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# Problematic gaming, social withdrawal, and Escapism: The Compensatory-Dissociative Online Gaming (C-DOG) model

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ABSTRACT

In this article, we critically overview existing studies on compensatory and dissociative mechanisms associated with problematic gaming, with a focus on escapism. Thus, we present a theoretical model integrating current research. In the first section, we link compensatory and dissociative processes related to gaming on a continuum that corresponds to the degree of connection/rupture between physical and virtual environments of the individual. In the second section, we discuss the strengths and limitations of existing conceptualizations and measures of escapism. We contend that escapism in gaming represents a key dimension of the compensation for difficulties in psychological needs satisfaction in the physical environment, differently from escape (avoidance) and from general immersion in video games. In the last section, we elaborate the Compensatory-Dissociative Online Gaming (C-DOG) model, which defines a set of interconnected psychological processes operationalizing the continuum between adaptive and pathological online gaming: relaxation, body-mind detachment, active escapism, escape, and dissociation. This model provides an unprecedented way to consider meaningful processes for the clinical evaluation and treatment of problematic gaming, as well as the association of problematic gaming with emerging social withdrawal conditions, such as hikikomori.

## 1. Introduction

In 2013, the American Psychiatric Association (APA) included Internet Gaming Disorder among the conditions for further study of the *Diagnostic and Statistical Manual of Mental Disorders* (APA, 2013DSM-5; ). Although this category has retained its provisional status in the current *DSM-5* text revision (*DSM*-5-TR; APA, 2022), in 2019, the World Health Organization (WHO) also recognized gaming disorder (GD) as a diagnosable condition under the Disorders Due to Substance Use or Addictive Behaviours section of the *International Classification of Disease* (11th ed.; *ICD-11*; Reed et al., 2022; Billieux, Stein, Castro-Calvo, Higuchi, & King, 2021).

This decision by WHO concerning GD has engendered much debate. In fact, several scholars argued against the recognition of problem gaming as a clinical condition and about its status as a genuine addictive disorder (Aarseth et al., 2017; Van Rooij et al., 2018). More recently, an international group of 29 clinicians and researchers with experience in GD were involved in a Delphi study: Their expert opinion resulted in some traditional criteria used to diagnose gaming problems—such as escapism/mood regulation, deception and tolerance-like phenomena—not being identified as valid indicators of pathological behaviors (Castro-Calvo et al., 2021). On the other hand, the experts involved showed consensus regarding the clinical relevance and prognostic value of the more streamlined criteria included in the *ICD-11* to define GD (Ballou & Zendle, 2022; Billieux, Flayelle, Rumpf, & Stein, 2019; Castro-Calvo et al., 2021). According to such criteria, increasing evidence has shown that a minority of individuals report a conflict between persistent gaming activity (mostly online gaming) and other areas of

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their everyday life, with adverse consequences and functional impairment (Király, Koncz, Griffiths, & Demetrovics, 2023; Király, Potenza, & Demetrovics, 2022). Specifically, the estimated prevalence of GD has been shown to range from 1% to 3% across different subpopulations (Nogueira-López, Rial-Boubeta, Guadix-Garcia, Villanueva-Blasco & Billieux, 2023; Stevens, Dorstyn, Delfabbro, & King, 2020).

### 1.1. Process-based approach to escapism in problematic gaming

Complementarily to the categorical diagnosis proposed by the *ICD-11*, many authors have found common ground in a dimensional process-based approach to problematic gaming (and other technology-mediated problematic behaviors), in which specific psychological processes are transparently explored to address surface addiction-like symptoms (Billieux, Philippot, Schmid, Maurage, de Mol, & Van der Linden, 2015; Flayelle, Starcevic, & Billieux, 2019; Throuvala, Janikian, Griffiths, Rennoldson, & Kuss, 2019; Wéry, Schimmenti, Karila, & Billieux, 2019). One of the most credited process-based perspectives on the topic suggests that problematic gaming may be the result of a dysfunctional compensatory mechanism, implying a need to escape the physical world in reaction to offline psychosocial and emotion regulation difficulties (Di Blasi et al., 2019; Schimmenti, 2023; Schimmenti & Caretti, 2010). Reaching a consensus on the meaning of "escapism" through gaming and its role in compensatory processes associated with problematic gaming has, however, been controversial to date (Hussain, Jabarkhail, Cunningham, & Madsen, 2021; Giardina, Starcevic, King, Schimmenti, Di Blasi, & Billieux, 2023). Indeed, from existing frameworks emerges that escapism can promote relaxation, affect regulation, and assist with emotional coping in periods of crisis (Boldi, Rapp, & Tirassa, 2022; Kosa & Uysal, 2020; Kuo, Lutz, & Hiler, 2016). Nevertheless, escapism has also been suggested to be a form of passive psychological retreat, linked with poor self-esteem, avoidance, and, above all, dissociation (Guglielmucci et al., 2019; Kardefelt-Winther, 2014a; Melodia, Canale, & Griffiths, 2020; Schimmenti & Caretti, 2010).

### 1.2. Aims and structure of the paper

We contend that the key to a clinically useful understanding of escapism is an exploration of the link between psychological mechanisms of compensation and dissociation via gaming. Thus, the aim of the current paper is to (1) critically review the literature on compensatory and dissociative processes linked to gaming, with a specific focus on escapism, and (2) integrate the existing literature into the comprehensive Compensatory-Dissociative Online Gaming (C-DOG) model. To this aim, in the first section, we review the evidence behind the theoretical link between compensation and dissociation in gaming, guided by the perspective that frames videogames as environments. In the second section, we analyze existing escapism frameworks and assessment tools, identifying in the conceptual equivalence with immersion and avoidance themain problem hindering the study of this construct. In the final section, we present the C-DOG model, which organizes the reviewed psychological processes along a continuum ranging from compensatory (more adaptive) to dissociative (maladaptive) patterns of gaming. Clinical and research implications of the model are discussed.

