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Dilemma of Generation Z: Exploring the Interplay of Addiction to Online Gaming and Compulsive Buying

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Abstract

Recent studies highlight the growing addiction to smartphone usage, particularly among young individuals, impacting social lives and overall well-being. This phenomenon raises concerns about its potential correlation with compulsive buying behavior. Focusing on a limited sample of online gamers from Asia and the Middle East, this study explores Generation Z's conundrum involving addiction to online gaming and compulsive buying. Employing a cross-sectional, quantitative design, the research utilizes smart PLS for analysis. Specifically, it explores the interplay between online game addiction, impulsive spending patterns, and the influence of mood management and flow induced by gaming experiences. The findings contribute valuable insights into the addiction among Generation Z, specifically in the context of online gaming and compulsive shopping. However, the study's limitations, including a small sample size and a narrow focus on participants from Asia and the Middle East, warrant caution in generalizing the results. To address this, future research should aim for larger and more diverse sample sizes, incorporate longitudinal designs, integrate qualitative methodologies, and examine technology's evolving impact. Recognizing the challenges of online gaming addiction and compulsive shopping among Generation Z, stakeholders are urged to develop tailored interventions and policies. Bridging these knowledge gaps and expanding our understanding of these issues will be crucial in crafting effective strategies to address the dilemmas faced by Generation Z. This study emphasizes the need for ongoing research efforts to inform comprehensive interventions and policies that advance the well-being of Generation Z and future generations.

Keywords

Generation Z, Compulsive Buying of Online Games, Online Gaming Addiction, Mood Regulation, Flow, Self-Determination Theory

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1. Introduction

The digital age has ushered in numerous technological advancements, reshaping how individuals work, live, and interact with their surroundings (Hew et al., 2023). One of the most significant developments in this era is the introduction of internet gaming, offering immersive experiences that captivate millions, especially within Generation Z (Ciurleo et al., 2020; Kiatsakared & Chen, 2022). Generation Z, born between the mid-1990s and the early 2010s, faces the unique challenge of navigating the intersection of compulsive buying and online gaming addiction, fueled by a world characterized by technology and rapid gratification (Giray, 2022). The rise of online gaming, a powerful force shaping millions' interests and time allocation, is a notable outcome of the digital age, particularly impacting Generation Z (Mason et al., 2022). While online gaming offers enjoyment, social connections, and educational advantages, its transition into addiction brings serious

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consequences, affecting the physical and mental well-being, academic or professional pursuits, and relationships of individuals within Generation Z (Mestre-Bach et al., 2023; Wegmann et al., 2023). The term "online compulsive buying" has emerged in recent years to explore the potential connection between compulsive buying and the online environment (Wiastuti et al., 2020). In traditional and online settings, obsessive shoppers share a loss of financial control, experiencing relief and satisfaction post-purchase, followed by recurrent dysfunctional conduct unrelated to the purchase (Xue et al., 2020; Zhao et al., 2020). Lyons and Henderson (2000, p. 739) describe online compulsive buying as "an old problem in a new marketplace." The prevalence of mobile platforms further facilitates online compulsive purchase behavior, providing access to the internet and creating engaging digital environments (such as mobile shopping platforms) that enable unprecedented ease of purchase while avoiding social interaction (Schenarts, 2020). Mood regulation is a fundamental aspect of human behavior, defined as "the methods and procedures people use to control and alter their emotional states" (Ortiz et al., 2019). In the context of Generation Z, online gaming has become a significant avenue for mood regulation, offering a compelling and immersive experience with a profound emotional impact (Palagini et al., 2019). Online games provide an interactive setting where individuals can escape the difficulties of everyday life and immerse themselves in exciting, adventurous, and successful virtual worlds (Müller et al., 2021).

Flow moments in online gaming, characterized by a loss of time awareness, heightened focus, and a sense of control, offer players a temporary escape from daily tensions and worries (Maraz & Yi, 2022). These experiences provide relief from real-life difficulties, occurring when game challenges align with the player's skills, creating an ideal balance of difficulty and proficiency (Mancini et al., 2019). As players progress through the game, facing new challenges and mastering new talents, the feedback loop nurtures a sense of achievement and advancement, supporting the flow state (Li et al., 2021). This study aims to investigate the challenges faced by Generation Z concerning compulsive shopping and online gaming addiction. The objective is to understand the underlying causes of these addictive behaviors, their impact on well-being, and potential societal implications. By examining the overlap and potential linkages between compulsive buying and online gaming addiction, this research seeks to shed light on the complexity of these behaviors. The study employs self-determination theory to understand gamers' motivations for playing online games, exploring how intrinsic motivation may influence continued involvement behavior after experiencing flow (Gillison et al., 2019). Continued involvement behavior, characterized by the pursuit of skills and further advancement, is examined to discern potential differences in motivation among players. In summary, this research investigates the addiction to online gaming and compulsive buying within the context of Generation Z, providing insights into the motivations and consequences of these behaviors. The utilization of self-determination theory enhances our understanding of gamers' intrinsic motivations and their impact on continued involvement behavior.

