaluate skills in

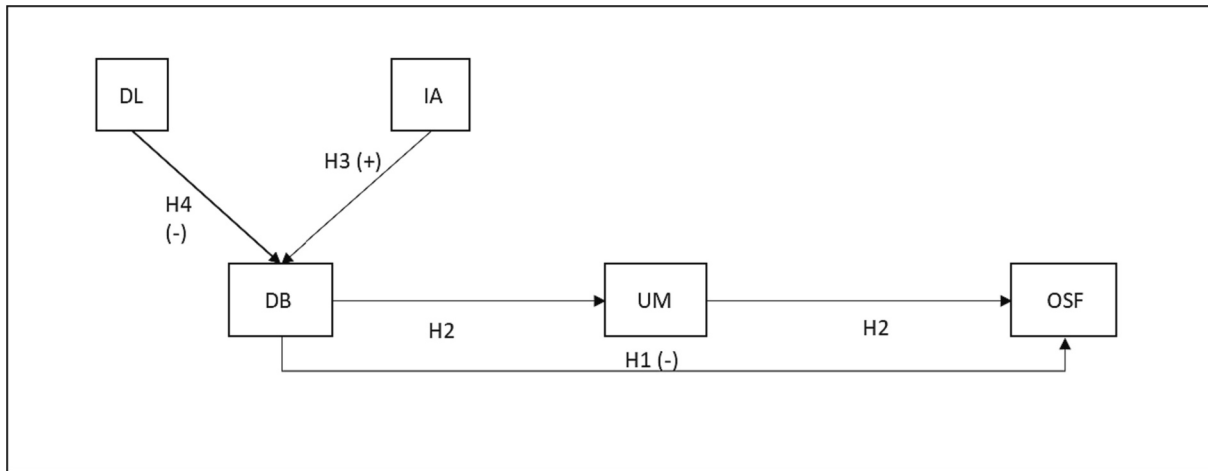


Fig. 1. Research model.
 DL: Digital Literacy; IA = Internet Addiction; DB = Digital Burnout; UM = Utilitarian Motivation; and OSF = Online Shopping Frequency.

Table 1
 Summary of socio-demographic information.

Characteristics	Descriptive profile	
Gender	Male	36.6 %
	Female	63.4 %
Age (years)	≤25	25 %
	26–35	20 %
	36–45	28 %
	≥46	27 %
Education level	Undergraduate	25.2 %
	Graduate	40.6 %
	Post-graduation	34.2 %
Type of work	In person	78.3 %
	Work from distance or hybrid	21.7 %
Online shopping frequency	Never shop online	3 %
	Once a year	10.4 %
	Several times a year	47.5 %
	Several times a month	22.3 %
	Once a week	11.4 %
	Several times a week	4 %
	Once a day	4 %
	Several times a day	0 %

regards to obtaining information from the Web”) and the socio-emotional dimension (e.g., “ICT enables me to collaborate better with my peers on project work and other learning activities”). However, the focus of this study was not on students, but rather on online consumers; therefore, the first dimension of the scale was removed. Previous studies have used the same scale adaptation when studying different contexts (Üstündağ et al., 2017). The resulting scale has 8 items.

Internet addiction was measured using Chen and Nath’s (2016) scale. This scale has 3 dimensions: (1) emotional psychological conflict (9 items, such as: “I prefer the excitement of the internet to intimacy with my friends/family”); (2) time management (5 items, such as: “I realize I stay online longer than I intended”); and (3) mood modification (6 items, such as: “I form new relationships with fellow online users”).

Digital burnout was measured using the scale proposed by Erten and Özdemir (2020). This scale has a total of 24 items distributed by 3 dimensions: (1) digital aging (e.g., “I have attention deficit”), (2) digital deprivation (e.g., “I feel uneasy when I do not have Internet connection or I am offline”), and (3) emotional exhaustion (e.g., “I feel exhausted due to virtual and digital worlds”).

Utilitarian Motivators for online shopping were measured using the scale proposed by Martínez-López et al. (2014). This scale has 10 dimensions, with a total of 46 items (examples of the items include: “By using price comparison tools, I feel more in control of the entire buying

process”, “What I value in online shopping is the availability of information – not only from the retailer and manufacturer, but also from other customers”, and “Shopping online saves me a lot of time”). All items of the scales were rated on a 5-point Likert scale: 1. I strongly disagree 5. I strongly agree.