## 2. Compensatory and dissociative online gaming: theoretical foundations

Although mechanisms such as compensation and dissociation have been extensively studied in previous literature on problematic gaming, to our knowledge they have not yet been linked to each other. Drawing from approaches such as the "compensatory theory of online involvement" (Kardefelt-Winther, 2014b), the "need-density hypothesis" (Rigby & Ryan, 2011, 2017), the "self-discrepancy hypothesis" (Klimmt, Hefner, & Vorderer, 2009), and the "dilution effect" (Cheng, Cheung, & Wang, 2018), the overall meaning of compensation in online gaming concerns the overreliance on the gaming environment to alleviate negative emotions and/or to meet thwarted needs, with negative consequences on the individual functioning that are proportional to the intensity of those emotions and needs. On the other hand, dissociation refers to "a disruption of and/or a discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior" (APA, 2013, p. 291). The literature indicates that dissociation is a normal process of the mind that may entail diverse phenomena such as self-absorption, detachment from self and reality, and compartmentalization of mental and behavioral states (Schimmenti & Sar, 2019). Dissociation is usually activated in front of potential stressors that overcome the individual's possibility of processing and integration (e.g., traumatic experiences, disrupted communications and abuses in attachment relationships, neglect of basic psychological needs; see Schimmenti & Caretti, 2016); however, when dissociation becomes uncontrolled, rigid, and pervasive (i.e., adopted regardless of the context of the stressors), it entails failures in self-reflectivity (Steele, van der Hart, & Nijenhuis, 2005) and severe emotion dysregulation (Lynn et al., 2019), contributing to the development of problematic gaming (Casale, Fioravanti, & Musicò, 2022; Casale, Musicò, & Schimmenti, 2021; Ciccarelli, Cosenza, Nigro, Griffiths, & D'Olimpio, 2022; Grajewski & Dragan, 2020; Guglielmucci et al., 2019). In such a context, it has been proposed that the safe environment of the video game can become a *psychic retreat* (Schimmenti & Caretti, 2010). In other words, video gaming may represent for some individuals a container for unrecognized, traumatized, or otherwise conflicting parts of the individual self that prevent mental suffering or identity disruption.

### 2.1. The compensatory-dissociative online gaming continuum

In this proposal, the link between compensation and dissociation stems from the view of gaming as an environment that can be integrated to different degrees into the physical environment of individuals, often referred to as "offline" or "real" life. We are thus interested in operationalizing the psychological processes representing the different degrees of connection between the physical and virtual environments and between the respective parts of the individuals' selves. From this perspective, we propose that compensatory gaming is characterized by a homeostatic connection between the physical and the virtual environment, whereas dissociative gaming denotes the disruption and discontinuity between the two environments and the respective parts of individuals' consciousness, memory, identity, and body representation. The transition from compensatory to dissociative gaming thus corresponds to that from the connection to the disruption of physical and virtual environments and, in a parallel way, to that from more to less adaptive gaming patterns. In the following sections, we further explore this perspective and the role played by escapism in the continuum between compensation and dissociation.

### 2.2. Gaming as a simulative environment: non-physicality and emotional processing

Recent proposals consider online games as environments with their own characteristics (*environmental view*), rather than tools that can be used in a good or bad way (*mechanistic view*; Musetti & Corsano, 2018; Schimmenti, 2023). In our perspective, gaming environments have two features that make them unique to the individuals' psychological functioning. The first, is their *non-physicality* (Pal & Arpnikanondt, 2023). Indeed, the only means to access a virtual gaming environment is by immersing oneself into it with one's mind. Into the game, physical bodies are replaced by customizable avatar offering a greater degree of control over one's appearance, and thus promoting the perception of safety in expressing and experiencing different parts of oneself with the related emotions (Blinka, 2008; Casale et al., 2021; Dengah & Snodgrass, 2020; Gaetan, Bréjard, & Bonnet, 2016; Stavropoulos, Gomez,

Mueller, Yucel, & Griffiths, 2020). Accordingly, in a previous work we have proposed replacing the absolute dichotomy "virtual versus real" life with the conditional one "virtual versus physical" life (Giardina et al., 2023), and that video games should thus be considered non-physical environments situated in everyday reality (Meriläinen, M., 2022).

This condition is constitutional for the second psychologically salient characteristic of gaming environments: their *simulative potential*. This potential is characterized by the paradoxical coexistence of events that lack immediate repercussions beyond the confines of games - a concept integral to the notion of the "magic circle" in gaming (Calleja, 2010) - and the ongoing interchange that those events maintain with the internal landscape of the player. In this regard, video games can function as a "test bench", that is, as an experimental platform for various facets of psychological functioning (Nuyens, Kuss, Lopez-Fernandez, & Griffiths, 2019; Villani, Carissoli, Triberti, Marchetti, Gilli, & Riva, 2018). In this context, we are particularly interested in the potential that videogames have, as simulative environments, for emotional processing.

With emotional processing or regulation, we refer to a set of psychological processes oriented toward a flexible and context-wise recognition, differentiation, receptive allowance, and integration of emotions in inter- and intra-personal functioning (D'Agostino, Covanti, Rossi Monti, & Starcevic, 2017; Roth et al., 2018; Roth, Vansteenkiste, & Ryan, 2019). An extant literature showed that videogames have a great potential for favoring emotion regulation; however, some players struggling with affect dysregulation may be excessively attracted to the interactive environment of online games because they perceive it to be safer, more predictable, and more responsive than the physical world (Di Blasi et al., 2019; Gaetan et al., 2016; Hemenover & Bowman, 2018; Hollett & Harris, 2019; Pallavicini & Pepe, 2020; Schimmenti, 2023; Villani et al., 2018). Of note, the precise mechanism through which videogames could promote emotion regulation has not been established yet.