2. Literature review

The current study explores factors such as self-determination theory, compulsive buying, Generation Z's challenges, and gaming addiction.

2.1 Self-determination Theory

Online gaming serves to satisfy players' needs for relatedness (i), autonomy (ii), and competence (iii) by highlighting relationships with fictional or real-world characters and providing access to game-specific authority and oversight (Vasconcellos et al., 2020). Research by Gilal et al. (2019) and Ryan and Deci (2019) suggests that individuals addicted to video games seek novelty, socialization, competition, and amusement. Gaming addiction has been associated with psychological demands such as achievement, independence, fun, and respect, as well as basic needs like food and shelter (Gillison et al., 2019). The rising demand for video games among teenagers is seen as an attempt to fulfill some of their psychological requirements through the Internet (Ryan & Deci, 2019). Problematic internet gaming has been positively correlated with the satisfaction of fundamental psychological needs

(Vasconcellos et al., 2020). Adolescents with unmet basic psychological needs and perceptions of inadequate social support exhibit higher levels of gaming addiction (Mun & Lee, 2022). Some studies suggest that online games can meet fundamental psychological demands (Maraz & Yi, 2022; Mason et al., 2022). However, research indicates that while high need fulfillment in online gaming can compensate for low basic psychological need satisfaction in real life, it may lead to addiction in a small minority (Mancini et al., 2019; Müller et al., 2021). Based on this literature, the study predicts a significant negative link between addiction to online gaming and one's basic psychological requirements.

In online games, players have the opportunity to form relationships with both imaginary and actual characters (Dimock, 2019; Dutheil et al., 2023). Many video games feature plots, compelling storylines, and well-rounded characters that evoke feelings of kinship and emotional connections. Multiplayer options in online games allow players to interact, collaborate, and build social bonds and a sense of community (Gaidhani et al., 2019). Autonomy, the desire for individuals to feel in control and have choices over their behaviors, is fulfilled through online gaming, offering players flexibility and decision-making options (Atkins, 2020). Players can influence the game's fate through choices, playstyle preferences, and avatar or character customization. Competence, the need to feel successful and capable in actions, is addressed through elements of advancement, challenge, and skill improvement in online gaming. Players can acquire new skills, overcome challenges, and receive feedback, incentives, and milestones, advancing a sense of competence and success, both in and outside the game (Djafarova & Bowes, 2021; Schenarts, 2020; Wiastuti et al., 2020). The current study finds that self-determination theory, compulsive buying, generation Z's challenge, and gaming addiction are all factors.

2.2 Generation Z

Generation Z, born in 1995 or later, represents a cohort raised in a world immersed in technological advancements, shaping their distinct characteristics and behaviors (Atkins, 2020). Considered digital natives, they have grown up with pervasive exposure to social media and mobile technology from a young age (Djafarova & Bowes, 2021). Defined by their tendencies—curiosity in new technology, stress on the simplicity of use, a desire for protection, and a need for temporary escapism (Giray, 2022)—Generation Z confronts a VUCA world marked by volatility, uncertainty, complexity, and ambiguity (Gaidhani et al., 2019). Generation Z has witnessed significant societal, political, technical, and financial transformations in their brief lives, leading to distinct consumer behaviors and expectations (Mason et al., 2022). Less loyal to retailers, they prioritize experiences over brand allegiance, demanding more from businesses (Robinson & Schänzel, 2019; Schenarts, 2020). However, Monaco (2018) identifies them as the driving force behind future m-commerce consumer behavior. Understanding Generation Z is crucial for marketers as they prefer technology-mediated communication, are constantly connected, and exhibit less interest in face-to-face interaction (Atkins, 2020; Giray, 2022).

Generation Z's reliance on smartphones influences various aspects of their lives, impacting physical health, cognitive processes, and social and professional identities (Gaidhani et al., 2019; Hew et al., 2023). The smartphone is a multifaceted hub for information, encompassing activities like TV viewing, music enjoyment, socializing, and gaming—a "package of stimuli" integral to their daily routine (Giray, 2022). With an average daily screen time of 4:15 hours, smartphones play a central role in their lives, prompting (Hew et al., 2023) to propose the inclusion of nomophobia (fear of being without a smartphone) in revised mental health considerations. Studies indicate that this strong attachment to mobile devices among Generation Z may serve as a coping mechanism for isolation, anxiety, and emotional stress, potentially linking to online gaming addiction and escapism (Keenan et al., 2022). The pervasive use of mobile devices has been associated with negative outcomes, including inactivity, poor sleep, academic plagiarism, depression, and reduced attention to external stimuli (Bessette-Kirton et al., 2020; Ciurleo et al., 2020; Gaidhani et al., 2019). However, researchers have also highlighted the

downsides of overattachment, emphasizing the impact of smartphones on Generation Z's daily lives Ciurleo et al. (2020).