Finally, *the use of DCP for shopping* was measured by asking respondents to report their frequency of online shopping. The classifications were as follows: (1) never shop online, (2) once a year, (3) several times a year, (4) several times a month, (5) once a week, (6) several times a week, (7) once a day, and (8) several times a day.

Table 2 presents the descriptive measures and their Cronbach’s alphas. All measures showed an adequate alpha >0.7, and were thus considered usable in this research.

Regarding the common method variance, we followed Podsakoff et al.’s (2003) procedure: (1) the order of the questions was counter-balanced when preparing the questionnaire; (2) total anonymity was assured by removing all information that could serve as back-tracking to the respondent; and (3) the single Hartman factor score was used, and the results showed that no single or general factor emerged, accounting for the majority of the covariance among the variables. The factor with the highest percentage of variance was 22,107 % of variance. These results allow us to conclude that there are no problems with common method variance.

4. Results

To analyse the correlation between the variables, we calculated the Pearson correlation coefficient and checked whether the relationships among all scales and subscales were positive and significant (p < 0.001) (Table 3).

Linear regression was used to test these hypotheses. Fig. 2 shows the test results.

The results in Table 4 show that the impact of digital literacy on digital burnout is not significant; therefore, Hypothesis 4 is not

Table 2
 Measures and Cronbach’s alpha.

Measure	\bar{x}	s'	α
Digital Literacy	3.837	0.652	0.838
Internet Addiction	2.219	0.557	0.876
Digital Burnout	1.983	0.551	0.916
Utilitarian Motivation	3.473	0.637	0.969
Online Shopping Frequency	3.4 ^a	1.133	n.a.

^a Given the structure of the classification of buying frequency, this number means that buying frequency is approximately one or several times per month.

Table 3
Correlations.

	N	DL	IA	DB	UM	FB
DL	202	1				
IA	202	0.249	1			
DB	202	-0.015	0.668**	1		
UM	202	0.301**	0.149*	0.179*	1	
OSF	202	-0.029	-0.224**	-0.240**	-0.403**	1

DL: Digital Literacy; IA = Internet Addiction; DB = Digital Burnout; UM = Utilitarian Motivation; and OSF = Online Shopping Frequency.

* The correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

supported. The relationship between Internet Addition and Digital Burnout is positive and significant ($\beta = 0.674$, sig. <0.001), thus supporting Hypothesis 3.

Hypothesis 1 is not supported because the relationship between Digital Burnout and Shopping Frequency is positive and significant. Hypothesis 2, which proposes that Utilitarian Motivation mediates the relationship between Digital Burnout and Shopping Frequency, is supported by the results of the Sobel test (Table 5).

The results presented in Table 4, Fig. 2, and Table 5 show that the mediation is partial. The indirect effect ($0.179 \times 0.507 = 0.090$) enables

us to assume that the intervening utilitarian motivation variable reduces the effect of digital burnout on online shopping frequency. Although statistically significant, this mediation does not follow the expected impact cited in Hypothesis 1. Based on the literature review, we expected digital burnout to have a smaller negative effect on online shopping frequency in the presence of utilitarian motivations. Thus, we opted to maintain the mediation effect study, as Hypothesis 1 was not supported because of its positive impact rather than because of the significance of the result. The results show that mediation has the same positive impact but reduces the impact of digital burnout on the frequency of online shopping.

To check the robustness of the results, we calculate the CV ($CV = \text{stdv}/\text{mean}$) for the five variables in the model using the values in Table 2. The CV varies from 0.17 to 0.327, allowing us to assume the

Table 5
Sobel test results.