To understand how simulative environments can favor emotion regulation in videogames, it is relevant to draw from research on dreams which could be considered as a very first "biologically constructed virtual reality" (Bown & Gackenbach, 2016, p. 4). Indeed, dreams have been theorized as narrative environments that offer an "as if" (i.e., a reflective, prospective, and potentially modifiable) representation of the world, which provides individuals with a "marked mirroring" of emotions and the possibility to "safely rehearse the perception and avoidance of threat" (Bown & Gackenbach, 2016, p. 6; Domhoff, 2011; Fonagy, Gergely, Jurist, & Target, 2002; Revonsuo, 2000). In this sense, dreams facilitate emotional processing by owing to a *customized simulation,* which allows a dramatized and symbolic walkthrough of emotionally salient memories that could not be processed during daytime (thus having an *experimental value*; Bown & Gackenbach, 2016 Maggiolini, Azzone, Provantini, Viganò, & Freni, 2003). Furthermore, it has been showed that dreams could prepare for future waking life scenarios through an early exposure to potential emotional reactions of the individual (*prospective value*), which facilitates emotions awareness and acceptance (Domhoff & Schneider, 2018).

Far from being simply a theoretical exercise, and considering their shared simulative nature, there is evidence about the parallels between videogames and dreams with respect to emotional processing (Boyes & Gackenbach, 2016; Bown & Gackenbach, 2016; Flockhart & Gackenbach, 2017; Gackenbach, Swanston, & Stark, 2015). For example, Bown and Gackenbach (2016) have shown that soldiers who played multiplayer combat-focused video games reported a greater ability to cope with emotionally negative events in nightmares compared with those who played less frequently, with relevant protective effects against post-traumatic stress symptoms. The authors proposed that gaming could help the brain in an awake state to process unpleasant emotions, thus reducing the fearful impact of nightmares during sleep. This protective effect seems to occur especially in male gamers, by virtue of the more combative nature of the types of games played compared to female gamers (Boyes & Gackenbach, 2016). Although the field could benefit from additional studies in this direction, it seems that the emotional processing value of simulation in dreams could overall be applied to the gaming environment as well.

### 2.3. The three-way hypothesis for compensatory process functioning

The simulative value of gaming environments has relevant implications for the compensatory process. Indeed, to date the concept of "compensation" has referred to a variety of gaming patterns, including playing for relaxation purposes or looking for something different with respect to experiences in physical life. In the following sections, we propose some boundaries to the meaning of compensation based on the simulative value of the gaming environment (Meriläinen, M., 2022; Boldi et al., 2022). Such boundaries take the form of three main domains through which compensation acts: (1) the avatar-gamer bond, (2) the needs satisfaction/frustration processes, and (3) the emotion regulation and processing mechanisms.

#### 2.3.1. The avatar-gamer bond

Avatars are representations of players in the game and act as their virtual bodies, which other players can see and interact with. Depending on the game genre,[1] avatars can be customized in their physical appearance and can assume various roles and identities that are consistent with specific game backgrounds or objectives. Players can become emotionally bonded to their avatars as psychological extensions of themselves (Mancini, Imperato, & Sibilla, 2019). Indeed, through a mechanism of projection into the virtual environment, players can express through their avatars aspects of themselves that are visible and important to them outside the game, as well as other aspects that are unknown or unexplored outside the game (Sibilla & Mancini, 2018). In turn, it seems that the characteristic of the chosen avatar also affects players' behaviors. For example, the *proteus effect* described by Yee and Bailenson (2007) indicates that individuals tend to conform both their behavior in the game and their attitudes toward their own physical characteristics outside the game to the aesthetic characteristic of their avatar (Ratan, Beyea, Li & Graciano, 2020; Şengün, Santos, Salminen, Jung, & Jansen, 2022). Ultimately, avatars can be seen as intersections between the internalized representations of the player and the collectively shared reality of the game (Blinka, 2008; Korkeila & Hamari, 2020; Mancini et al., 2019; Stavropoulos et al., 2020).

In previous research, a smaller degree of psychological differentiation between players and avatars, or the identification that comes with the desire to live vicariously through idealized avatars— that is, avatars filled with characteristics craved by the player (Van Looy, 2015) — have been shown to be related to problematic gaming (Green, Delfabbro, & King, 2021; Lampis, Cataudella, Busonera, & Skowron, 2017; Stavropoulos et al., 2020). Nevertheless, recent literature suggests that the interaction between the mechanisms of identification/differentiation, idealization, and compensation for physical or psychological constraints makes the avatar-gamer bond more complex and multifaceted (Dengah & Snodgrass, 2020). Indeed, it seems that some players may benefit from identifying with avatars whose skills, physical appearance, or personality traits are slightly improved compared with those of the players (Bessière, Seay, & Kiesler, 2007; Klimmt et al., 2009; Matthews, Lynch, & Martins, 2016). However, other players may create avatars who are far from their actual self, establishing a compensatory identification with an idealized character, also referred to as *fusional* (Stavropoulos

[1] The degree of customization ranges from massive multiplayer online role-playing games, (MMORPGs) where the avatar is fully generated and entirely customizable, to multiplayer online battle arena (MOBA) games, first-person shooter (FPS) and battle royale (BR) where avatars cannot be created and are gradually less customizable. Furthermore, other popular online games, such as Real Time Strategy (RTS), do not implement single avatars.

et al., 2020; for a recent review, see Szolin, Kuss, Nuyens, & Griffiths, 2022).[2] The latter circumstance seems to be related to a devaluated sense of the self (Sibilla & Mancini, 2018) and poor emotional as well as social self-concept clarity (Green et al., 2021; for a comprehensive review, see Lemenager, Neissner, Sabo, Mann, & Kiefer, 2020). Moreover, a fusional, extremely identified relationship with an idealized avatar seems to stem from an individual's experiences of non-acceptance from parents or peers that push feelings of alienation and desires to escape from one's self and contexts, toward a facilitating environment that is perceived as more secure and capable of acceptance (Casale et al., 2021; Kwon, Chung, & Lee, 2011; Schimmenti & Caretti, 2010; Schimmenti, Guglielmucci, Barbasio, & Granieri, 2012; Schimmenti, Infanti, Badoud, Laloyaux, & Billieux, 2017; Šporčić & Glavak-Tkalić, 2018). Of important note, the user-avatar bond described in this section, implying identification, idealization, and compensation through the avatar, mostly refers to the experience of avatars as *extensions of oneself*. However, avatars can also be perceived in a social way as separate adventures' companions, or as mere tools to play the game (Banks & Bowman, 2021). More research is needed to establish the association between these different perceptions of avatars and problematic gaming.