H1: Online game playing addiction is positively related to flow.

2.3 Compulsive Buying of Online Games

Compulsive buying, defined by Maraz and Yi (2022) as "impulse buying," involves unplanned, hasty purchases driven by impulsive desires. The decision to make such purchases is categorized based on the motivation to achieve a desired state or avoid an undesired one. Researchers (Mason et al., 2022; Mestre-Bach et al., 2023; Müller et al., 2021; Shah & Tandon, 2020; Thomas et al., 2023; Wegmann et al., 2023) have explored the connection between addiction and purchasing behavior. Online game addiction, in particular, has been associated with increased spending on mobile game features fueled by impulsive and compulsive tendencies (Shah & Tandon, 2020). The younger generation's attachment to internet gaming has further influenced peak impulsive purchases (Thomas et al., 2023). Generation Z, known for increased impulsivity at earlier ages, may engage in purchases with less deliberation than previous generations, driven by their insufficient self-control, particularly in the context of online games in Indonesia (Mestre-Bach et al., 2023).

Compulsive buying, as described by Müller et al. (2021) and Shah and Tandon (2020), involves an insatiable drive leading individuals to engage in behavior that repeatedly causes harm. (Maraz & Yi, 2022) characterize it as an addiction marked by shame, harm, and an uncontrollable impulse to acquire unnecessary and inexpensive items, often observed in online environments. While numerous environmental and psychological factors have historically been linked to compulsive buying (Thomas et al., 2023; Wegmann et al., 2023), the majority of research has focused on offline or online contexts. This study uniquely explores the relationship between smartphone addiction and compulsive online shopping (Maraz & Yi, 2022), recognizing the continuous expansion of m-commerce and the distinct elements in the mobile environment that may contribute to compulsive behaviors. The ease of access, engaging mobile shopping experiences, and the simplicity with which compulsive purchasers can acquire items to manage emotional states all play roles in spending tendencies (Giray, 2022). Notably, the smartphone itself may not be the direct cause of excessive internet shopping; rather, the exposure to the mobile digital environment warrants attention. Understanding the potential link between digital stimulation and mental responses is crucial for comprehending game addiction and its connection to the compulsive online buying of games (Hew et al., 2023; Kiatsakared & Chen, 2022).

H2: Online game playing addiction is positively related to mood regulation.

2.4 Online Gaming Addiction

Excessive online gaming behavior, as distinct from coffee or nicotine addiction, manifests as a psychological dependency, emphasizing its unique nature (Hew et al., 2023). The affection for online games often evolves through immersive experiences and the enjoyment of gameplay, eventually recognized as a potential hazard (Kiatsakared & Chen, 2022; Zhao et al., 2020). The global prevalence of online gaming is facilitated by technological advancements, enabling widespread participation in these activities (Sitorus et al., 2020). A prominent feature of online gaming addiction is procrastination or avoidance of daily responsibilities, a key characteristic highlighted by Zhao et al. (2020). According to the fifth version of mental health criteria, Internet gaming illness requires individuals to persist in playing online games despite awareness of psychosocial issues (Mun & Lee, 2022; Zhao, 2022), often resulting in neglect of crucial tasks. Research consistently suggests that addiction to online gaming jeopardizes employment, education, and professional opportunities, with individuals facing potential loss or compromise (Mancini et al., 2019; Sitorus et al., 2020). Such behavior is viewed by individuals, their families, or friends as a lapse in responsibility, as time spent on gaming supersedes essential life duties (Kiatsakared & Chen, 2022; Mun & Lee, 2022). Given that pursuing identity involves questioning life's meaning, excessive engagement in online video games may distance youths from this

exploratory process. This maladaptive outcome, possibly leading to addiction, has been associated with prolonged online gaming (Hew et al., 2023; Kiatsakared & Chen, 2022). Studies indicate that young individuals play online games as a means of identity exploration (Bessette-Kirton et al., 2020; Ciurleo et al., 2020; Dutheil et al., 2023; Hong et al., 2020). Notably, Gaidhani et al. (2019) highlight that a decline in gaming addiction corresponds to an increase in adolescents' perceived significance in life. The present study anticipates that adolescents' addiction to online gaming will diminish when they find meaning in life.

H3: Online game playing addiction has a positive relationship with compulsive buying of online games.