Input:	Test statistic:	p-Value:
t_a 2.570	Sobel test: 2.46523156	0.01369247
t_b 8.723	Aroian test: 2.45045994	0.01426738
	Goodman test: 2.48027357	0.01312816

<https://quantpsy.org/sobel/sobel.htm>

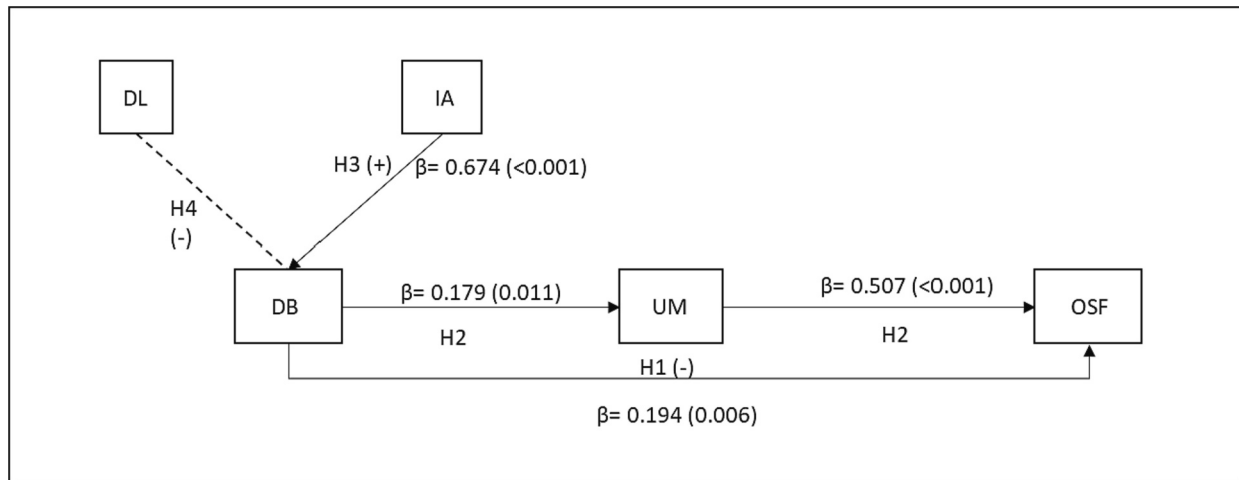


Fig. 2. The model with the results of the linear regression.

DL = Digital Literacy; IA = Internet Addiction; DB = Digital Burnout; UM = Utilitarian Motivation; and OSF = Online Shopping Frequency; the dashed arrow indicates that the relationship is not significant.

Table 4
Linear regression results.

#	Dependent	Predictor	Unstandardized coefficient		Standardized coefficient	T	Sig.
			β	Std. error	β		
1	DB	IA	0.667	0.052	0.674	12.784	<0.001
		DL	-0.060	0.045	-0.070		
R ² : 0.451							
2	UM	DB	0.206	0.080	0.179	2.570	0.011
R ² : 0.027							
3	OSF	DB	0.212	0.125	0.103	1.693	0.092
		UM	0.901	0.108	0.507		
R ² : 0.279							
4	OSF	DB	0.398	0.143	0.194	2.791	0.006
R ² : 0.037							

DL: Digital Literacy; IA = Internet Addiction; DB = Digital Burnout; UM = Utilitarian Motivation; and OSF = Online Shopping Frequency.

quality of our data. Additionally, we conducted a search for outliers and found that the variable OSF had nine outliers (six records presented a value of 1 at the lowest end and three records presented a value of 7 at the highest end). Following Dixon (1960), we reduce these values to the nearest values. For the lowest values, we recoded values from 1 to 2, and for the highest values, we recoded value 7 as 6. By doing so, we winsorised the sample, following Charles P. Winsor (1951[1895], cit. in Dixon, 1960). The model was retested; however, the results regarding hypothesis acceptance did not change. This allowed us to be confident about the quality of the results and maintain the results obtained using the original data.

We also tested the effects of age on this model. This was done by splitting our database by considering respondents aged <35 years old (“the younger”), and the remaining 36 and more years olds (“the older”). The results of the model for the “the younger” database are presented in Fig. 3. The only hypothesis supported was H3. Fig. 4 presents the results for the model, considering “the older” database.

The results in Fig. 4 support Hypotheses H2, H3 and H4. However, Hypothesis H1 is not supported. Mediation was also present (Table 6), although it continued to be a partial mediation. Nevertheless, for older respondents, the presence of utilitarian motivation increased the positive effect of digital burnout on online shopping frequency ($0.231 \times 0.560 = 0.129$). Thus, even in the presence of digital burnout, online shopping frequency increases when utilitarian motivation intervenes.