#### 2.3.2. Psychological needs satisfaction and emotion regulation in gaming

The self-determination theory (SDT; Ryan & Deci, 2017) provides a motivational framework that inspired several studies in the field of problematic gaming, also informing the frameworks for gaming-related motives (Demetrovics et al., 2011; Király et al., 2022; Lafrenière, Verner-Filion, & Vallerand, 2012; Yee, 2006). SDT postulates that individuals are driven by the satisfaction of three basic psychological needs: (1) autonomy (sense of choice and self-expression), (2) competence (sense of efficacy about the actualization of personal desires), and (3) relatedness (feeling of closeness and intimacy with others). According to SDT, each basic psychological need is associated with specific emotions that allow individuals to understand it. For example, when encountering difficulties with satisfaction of basic needs, individuals may experience a feeling of pressure and internal conflict (autonomy), a sense of failure or inadequacy (competence), and/or feelings of loneliness and exclusion (relatedness). From this perspective, emotion regulation is intimately bound to the fulfilment of basic psychological needs (Benita, Benish-Weisman, Matos, & Torres, 2020; Harley, Pekrun, Taxer, & Gross, 2019; Roth et al., 2019; Solms, 2018).

Studies theoretically anchored in the SDT have shown that compensating for difficulties with psychological needs satisfaction through the game can be both functional and dysfunctional, depending on the interaction between the type of difficulties (i.e., unmet, frustrated, or denied need) and what is done inside the game to address such difficulties. For example, some studies indicate that the satisfaction of basic psychological needs *inside* the game in the absence of psychological needs satisfaction *outside* the game predicts greater problematic gaming symptoms (Weinstein, Przybylski, & Murayama, 2017; Allen & Anderson, 2018; Stenseng, Falch-Madsen, & Hygen, 2021). However, other investigations did not replicate these findings and showed that the match between in-game needs satisfaction and out-game unsatisfaction is not necessarily dysfunctional ( Przybylski & Weinstein, 2019). In other words, some individuals manage to compensate for unmet needs through video games without developing problematic gaming symptoms (e.g., players with an intense yet healthy passion for gaming; see Snodgrass et al., 2018; Giardina, Di Blasi, Schimmenti, King, Starcevic, & Billieux, 2021).

New frameworks in this area, such that adopted by the Basic Psychological Need Satisfaction and Frustration Scale (Van der Kaap-Deeder, Soenens, Ryan, & Vansteenkiste, 2020), also suggest that the *frustration* of psychological needs, that is, feeling hindered while trying to satisfy one's needs, is an independent and stronger predictor of problematic gaming than the lack of needs satisfaction. Specifically, the worst-case scenario seems to be the simultaneous presence of in-game and out-game frustration of psychological needs (Formosa, Johnson, Türkay, & Mandryk, 2022; Mills, Milyavskaya, Mettler, & Heath, 2018; Mills, Milyavskaya, Heath, & Derevensky, 2018; Mills & Allen, 2020; Kosa & Uysal, 2021; Tóth-Király, Bőthe, Márki, Rigó, & Orosz, 2019). Finally, the *denial* of psychological needs— the result of persistent neglect and rejection of one's own basic psychological needs and related emotions — has been widely related to psychopathology and problematic behaviors in the literature (Glaser, 2002; Navarro-Pérez, Samper, Sancho, Georgieva, Carbonel, & Mestre, 2023; Ryan, 1995). This is also true in terms of its links with dissociative mechanisms, problematic gaming, and escapism (Guglielmucci et al., 2019; Casale et al., 2021). However, further research should be conducted in this field (e.g., validating measures for the denial of needs) to clarify the role of this process in problematic gaming.

### 2.4. Compensatory process and motivations to play video games

Several studies examining the compensatory function of gaming have relied on frameworks for motivations to play (Yee, 2006; Demetrovics et al., 2011; Király et al., 2022). This literature showed that motivations such as advancement — the desire to go through increasingly difficult game objectives— or socialization — the need to play to establish significant social bonds or be part of a group — promote distinct in-game behaviors and shape different self-reported problematic gaming patterns (Billieux, Van der Linden, Achab, Khazaal, Paraskevopoulos, & Zullino, 2013; Billieux, Thorens, Khazaal, Zullino, Achab, & Van der Linden, 2015, Di Blasi et al., 2019).

However, as also observed by Przybylski & Weinstein, 2019, the sole use of self-report measures of motivations to play does not guarantee the investigation of a compensatory process. For instance, achievement motivations to play cannot be considered part of a compensatory psychological process if, simultaneously, the need to feel competent is satisfied outside of gaming settings. In other words, this motivation to play could reflect a compensatory process only if players do not meet their need for competence in the physical environment. We thus contend that there is a substantial distinction between motivations to play and compensation *through* playing, which should be reflected in measurement instruments. Further investigation of gaming motivations in conjunction with the frustration or satisfaction of needs both outside and inside the game is required (Mills et al., 2018).

## 3. Escapism in video games: evolution of an evasive concept and its assessment

In general terms, escapism is a temporary withdrawal — physical, mental, or both — from a part of reality into a space that is perceived as more comfortable. This concept is closely related to the symbolic domain of the human innermost self, such as imagination, fantasies, desires, games, and dreams. In recent literature, escapism has become central to the understanding of several problematic behaviors, including problematic gaming (Biegun, Edgerton, & Roberts, 2020; Hussain et al., 2021; Melodia et al., 2020; Puiras, Cummings, & Mazmanian, 2020). However, as a classic construct in gaming research, escapism has been defined and measured in several ways across the years, implying some critical issues that compromised comparisons between studies (Eronen & Bringmann, 2021). After critically reviewing existing escapism frameworks, we illustrate how considering escapism as the key measure of the compensatory process can help to overcome current issues in its conceptualization.

[2] Interestingly, a greater difference between players' physical appearance and avatars' characteristics has been associated with the perception of the virtual world as separate from the physical one; in contrast, a smaller difference has been associated with the perception of the virtual environment as part and extension of the physical one (Sibilla & Mancini, 2018).