2.5 Flow Triggered

While it is acknowledged that individuals may experience flow when using mobile devices, researchers have established that smartphone engagement in both hedonic and eudemonic activities can induce a state of flow (Bessette-Kirton et al., 2020). The multitude of features and applications available on smartphones has the potential to capture one's interest rapidly, leading to increased immersion and neglect of surrounding activities, ultimately resulting in a flow state (Hong et al., 2020). Moreover, (Ciurleo et al., 2020) observed a significant correlation between the time spent on mobile devices and the likelihood of experiencing flow states, suggesting that smartphone addicts who dedicate extensive time to their devices, are more prone to entering flow states. Flow experience has emerged as a pivotal factor in online user behavior, with studies emphasizing a positive association between flow experiences and customers' inclination to make purchases and revisit online platforms (Kiatsakared & Chen, 2022; Li et al., 2021; Pastorello et al., 2020). Higher levels of flow are linked to increased purchases, heightened satisfaction and loyalty, and prolonged online engagement (Bessette-Kirton et al., 2020; Hong et al., 2020; Yang et al., 2021). Notably, consumers in flow phases tend to make fewer deliberate decisions, reducing impulsive and disconnected purchases often associated with compulsive buying behaviors. Online environments, with their unrestricted search capabilities and absence of immediate social interactions, create an environment conducive to compulsive purchasing habits (Ciurleo et al., 2020).

Recognizing the impact of flow on user engagement in online gaming platforms, there has been a call for the integration of in-app gaming tactics to enhance user flow and engagement (Hong et al., 2020; Li et al., 2021). Mobile internet sites are now designed to trigger flow experiences, capturing gamers' attention and potentially increasing their propensity to make purchases. This strategy is commonly employed in mobile retail apps, although the full extent of its effects on users' attitudes and behaviors remains a subject of ongoing research. The positive outcomes associated with flow experiences extend to customers' buying behavior, as highlighted by Kiatsakared and Chen (2022), and are closely tied to the pleasurable emotions individuals seek to re-experience. The significant association between obsessive buying inclinations and flow has been underscored by Pastorello et al. (2020).

H4: Mood regulation has a significant relationship with flow triggered by active online game playing.

2.6 Mood Regulation

Various scholars have explored the relationship between mood regulation, coping mechanisms, and the manifestation of pathological behaviors (Dutheil et al., 2023). It is posited that individuals may recurrently partake in pleasurable activities as a means to escape negative moods, potentially leading to the development of behavioral addictions over time (Keenan et al., 2022). In instances of compulsive buying and detrimental gaming behaviors, individuals may experience a diminishing positive mood effect with repeated actions akin to tolerance, reinforcing the behavior (Ortiz et al., 2019). Compulsive buyers, for instance, often report heightened anxiety levels, alleviated only through the act of making a

purchase (Palagini et al., 2019). In essence, the urge to buy compulsively may arise as a response to a negative mood, and the subsequent purchase temporarily elevates their mood, serving as a positive reinforcement mechanism (Dutheil et al., 2023; Keenan et al., 2022; Ortiz et al., 2019). Drawing parallels between online game addiction and compulsive buying reveals shared characteristics, both viewed as strategies to shift attention from internal negative thoughts to external stimuli. Deficient mood control strategies on mobile devices may strengthen the link between smartphone addiction and compulsive online buying s(Dutheil et al., 2023; Ortiz et al., 2019). Individuals, in an effort to manage their affective states and alleviate negative moods, may engage in specific activities, such as making online purchases (Xue et al., 2020). These mood-regulating behaviors, often facilitated by digital devices, represent an active attempt to evade real-world challenges. Prior research has established a connection between mood regulation mechanisms and the experience of flow states. Flow states have been associated with emotions as they "tend not to disrupt ongoing activity" (Dutheil et al., 2023). The sense of flow while using digital devices may be mediated by mood mechanisms, suggesting that individuals engage in enjoyable activities through mood-regulating behaviors, inducing flow states (Bessette-Kirton et al., 2020).

H5: Mood regulation significantly impacts compulsive buying of online games.