5. Discussion and conclusion

The motivation to use online consumer platforms, which was already on track and demonstrated a growing trend, experienced an obvious peak during the pandemic period, which enabled consumers to continue shopping during times of stringent lockdown measures and health concerns. Besides shopping, all interactions and connections among individuals, firms, and countries moved to the online sphere; however, the acceleration and intensification of onscreen time contributed to burnout experiences. The present study contributes to the existing literature and goes a step further by empirically exploring the effects of digital burnout on the frequency of shopping through DCP in a post-pandemic context, where, although the intense use of digital technologies continues, all physical shops are now open. We also sought to understand the impact of Internet addiction and digital literacy on digital burnout as well as the effect of utilitarian motivations on online shopping frequency.

Based on a sample of 202 Portuguese respondents who used digital consumer platforms, the analysis of the data enabled us to construct four

major interpretative axes: (1) contrary to our expectations, digital burnout does not negatively influence the frequency of online shopping; (2) digital burnout is only influenced by Internet addiction and not by digital literacy; (3) digital burnout indirectly influences online shopping frequency through a partial mediation of utilitarian motivations; and (4) all these findings are more significant for older consumers than for younger ones.

In a context where the use of digital devices has become the norm, not only in the professional domain but also in recreational activities and personal life choices, our results surprisingly show that the level of digital burnout in our sample was less than the theoretical midpoint of the scale. This can be attributed to two main factors. First, it should be noted that the instrument used to assess individuals’ digital burnout level is based on self-perceptions, and therefore it may not be able to reflect the actual existing level of digital burnout. When reporting the time spent on digital media, previous studies found significant differences in self-reported time compared with objective measures (Oliveira et al., 2021). This highlights the need for complementary methods to measure this phenomenon. Second, our participants’ average age was over 35 years, which, according to the literature, tends to indicate a lower predisposition to developing digital addiction and burnout (e.g., Li et al., 2016; Marzilli et al., 2022). In fact, when splitting our database by age (<35 years old versus above 35), it revealed that young people have higher mean values and are closer to the midpoint of the scale, either for Internet addiction (M = 2.42; SD =0.53) or digital burnout (M = 2.19; SD = 0.52), when compared with the older group (M = 2.05; SD = 0.52 and M = 1.81; SD = 0.51), confirming previous studies.

Our results also indicate that digital burnout does not affect the frequency of online shopping. In other words, the state of digital exhaustion and anxiety caused by the excessive use of digital devices during the pandemic does not represent an obstacle for consumers who continue to shop online. We hypothesised that individuals overwhelmed by the intensive use of digital devices and exposure to constant information and stimuli would either reject or reduce activities they performed in an online environment, such as shopping (Al-Youzbaky and Hanna, 2022). However, the results show that it is feasible for respondents to engage in online shopping as a form of escapism or coping mechanism to deal with the negative emotions brought about by digital burnout (e.g., Zhao et al., 2022). In this respect, our research runs counter to what has been advocated by the principles of digital detox and unplugging theory (e.g., Nassen et al., 2023; Sharma et al., 2020), which argues that individuals who experience the negative effects of excessive digital consumption, including digital burnout, seek and engage in intentional efforts to disconnect from online platforms,