### 3.1. Yee's escapism motivation and its revised version by Hagström and Kaldo

Exploring the motivations to play massive multiplayer online role-playing games, Yee (2006) defined escapism as "a desire to leave a world behind together with its problems" (p. 32). Yee's operationalization of escapism is reflected in a unidimensional three-item measure, assessing relaxation, avoidance of physical world problems, and withdrawal from them (referred to as escaping or avoiding the real world). This framework has been the most used in psychology research on gaming to date (e.g., Billieux et al., 2013, 2015; Deleuze, Maurage, Schimmenti, Nuyens, Melzer & Billieux, 2019; Di Blasi et al., 2019; Di Blasi, Giardina, Lo Coco, Giordano, Billieux, & Schimmenti, 2020; Kaczmarek & Drążkowski, 2014; Kardefelt-Winther, 2014b; Kardefelt-Winther, 2014c; Maroney, Williams, Thomas, Skues, & Moulding, 2019).

Subsequently, Hagström and Kaldo (2014) noted that Yee's escapism dimension mixed items with opposite polarities in the same scale (i.e., relaxation vs. avoidance), which could partly explain its low internal consistency (average $\alpha = 0.65$). Thus, the authors proposed a dualistic model of escapism comprising four positive items (gaming to relax or being in a good mood) and three negative items (gaming as mental avoidance and procrastination).[3] However, the authors' positive escapism factor also showed unsatisfactory reliability ($\alpha = 0.57$). Moreover, the negative escapism scale largely overlapped with the concept of experiential avoidance, implying an equivalence between the terms escape and escapism (Calleja, 2010; Giardina et al., 2023; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996).

### 3.2. Escapism in other motivations to play frameworks: Motives for Online Gaming Questionnaire and Gaming Motivation Inventory

In the context of the Motives for Online Gaming Questionnaire, Demetrovics et al. (2011) avoided using the term escapism to define their constructs, defining the three factors (i.e., motivations) identified that may be related to this concept as: escape (gaming to avoid life difficulties), coping (gaming for mood boosting or channeling of emotions), and fantasy (gaming to temporarily be somebody else in a different world). This model aligns closely with a multidimensional understanding of escapism. However, the authors employed the terms "escapism" and "escape" interchangeably throughout their report, neglecting the opportunity to recognize potential distinctions between the two constructs. More recently, in the Gaming Motivation Inventory, Király et al. (2022) grouped the items of the most used motivations to play scales and identified a higher order construct that they called immersion/escapism. This construct was composed of the subcomponents of escape, fantasy, and coping (as framed by Demetrovics et al., 2011), as well as identity (gaming as a central activity for the self) and introjected regulation (play to feel good about oneself). Given its multidimensionality, this construct has a high value for the literature. For the purpose of the current study, however, the difference between immersion and escapism remained unexplored.

### 3.3. Beyond motives to play: the two-dimensional model of escapism by Stenseng and colleagues

Stenseng, Rise, and Kraft (2012, 2021) equated escapism to *action attention*, a state arising from the synergy of *task absorption* (a state of concentration comparable to the flow state; Csikszentmihalyi, 2020), *temporary dissociation* (detachment from the aspects of the self that are not related to the activity), and *reduced self-evaluation* (limited to actions that are directly related to the activity). On this theoretical basis, the authors validated an 11-item scale that assessed two ways by which individuals can reach action attention (and thus escapism) with self-regulatory intent: self-expansion (*promotion motivation*), reflecting a positive escapism facet; and self-suppression (*prevention motivation*), reflecting a negative escapism facet. Although this scale has a solid theoretical background that emancipated the concept of escapism from the motivations to play video games (see also Stenseng, Steinsholt, Hygen, & Kraft, 2023), its notable limitation is the reduction of escapism to an effect of action attention, so that its distinction from other constructs such as "flow state" or immersion in gaming itself remains unclear (i.e., a question remains: If all video games involve action attention, is playing necessarily an act of escapism?). An overview of the strengths and limitations of each presented framework is reported in Table 1.

### 3.4. Immersion, avoidance and escapism: the "escapism vicious cycle"

As can be noticed from previous sections, both empirical and theoretical escapism frameworks present several critical issues hindering a clear understanding of the construct (Calleja, 2010; Giardina et al., 2023; Guglielmucci et al., 2019; Hussain et al., 2021; Kosa & Uysal, 2021; Kuo et al., 2016; Melodia et al., 2020). Most of these issues seem to revolve around the equivalence between escapism and immersion in online games, or between escapism and escape/avoidance.

The concept of immersion in videogames has been widely studied (Christou, 2014; Jennett, Cox, Cairns, Dhoparee, Epps, & Tijs, 2008; Pallavicini, Pepe, & Minissi, 2019). Previous literature has delineated immersion as an amalgamation of psychological processes (such as cognitive absorption, temporary dissociation from the real world, and emotional investment) and intrinsic game features (including the degree of challenge and perceived control) (Jennett et al., 2008; Stenseng et al., 2012). It is thus not surprising that formulating a precise definition of escapism that effectively distinguishes this concept from other experiences associated with immersion is challenging (Hagström & Kaldo, 2014). This seems to be particularly true for the attempts to operationalize the positive facets of escapism, such as those presented above. Other theoretical proposals also go in this direction. For example, Kosa and Uysal (2020) proposed emotion regulation, mood regulation through satisfaction of basic needs, restoration following cognitive and emotional exhaustion, and coping with internal and external stressors as core aspects of escapism. However, those have also been considered as outcomes of immersion in video games per se (Gaetan et al., 2016; Hemenover & Bowman, 2018; Villani et al., 2018). In accordance with Melodia et al. (2020), a similar equivalence can be observed between the constructs of escapism and escape/avoidance. In fact, most existing studies interpreted the escapism construct as a need to avoid negative emotion through gaming (Hussain et al., 2021).

As depicted in Fig. 1, the existing literature seems stuck in a vicious cycle in which to contrast with the view that escapism essentially corresponded to avoidance (i.e., escape), the notion of positive escapism has been developed. However, this notion generated unsatisfying measurement tools and ended up equating with the concept of immersion in video games. Thus, to retrieve a more neat and shared understanding of escapism, this circumstance paradoxically led researchers to return to the initial position where escapism was an equivalent of avoidance (Melodia et al., 2020).