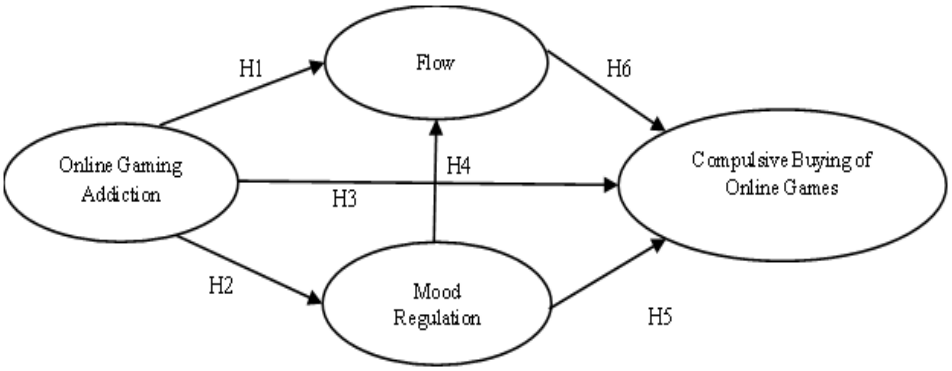

Figure 1: Conceptual Framework

3. Methodology

The data for this study were collected through a survey conducted in various Asian and Middle Eastern nations, targeting gamers aged 20 to 30 enrolled in intermediate, elementary, and bachelor's degree programs. The focus was on regions with a high prevalence of smartphone usage, given the significant mobile gaming market in the Middle East and North Africa, where an estimated 100 million players are expected to spend $4.4 billion this year. The survey encompassed smartphone owners and active users between the ages of 20 and 30 in this gaming sector. High schools and institutions were informed about the survey, allowing every student the opportunity to participate. A methodical sampling approach randomly selected 350 individuals from the volunteers, resulting in a usable sample of 316 completed surveys (130 middle, 121 primary, and 65 university students) after eliminating incomplete responses. The final sample comprised 30% male and 70% female participants, and Table 1 outlines key characteristics. Participants provided written consent before engaging in the study, with face-to-face surveys conducted each from May 25 to June 25, 2023, lasting approximately 20 minutes.

3.1 Measurements

The questionnaire consisted of two parts: the first explored participants' sociodemographic information, while the second comprised four scales using a seven-point Likert scale style (1 = strongly disagree to 5 = strongly agree). The scales included the online gaming addiction scale, flow triggered, mood regulation, and compulsive buying of online gaming. These scales were adapted from previous studies (Mason et al., 2022), ensuring a robust foundation. All questions were presented in English to

facilitate understanding in the diverse linguistic context. Prior to the main survey, ten randomly chosen Gen Z respondents underwent a preliminary survey to refine the questionnaire.

4. Analysis

This study explores the factors of self-determination theory, compulsive buying, the challenges faced by Generation Z, and gaming addiction.

4.1 Demographics

Table 1 provides a snapshot of the demographic details and descriptive statistics derived from a preliminary analysis of respondent data, with SmartPLS3 employed for assessing structural and measurement models. The investigation into the relationship between compulsive buying of online games, online gaming addiction, flow triggered, and mood regulation focuses explicitly on male and female online gamers from Asia and the Middle East, predominantly representing Generation Z. The analysis indicates that this cohort possesses adequate diversity in terms of age, gender, employment tenure, and job positions.

Table 1: Demographics

	Description	No. of Responses	%
Gender	Male	220	70
	Female	96	30
Age	20-25	150	47
	25-30	130	41
	Above 30	36	12
Education	Middle School	130	41
	Primary School	121	38
	Bachelor's degree	65	20
Living Place	School dormitory	150	47
	In campus	120	38
	Home	46	15
Socio Economic Status	High	140	44
	Medium	110	35
	Low	66	21
Time Spend	1-3 Hours	46	15
	3-6 Hours	160	50
	More than 6 Hours	110	35

The demographic composition illustrates that male online gamers from Asia and the Middle East, particularly from Generation Z, constitute 70% of the sample, while females make up 30%. The age distribution shows that 47% fall within the 20-25 age range, 41% are between 25-30, and 12% are above 30. Regarding education, 41% completed middle school, 38% completed primary school, and 20% hold a bachelor's degree. The living arrangement indicates that 47% reside in school dormitories, 38% live on campus, and 15% at home. The socioeconomic status is distributed with 44% high, 35% medium, and 21% low. Lastly, the time spent on gaming activities reveals that 15% spend 1-3 hours, 50% spend 3-6 hours, and 35% spend more than 6 hours."

4.2 Descriptive Statistics

Table 2 presents the descriptive statistics for four key variables in the current study, including their means, standard deviations, and the range of values. The variables under consideration are compulsive buying of online games, flow triggered, mood regulation, and online gaming addiction, all of which are crucial in understanding the Generation Z's online gaming behavior.