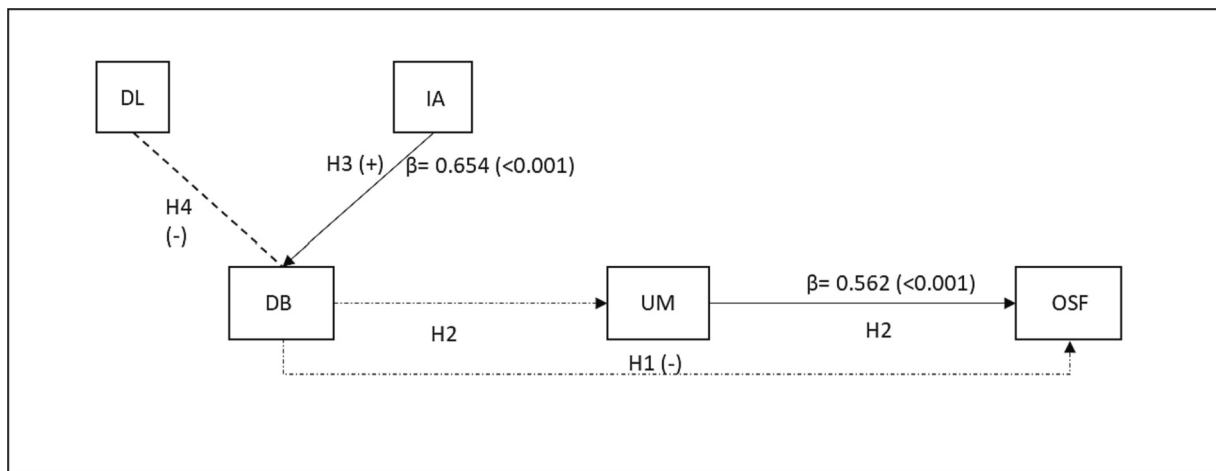


Fig. 3. Results using the younger sample.

DL = Digital Literacy; IA = Internet Addiction; DB = Digital Burnout; UM = Utilitarian Motivation; OSF = Online Shopping Frequency; The dashed arrow indicates that the relationship is not significant.

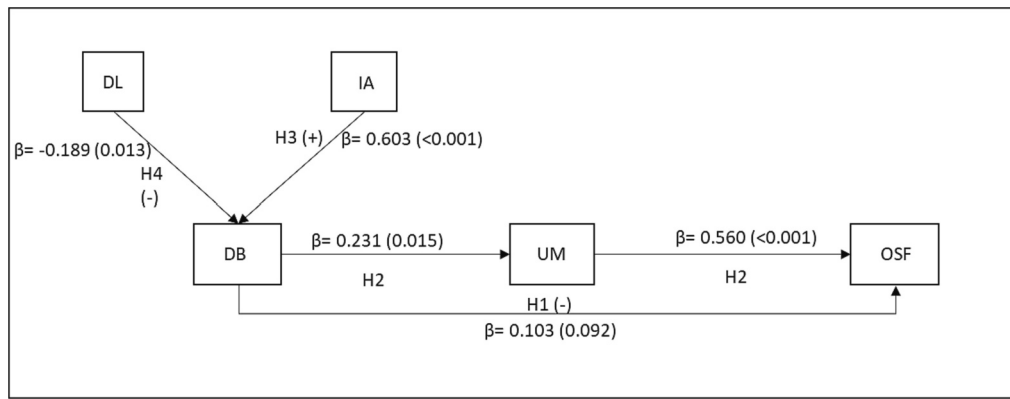


Fig. 4. Results using “the oldest” sample.

DL = Digital Literacy; IA = Internet Addiction; DB = Digital Burnout; UM = Utilitarian Motivation; and OSF = Online Shopping Frequency; The dashed arrow indicates that the relationship is not significant.

Table 6

Sobel test results for the “oldest” sample.

Input:	Sobel test:	Test statistic:	p-value:
t_a 2.481		2.31583381	0.02056734
t_b 6.455	Aroian test:	2.29199418	0.02190598
	Goodman test:	2.34043315	0.01926139
	Reset all	Calculate	

<https://quantpsy.org/sobel/sobel.htm>

namely online shopping websites, that can be easily replaced by traditional shopping channels.

Shopping provides a temporary distraction and emotional relief from stress and negative emotions, allowing individuals to seek pleasure and happiness by purchasing products (Rose and Dhandayudham, 2014). This behaviour can be driven by the desire to find comfort and a sense of control amid the chaos of digital fatigue (Zhao et al., 2022). This interpretation is consistent with previous studies (Choi et al., 2019) that found active coping strategies alleviate burnout among frontline hotel employees. In addition, in the context of coping strategies, other studies show that uncertainty about the future, anxiety, and stress can lead to an uncontrollable need to make purchases (Zhao et al., 2022). With cautious consideration, we can recognise that during uncertain times (not only caused by fear of new variants of COVID-19 appearing, but also by the Ukrainian-Russian war and the effects of high inflation in Portugal), individuals might feel an uncontrollable urge to buy goods. While impulsive buying is a coping behaviour, it is irrational and risky because it reflects fear, disregard for consequences, and loss of control over the environment (Zhao et al., 2022). Two effective coping strategies that individuals perceive to be in a stressful situation can be utilised: (1) alter and master (IT control), and (2) positive appraisal (positive reinterpretation) (Pirkkalainen et al., 2019). In our study, the digital burnout syndrome of emotional exhaustion and low accomplishment which usually tends to lead to decreased job performance, did not extend to the sphere of personal life choices, and online purchasing was not affected.