#### 3.4.1. Escapism as a key measure of compensation

An important reason underlying the vicious cycle described earlier is the idea of a neat border between real and virtual whose crossing (i.e., playing video games) means "leaving reality" (i.e., escapism; Calleja, 2010). However, this view changes if gaming is seen as a virtual environment opposed to the physical one rather than to reality (see the Gaming as an Environment: Simulation of Emotion and the Virtual Body section), and so does the meaning of escapism.

[3] Five items were not included in the final version of the negative escapism dimension. They assessed gaming as a distraction from negative feelings and as a mood enhancer.

**Table 1**
Strengths and limitations of existing escapism measures.

| Author | Framework | Strengths | Limitations |
|---|---|---|---|
| Yee (2006) | Motivations to Play Inventory – Escapism subscale | - Short measure (three items)<br>- Anchored to players' experiences | - Escapism at the same level of other motivations to play (e.g., achievement)<br>- Low internal consistency<br>- Composed by items with positive and negative values.<br>- Only elaborated for massive multiplayer online role-playing games |
| Hagström and Kaldo, 2014 | Positive and negative escapism | - Distinguishes positive from negative escapism | - Dichotomic view of escapism<br>- Low psychometric properties of the positive escapism factor<br>- Negative escapism is equivalent to escape/ avoidance.<br>- Positive escapism is equivalent to immersion in gaming/playing videogames |
| Demetrovics et al. (2011) | Motives for Online Gaming Questionnaire – escape - coping - fantasy dimensions | - Proposes a multidimensional view (escape ≠ coping ≠ fantasy)<br>- Can be used for all online game genres | - Bypasses the "escapism" vs. "escape" important distinction<br>- Escapism at the same level of other motivations to play (e.g., achievement) |
| Király et al., 2022 | Gaming Motivation Inventory – higher order immersion/ escapism dimension | - Proposes a multidimensional view (escapism = escape + coping + fantasy + identity + introjected regulation)<br>- Strong method: regroups the most escapism-related measures in the field of motivations to play | - Escapism at the same level of other motivations to play<br>- Composed by items having positive and negative value<br>- Bypasses the distinction between immersion and escapism |
| Stenseng et al., 2012 | Two-dimensional model of escapism | - Strong theoretical background<br>- Original and emancipated from motivational frameworks | - Not specifically developed to account for gaming<br>- Lacks clinical elaborations (e.g., relationship with dissociation)<br>- Escapism is equivalent to escape/avoidance and to immersion in videogames.<br>- Dichotomic view of escapism |

In this perspective, playing video games becomes a neutral movement of *immersion* into a virtual space, denoting exclusively a focus and absorption toward the game rather than a distancing from the overall reality. On the other hand, escapism directly informs about the quality of the relationship between the space that has been psychologically "left" (physical environment) and the space in which one is immersing (virtual environment). Specifically, escapism suggests that the individuals are psychologically leaving an environment that they perceived as unsatisfying or discomforting in order to temporarily immerse themselves in a more satisfying and meaningful one. In this sense, immersion in gaming becomes escapism when a compensatory mechanism is activated (see Fig. 2). Put differently, escapism is a very specific form of immersion defined by the compensatory process, and thus it constitutes a key variable for measuring this process. This assumption based on the opposition of virtual versus physical environments, further disentangles the inappropriate terminological interchangeability between the concepts of escapism and escape that protracted during decades of studies (Giardina et al., 2023). Indeed, adopting a migration metaphor (Calleja, 2010), escapism should be conceived as a temporary and bidirectional movement entailing the will to amend the physical environment from which the movement originated (*compensatory movement*), whereas escape represents a unidirectional movement and supposedly enduring stay in the virtual environment, rising from the rejection of the physical situation. Thus, while the escapists manage to improve aspects of their lives in the physical world via gaming, escapees intend to avoid physical contexts and situations that are perceived as a threat, regardless of where they end up (Giardina et al., 2023; Shi, Renwick, & Turner, 2019; see Fig. 2 for a depiction of the differences between the constructs).

#### 3.4.2. *Escapism as a higher order construct than motivations to play*

Another critical point of the current understanding of escapism, regards its consideration as a motivation to play videogames. Indeed, if seen among other motivations to play, escapism would be the only one intrinsically linked to a form of discomfort experienced in the physical environment (Boldi et al., 2022). In other words, it would be the only one implying the presence of a compensatory mechanism (see subsection 2.4). For this reason, we posit that escapism should pertain to a qualitatively different and higher order conceptual level than motivations to play.

More specifically, we propose that when there is a difficulty in a domain pertaining to the physical life of the individual, the motivations to play denote the specific reason for the escapism movement (i.e. the difficulty that is being compensating for). For example, "My compensatory movement (escapism) toward achievement aspects of League of Legends is based on a frustrated need for competence and autonomy in physical settings". In this sense, escapism contains the other motivations to play. However, motivations to play can also be found outside of a compensatory functioning and thus of escapism, as domains of the game that are of interest for the player without having the function of compensating for lacks in the physical environment.

## 4. The Compensatory-Dissociative Online Gaming (C-DOG) model

In light of the above-mentioned propositions, in this section we present the C-DOG model (Fig. 3), a theoretical framework of interconnected psychological processes that represent and operationalize the continuum between compensatory and dissociative gaming. In the C-DOG model, the compensatory pole is characterized by a homeostatic relationship between the physical and the virtual environment, whereas the other pole is characterized by a dissociation between the two. In the former case, the emphasis is on the connection and exchange between the virtual and the physical experience, whereas in the latter case, the emphasis is on the need to keep them separated to prevent emotion dysregulation and mental suffering.