Table 2: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Compulsive Buying of Online Games	316	1	4	3.88	0.90
Flow Triggered	316	1	4	3.74	0.79
Mood Regulation	316	1	4	3.84	0.85
Online Gaming Addiction	316	1	4	3.87	0.88

These statistics offer a comprehensive overview of the central tendencies and variabilities within the dataset. The mean values indicate the average score for each variable, providing insight into the typical level of compulsive buying, flow triggered behavior, mood regulation, and online gaming addiction among the respondents. Standard deviations reveal the extent of dispersion from the mean, signifying the degree of variability in the dataset. For compulsive buying of online games, the mean score is 3.88, with a standard deviation of 0.90, suggesting moderate variability in responses. Flow triggered behavior has a mean score of 3.74, with a standard deviation of 0.79, indicating a slightly lower variability level than compulsive buying. Mood regulation, with a mean of 3.84 and a standard deviation of 0.85, falls within a similar range of variability. Online gaming addiction, with a mean score of 3.87 and a standard deviation of 0.88, demonstrates a level of variability comparable to the other variables. In summary, these descriptive statistics provide a clear snapshot of the key variables' central tendencies and distribution of responses, setting the foundation for a more in-depth analysis of their interrelationships in subsequent study sections.

4.3 Measurement model

The evaluation of the data's factor loadings, validity, and reliability was initially conducted using PLS-SEM. In quantitative research, a measurement model, sometimes referred to as a confirmatory factor analysis (CFA) model, is a statistical method employed to assess the measurement characteristics of a set of observed variables or indicators. In various fields, such as psychology, the social sciences, and market research, it is widely utilized to validate the measurement tools employed in a study. The measurement model investigates how the latent constructs underlying the observable variables are interrelated (Hair et al., 2019).

4.3.1 Composite Reliability, Cronbach's Alpha, and Discriminant Validity (HTMT)

Table 3 demonstrates that compulsive buying of online games (CA= 0.947, AVE= 0.826), flow triggered (CA= 0.947, AVE= 0.826), mood regulation (CA= 0.947, AVE= 0.826), and online gaming addiction (CA= 0.947, AVE= 0.826) exhibit a favorable measurement fit. Additionally, HTMT values confirm the discriminant validity.

Table 3: Composite reliability, Cronbach's Alpha, AVE, and Discriminant Validity

Constructs	CA	CR	AVE	CBOG	FT	MR	OGA
Compulsive Buying of Online Games	0.947	0.960	0.826	0.909			
Flow Triggered	0.891	0.924	0.753	0.661	0.868		
Mood Regulation	0.933	0.952	0.832	0.782	0.655	0.912	
Online Gaming Addiction	0.814	0.878	0.643	0.356	0.574	0.409	0.802

Note: CR=composite reliability; AVE=average variance extracted; CA= Cronbach's Alpha

4.4 Structural Equation Model

The PLS-SEM bootstrapping approach was employed to statistically determine the route coefficients supporting the hypothesized relationships, as illustrated in Figure 3. A structural equation model (SEM), a statistical modeling technique, was used to analyze the relationships between latent (unobserved) variables and observable variables. This technique simultaneously examines measurement and structural models through route, regression, and component analyses (Becker et al., 2023).

4.4.1 Direct Relation

The PLS-SEM evaluation focused on the connections between compulsive online game purchasing, gaming addiction, flow-triggered behavior, and mood regulation. Direct analysis was employed in structural equation modeling (SEM), examining the direct correlations between variables in a theoretical model (Purwanto et al., 2021). The results in Table 4 reveal significant findings regarding the direct relationships. The relationship between online gaming addiction and flow was positively significant (β = 0.368, t = 7.113, p = 0.000), supporting H1. Additionally, the relationship between online gaming addiction and mood regulation was positively significant (β = 0.409, t = 9.955, p = 0.000), supporting H2. However, the relationship between online gaming addiction and compulsive buying of online games was negative and insignificant (β = -0.066, t = 1.784, p = 0.075), leading to the non-acceptance of H3. The relationship between mood regulation with flow and online game addiction was positively significant (β = 0.150, t = 4.464, p = 0.000), supporting H4. Furthermore, the relationship between mood regulation and compulsive buying of online games was positively significant (β = 0.614, t = 12.576, p = 0.000), supporting H5. Lastly, the relationship between flow with online game addiction and compulsive buying of online games was positively significant (β = 0.297, t = 5.415, p = 0.000), supporting H6.

Table 4: Direct Relation

	Relationships	Original Sample	T Statistics	P Values	Decision
H1	**Online Gaming Addiction > Flow**	0.368	7.113	0.000	Supported
H2	**Online Gaming Addiction -> Mood Regulation**	0.409	9.955	0.000	Supported
H3	**Online Gaming Addiction -> Compulsive Buying of Online Games**	-0.066	1.784	0.075	Not Supported
H4	**Mood Regulation -> Flow -> Online Gaming Addiction**	0.150	4.464	0.000	Supported
H5	**Mood Regulation -> Compulsive Buying of Online Games**	0.614	12.576	0.000	Supported
H6	**Flow -> Online Gaming Addiction -> Compulsive Buying of Online Games**	0.297	5.415	0.000	Supported

Table 5 presents the R^2 values for different endogenous variables, showcasing the model's explanatory power. Additionally, the bootstrap significance analysis is illustrated in Figure 2.