Surprisingly, we observed that utilitarian motivation only partially mediated the influence of digital burnout on online shopping. Considering that states of digital fatigue lead to an inability to control emotions (Chang, 2016; Erten and Özdemir, 2020), the presence of utilitarian motivations can act as a rational reflection of the progression of the impulsive behaviour of shopping online. If so, it is plausible to assume that it may be reducing purchases that are motivated by emotions rather than by rational need. Impulsive buying is characterised by an

individual’s poor ability to self-regulate (Zhao et al., 2022) and think clearly about the utility of the purchase (Vihari et al., 2022). For this reason, in the presence of utilitarian motivators, which represent the rational and useful reasons associated with the purchase, this type of impulsive and emotional purchase can be reduced by the “call to reason”.

When answering the research question regarding the predecessors of digital burnout syndrome, we found that digital burnout was not influenced by digital literacy. However, this result should be interpreted carefully considering that our respondents were all fairly digitally proficient. High levels of technical, cognitive, and socio-emotional skills associated with the use and mastery of digital technologies do not prevent individuals from experiencing digital stress, fatigue, and exhaustion. This contradicts previous studies showing that digital literacy is a preventive means against digital threats (e.g., Rodríguez-de-Dios et al., 2016). Yet, what may also be happening is that the scales developed before the pandemic, in particular the one used in this study, may not be able to capture the current level of digital literacy. It is possible that the intensive use of digital media during the pandemic has raised individuals’ general levels of digital literacy, increasing the need to create new scales or to adapt the existing ones.

As expected, our results showed that digital burnout is influenced by Internet addiction. The excessive use of digital channels, digital devices, demanding work commitments, and constant checking of emails contribute to the state of digital exhaustion and burnout, as suggested by previous literature (e.g., Erten and Özdemir, 2020; Sharma et al., 2020). These results allowed us to achieve one of the objectives of the present study to examine the factors that influence the development of digital burnout; however, recognising that this syndrome is multifaceted, it is important to continue the study of these antecedents to better understand and prevent this phenomenon.

Finally, the results show that age also plays an important role in influencing online shopping behaviour when individuals are in a situation of digital burnout. Our results corroborate the inconsistency in the literature on this topic (Nazzal et al., 2021). For one would expect that online shopping would have a stronger adherence among younger Internet users, as they are already familiar with the Internet and are zero-resistant (e.g., Roussos, 2007), however our research shows that only the “oldest” reinforce the explanatory power of the model. Although it may be plausible to assume that the “older” group will have the greatest economic capacity to shop and, most likely, to have the responsibility to do so, these contradictory results found in the literature reflect that more studies will be needed to better understand the differences between age groups.

In terms of implications, our research has significant theoretical and practical relevance in a time when restrictions have been completely lifted and retailers want to retain their online customers because of the

investment recently made in their digital channels. Beginning with the theoretical implications, despite the extensive literature on burnout, digital burnout is a recent variation scarcely studied. There remains a significant gap in our understanding of what contributes to its development and how it affects individuals' activities, performance, and well-being. In this context, the present study brings a relevant contribute to this body of knowledge as, to the best of our knowledge, it is the first to examine the factors that can lead to the development of digital burnout. This is the first study to explore the relationship between this syndrome and online shopping behaviours by exploring the mediating effect of utilitarian motivations on this relationship. Our results indicate that although digital literacy was not significant in preventing the syndrome, compulsive, and intensive use of the Internet, which leads to Internet addiction, has a significant impact on the development of digital burnout states. Furthermore, we reject our initial assumption that individuals who recognise the negative impact of digital burnout would rationally reduce their online shopping as a way to detox from the digital context, thus improving their well-being and mental health goals unless utilitarian convenience prevails. In contrast, we now theorise that online shopping remains frequent for digitally exhausted individuals, probably because of emotional motivations as a form of escapism or a coping mechanism, seeking relief from stress, gratification, and a sense of control amid the chaos of digital fatigue (Vihari et al., 2022). This shift in understanding opens new and promising research paths for a better understanding of its impact on the well-being and health of individuals. The fact that our results do not always follow what was expected according to the literature means that research on digital burnout still has room to evolve, and that there is a need for more studies.