The transition from compensatory to dissociative gaming is

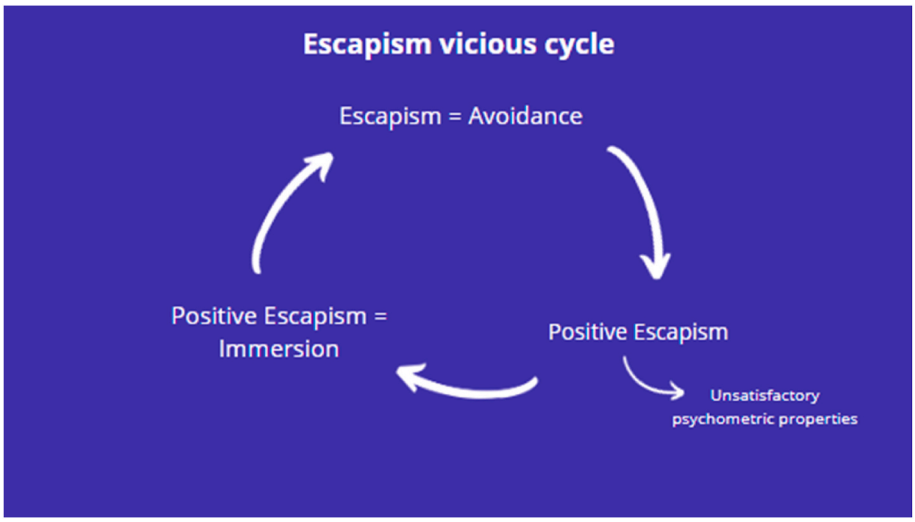


**Fig. 1.** Vicious cycle in the conceptualization of escapism.

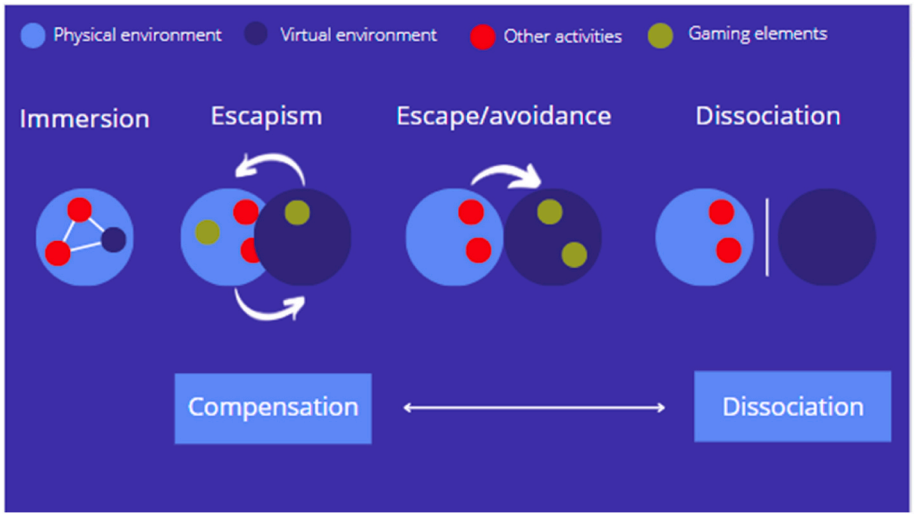


**Fig. 2.** Escapism processes in the compensatory-dissociative continuum.

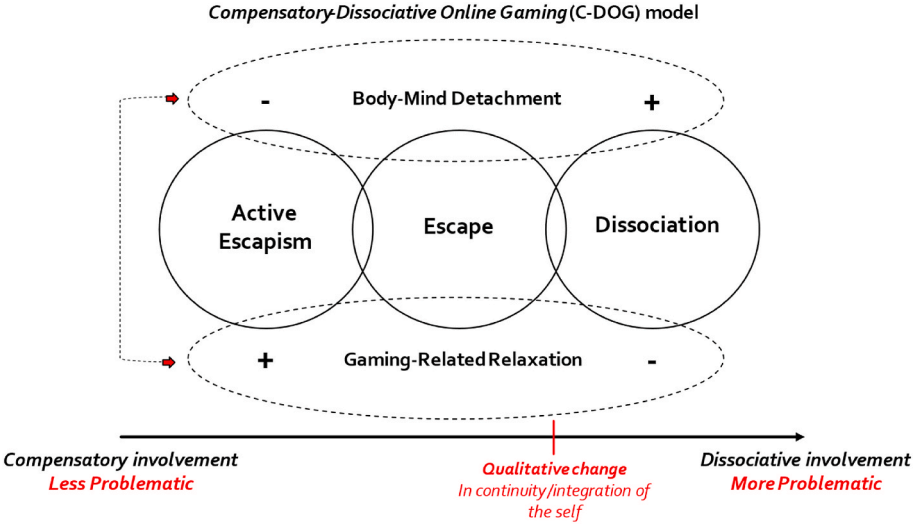


**Fig. 3.** The Compensatory-Dissociative Online Gaming (C-DOG) model.

represented at the operational level by three qualitatively distinct core processes: active escapism, escape, and dissociation. Moving along the continuum, we hypothesize a breakdown between physical and virtual selves in the passage between escape and dissociation (see Fig. 3).

We also posit the existence of two transversal processes: gaming-related relaxation and body-mind detachment. In the following sections, we detail the role of each construct in the C-DOG model. Table 2 presents the regrouped construct definitions.

### 4.1. Active escapism

According to Kuo et al., 2016, "active escapism" describes the specific kind of interactive entertainment characterizing video games, as opposed to the "passive escapism" enabled by noninteractive media. In line with their work, we have added the qualificative "active" rather than just referring to "escapism" to differentiate the process in this model from the general meaning attributed to this term.

Active escapism operationalizes the compensatory process in gaming. It is thus defined as taking advantage from the simulative nature of gaming to compensate for physical life struggles. As described in subsection 2.3, this can happen via the relationship with the avatar and/or the regulation of emotions associated with specific psychological needs. The simulative nature of the gaming environment (see also subsection 2.2) makes this process close to the way individuals process emotions in dreams (Bown and Gackenbach, 2016). For example, active escapism may activate in the presence of stressors that threaten players' self-esteem, sense of identity, or self-efficacy. It is the case with individuals experiencing a conflict between their ideal and perceived self (*threat to the sense of identity*), who may process negative emotions coming from such a difference by playing a customized attractive avatar or character. In a similar vein, when individuals experience a lack of control in their life (*threat to the sense of control*), then the clear rules, timely feedback, and skill-based progression implemented in gaming could favor the restoration of a sense of mastery (Kuo et al., 2016).