Table 5: Assessment of R square

	R^2
Compulsive Buying of Online Games	0.653
Flow Triggered	0.541

Mood Regulation	0.167

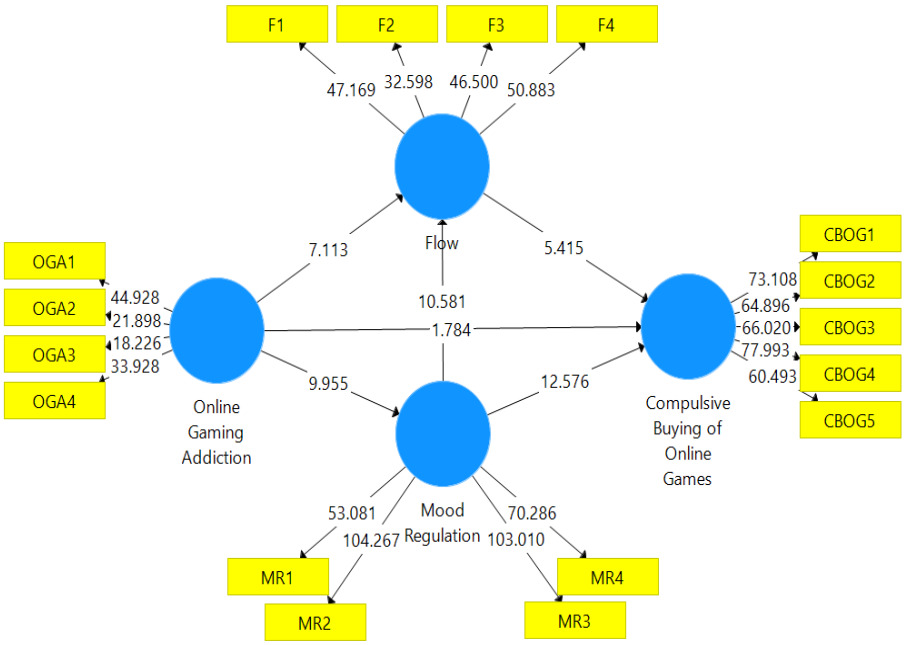

Figure 2: Assessment of Bootstrapping

5. Discussion

The current study examined the relationships among compulsive buying of online games, online gaming addiction, flow triggered, and mood regulation, focusing on male online gamers from Asia and Middle East countries, particularly Generation Z. All hypotheses were accepted except for H3. The findings reveal a positive and significant association between online gaming addiction and flow. This aligns with established literature indicating that the state of flow, marked by optimal engagement and immersion, enhances motivation and enjoyment (Mason et al., 2022). The study sheds light on the immersive nature of online gaming, suggesting that individuals addicted to it are more likely to experience a state of flow, losing track of time and self-awareness during gameplay. Furthermore, the study uncovers a positive relationship between online gaming addiction and mood regulation. Online gaming serves as a temporary escape, relieving negative emotions like melancholy or worry. The immersive features, captivating narratives, and social connections within gaming contribute to a sense of control and accomplishment, providing a respite from unpleasant feelings (Djafarova & Bowes, 2021). The online gaming environment can act as a social outlet, advancing a sense of community and reducing feelings of loneliness. Surprisingly, the relationship between online gaming addiction and compulsive buying of online games was found to be negative and insignificant. This suggests that those engaging in compulsive purchasing might not necessarily exhibit addictive behaviors in online gaming. The distinct motivations driving these behaviors, such as escapism and achievement in gaming addiction versus novelty and prestige in compulsive buying, may account for this lack of a meaningful link (Dutheil et al., 2023).

The study also highlights a positive and significant relationship between mood regulation, flow, and online game addiction. Individuals experiencing the flow state while gaming are more likely to employ gaming as a mood-regulating mechanism. This association implies that the likelihood of developing an addiction to online games as a coping mechanism increases with flow experiences (Giray, 2022). With its immersive features, online gaming offers relief from real-world challenges, temporarily alleviating boredom, worry, or despair. Moreover, a positive and substantial relationship was identified between

mood regulation and compulsive buying of online games. Individuals struggling to control their moods are more prone to compulsive purchasing behaviors related to online games (Hew et al., 2023). This underscores the crucial role of mood modulation in understanding and potentially addressing compulsive buying in the context of online gaming. Finally, the study reveals a strong and positive link between flow, online game addiction, and compulsive buying of online games. This suggests that individuals experiencing high levels of flow during gameplay are at an increased risk of developing an addiction to online games, subsequently engaging in compulsive purchasing. The findings underscore the role of the flow state in the emergence of addictive patterns and inappropriate spending habits within the online gaming.