The practical implications are for both retailers and individuals. For retailers, the results suggest the importance of continuing to invest in online channels to sell their products because the intensive use of technological platforms and solutions that can cause digital burnout does not result in a reduction in online shopping frequency. The connection between these two phenomena is further fuelled by online shopping platforms that employ persuasive techniques and design elements to capitalise on individuals' emotional states during periods of digital burnout. Our results indicate that online consumption decreases when utilitarian motivation mediates the effects of digital burnout and online shopping frequency. Additionally, previous studies have shown that increased online shopping frequency due to impulsive behaviours can result in negative outcomes such as regret and product returns (Vihari et al., 2022; Zhao et al., 2022). Therefore, retailers and marketers should engage in developing a more focused communication strategy and construct more intuitive websites, thus reducing the need for time-consuming consultations and making the shopping process more efficient for consumers, for example, by adding a warning about the amount of time spent on their pages. By doing so, firms would not only improve their reputation as being socially responsible but also prevent a reduction in online shopping frequency.

For individuals, the implications lie in the awareness that Internet addiction leads to digital burnout and that being digitally savvy may not necessarily reduce this burnout, which requires careful and close monitoring of the time spent using the Internet. This awareness can help them make more informed decisions about their online activities, prioritize those activities, and strive for more balanced technology use. If that is the case, individuals are enhancing their "digital well-being", making value-laden choices about how to integrate digital technologies in their lives and decision-making (Burr et al., 2020).

5.1. Limitations and future research

This study has some limitations, which pave the way for future research. The first one is related to the fact that we opted for a cross-sectional survey design, which implies that the respondents' answers were influenced by the timing when the survey was applied (post-COVID-19) and by the scales used. In the future, a longitudinal study

would enable one to gain a more nuanced understanding of the buying behaviour of online customers and how such behaviour is influenced by a state of digital burnout. Future studies should explore whether the results remain the same by using different scales. In addition, as the time distance from the period of COVID-19 restrictions, it is relevant to see how the effects of the intensive use of digital media evolve in terms of negative consequences such as digital burnout and online shopping behaviours.

Another limitation concerns the fact that the mean digital burnout in our sample was less than the theoretical mean; thus, the results of this research must be interpreted with caution. Nevertheless, this study provides further research opportunities to better understand the differences between the means of the two age groups. In addition, as mentioned in the discussion, this study relies on individuals' perceptions of digital burnout. Considering that this topic is relatively recent in the literature, research must continue on the antecedents of this syndrome and look for complementary ways to assess the state of digital burnout in individuals.

Finally, this study did not examine the effects of gender because imbalance in the sample. Future studies should reflect on this factor as well as other factors, such as contextual factors (e.g. family context, countryside versus urban environment, and other social and economic classes, rather than highly qualified respondents), which might support a better understanding of online shopping motivations.

One should also acknowledge that online shopping is driven by a combination of motivations in addition to utilitarian and hedonic dimensions. For example, informational social influence plays a significant role, wherein individuals are swayed by positive messages in online discussion forums or by influencers (e.g., Lee et al., 2011). To gain a comprehensive understanding of the impact of digital burnout, future research should expand the pool of multifaceted factors that may influence consumers' decisions to continue shopping online. For instance, future studies could explore the impact of the availability of alternative shopping channels, perceived quality of the digital platform, and consumers' experience when shopping online.

The results of the present study also allow us to suggest new lines of enquiry, highlighting the existing gaps in the literature, namely (1) the exploration of emotional and compensatory motivations that can lead people with digital burnout to continue online shopping behaviours, and (2) understanding what restricts people from actually engaging in digital detox activities, which can translate into well-being improvements.

CRedit authorship contribution statement

Filipa Pires da Silva: Writing – review & editing, Writing – original draft, Methodology, Investigation, Conceptualization. **Helena Mateus Jerónimo:** Writing – review & editing, Writing – original draft, Conceptualization. **Paulo Lopes Henriques:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Joana Ribeiro:** Writing – review & editing, Writing – original draft.

Data availability

The data that has been used is confidential.

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