5.1 Implications of Study

The current study contributes valuable insights to the understanding of compulsive buying and addiction to online games within the theoretical framework. It introduces a novel connection between online game addiction in Generation Z and excessive internet shopping, a linkage previously overlooked in the literature. Existing research on compulsive buying (Maraz & Yi, 2022; Mestre-Bach et al., 2023; Mun & Lee, 2022) primarily focused on the environmental impact on online behavior, neglecting the role of specific devices, such as cell phones, in encouraging compulsive tendencies. Similarly, studies on addiction to online games failed to consider potential drawbacks or the emergence of compulsive purchasing habits (Hew et al., 2023; Mancini et al., 2019). Anchored in a behavioral context model, this research underscores the pivotal roles of mood regulation and the sense of flow in the manifestation of compulsive buying behaviors among Generation Z players in online gaming environments (Kiatsakared & Chen, 2022; Sitorus et al., 2020; Zhao, 2022).

The study highlights that flow experiences and mood regulation may contribute to the development of compulsive buying behaviors in Gen Z players. Specifically, the findings indicate that the experience of flow, rather than mood regulation mechanisms, plays a more significant role in triggering obsessive behavior. Gen Z individuals exhibiting tendencies toward obsessive online shopping warrant increased attention from both the public and private sectors. This generation tends to make decisions without considering the financial implications, emphasizing the need for preventive measures. Businesses, especially online retailers, should be vigilant about identifying and addressing dysfunctional behaviors among Gen Z adults on their platforms. Compulsive buying, often rooted in societal pressure, marketing strategies, and cognitive biases, can serve as a dysfunctional coping mechanism offering only temporary solace or pleasure.

Furthermore, compulsive gaming may adversely affect academic performance, health, and social interactions. Excessive gaming can lead to sedentary behavior, lack of exercise, and potential health problems. Moreover, it may contribute to social withdrawal, fewer face-to-face interactions, and challenges in balancing gaming with other crucial activities like employment, relationships, and self-care.

5.2 Limitations and Future Research

While the present study provides valuable insights, it is not without limitations, opening avenues for future research. The assumption that inappropriate online game playing is directly linked to mobile device usage may present a biased perspective. The study's findings should be validated for other digital technologies, such as computer games, utilizing micro-transaction systems to encourage in-game purchases. Replicating the study with samples from diverse cultural backgrounds is essential to understand potential variations in consumption patterns across different cultures. The study's generalizability is limited by a relatively small sample size, focused on online gamers from Asia and the Middle East. This may not fully capture the experiences and behaviors of Generation Z in various geographic and cultural contexts. Additionally, concentrating solely on online players may overlook those engaged in different types of gaming or exhibiting distinct gaming patterns. Future research could explore a broader spectrum of gaming activities and their impact on addiction.

The cross-sectional nature of the research restricts the ability to establish causal connections or monitor changes in behavior over time. Future longitudinal studies could provide a more comprehensive understanding of how online gaming addiction and compulsive shopping develop among Generation Z. Including a more diverse sample in terms of cultural origins, socioeconomic status, and geographic regions would enhance the external validity of findings and offer a more comprehensive understanding of Generation Z's compulsive shopping and online gaming addiction. As technology continues to evolve, future research should explore the impact of cutting-edge technologies, such as virtual and augmented reality, on addiction among Generation Z. This includes assessing their potential role in shaping compulsive shopping and online gaming addiction. Additionally, more research is needed to evaluate the effectiveness of intervention and prevention measures specifically tailored to address compulsive shopping and online gaming addiction among Generation Z. Identifying evidence-based treatments and policies can be instrumental in addressing these issues and promoting the well-being of Generation Z and future generations.

5.3 Conclusion

In conclusion, this study aimed to analyze the relationship between compulsive buying of online games, online gaming addiction, flow triggered, and mood regulation among male online gamers from Asia and the Middle East, particularly from Generation Z. The study employed the stimulus-organism-response framework, empirically testing the model with survey data from Gen Z gamers. The findings reveal a linkage between compulsive online shopping and game addiction, emphasizing the reinforcing roles of mood-regulating behaviors and flow experiences. This study provides theoretical insights and practical applications, offering implications for various aspects such as academic performance, health effects, social isolation, time management, and financial repercussions. Compulsive buying can have detrimental effects, including financial difficulties, emotional distress, strained relationships, and environmental impact. Theoretical implications touch upon psychological theories, coping strategies, incentive structures, and societal factors related to online gaming addiction and compulsive buying. By enhancing our understanding of these issues, researchers, educators, mental health professionals, and policymakers can develop practical solutions to address compulsive shopping and online gaming addiction. This holistic approach aims to promote the well-being and healthy development of Generation Z and future generations.

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