This simulative view of escapism has been supported by recent studies that explored the role of gaming during the COVID-19 pandemic (Giardina et al., 2021; Boldi et al., 2022; Kleinman, Chojnacki, & Seif El-Nasr, 2021; Meriläinen, 2022). Notably, active escapism entails a perception of the world outside the game as amendable (Calleja, 2010; Giardina et al., 2023). Indeed, through active escapism, individuals are committed to building something on the virtual side that can be potentially useful and transferable to their life in a compensatory way, such as significant social bonds, belongings and competences that they struggle to develop outside of games (Kuo et al., 2016; Pal & Arpnikanondt, 2023). Therefore, we consider active escapism as a more adaptive process than escape, potentially connected with a high-but-healthy involvement with gaming (Billieux et al., 2019). Yet, this form of escapism is not necessarily a positive process in an absolute sense.

Finally, it is important to note, as mentioned in subsection 3.4.1, that Active Escapism is a very specific form of immersion in gaming, which is defined by the need to compensate for shortcomings or difficulties in the physical world through the video game. Thus, the positive effects potentially associated with Active Escapism could resemble those of immersing in videogames (Granic, Lobel, & Engels, 2014). However, the presence of a compensatory need underlying active escapism changes the meaning of these positive effects: in case of immersion, the benefits are about meeting one's needs cumulatively, whereas in case of active escapism, the benefits are about meeting those needs that could not be met otherwise (i.e., in the physical world; Boldi et al., 2022).

**Table 2**
Definition of constructs.

| Construct | Definition | References |
|---|---|---|
| Active escapism | Taking advantage from the simulative environment of gaming to compensate for physical life struggles. | Kuo et al., 2016; Boldi et al., 2022. |
| Escape | Gaming to avoid a rejected physical environment that threatens the sense of agency and stability of the self-image. | Hayes et al., 1996; Demetrovics et al., 2011; Hagström & Kaldo, 2014; Stenseng et al., 2012; Giardina et al., 2023. |
| Dissociation | Rigidly split virtual and physical environments and the respective parts of the self. | Schimmenti et al., 2012; Guglielmucci et al., 2019; Stip, Thibault, Beauchamp-Chatel, & Kisely, 2016. |
| Body-mind detachment | The experience of the mind being in a different place from where the body is when playing video games. | Ortiz de Gortari and Griffiths, 2016;Casale et al., 2022; Gutierrez, 2021. |
| Gaming-related relaxation | A state of peace, feeling of safety, and positive activation experienced while gaming. | Larche, Tran, Kruger, Dhaliwal, & Dixon, 2021; Snodgrass, Lacy, Francois Dengah, Fagan, & Most, 2011. |

### 4.2. Escape

Escape can be defined as gaming to avoid a rejected physical environment that threatens the individual's agency and stability of the self-image. Escape is equivalent to the construct of experiential avoidance (Hayes et al., 1996; Giardina et al., 2023). In previous literature, it was usually referred to as the negative facet of escapism, such as in the "escape" motivation by Demetrovics et al. (2011), the "negative escapism" by Hagström and Kaldo (2014), or the "self-suppression motivation" by Stenseng et al. (2012). This avoidant movement stems from circumstances of the physical world that regularly frustrate individuals' psychological needs, thus prompting feelings of powerlessness that threatens the sense of personal value and stability of the self-image. While in active escapism such threats are perceived as surmountable via the gaming environment, in the escape movement the game loses its compensatory value to become a makeshift refuge (Giardina et al., 2023). However, even in the escape condition, the physical self is not entirely disconnected from the virtual one. Thus, escape links the compensatory and the dissociative poles of the continuum.

### 4.3. Dissociation

Dissociation is a psychological process used to "turn off" unpleasant mental contents through a temporary disconnection from different areas of the individual's functioning (identity, memory, perceptions, and so on; APA, 2013). This process is quite common during identity development, such as during adolescence and young adulthood (Guglielmucci et al., 2019; Schimmenti, 2016). However, the chronic denial of psychological needs (e.g, because of persistent rejection and neglect by parents or peers) can prompt unbearable negative feelings, extreme emotion dysregulation, and the perception of the physical world as dangerous and predatory (Schimmenti & Caretti, 2016). In such conditions, dissociation tends to activate pervasively (i.e., regardless of the contextual stressors) to protect the self from disintegration and identity loss. Accordingly, in the C-DOG model dissociation is defined as a rigid separation of virtual and physical environments and individuals' respective (parts of the) self. The virtual self also acts as a guardian against psychological disintegration, which might occur because of an encroachment of disturbing mental contents in the identity that normally operates in the physical environment. In contrast to the attempts to amend the physical world characterizing the compensatory pole of active escapism, or to avoid it as in the escape movement, the dissociation might paradoxically serve to protect the individual from the unbearable internal experiences connected to extreme rejection of needs that threatens the individual's self with disorganization, dysregulation, and ultimately mental breakdown. However, the result of such an extreme process of compartmentalization of environments might be the excessive polarization to, and identification with, the gaming

environment, which at this point might assume the features of a compulsive behavioral pattern (Le et al., 2023; Schimmenti et al., 2012). Table 3 contrasts the three main constructs of the C-DOG model on some key transversal dimensions.

### 4.4. Body-mind detachment

The experience of *the mind being in a different place from where the body is* relates to immersion in virtual settings and is physiologically experienced by most people in their interaction with virtual environments. In the context of the C-DOG model, we labeled this phenomenon body-mind detachment. This phenomenon is shared by many activities promoting socially scripted dissociation, such as when one "travels" by using fantasy, daydreaming, or meditation, and, of course, by playing video games. Specifically, online games are "structured fantasies" that exist independently from individuals: They are populated by other people with their own goals and needs and are largely interactive. Under the umbrella of body-mind detachment, we can find different phenomena related to gaming, such as flow — that is, an intense concentration on an activity that we feel we are in control of — and some game transfer phenomena — a set of changes in the sensory perception (visual, auditory, or body-related) of the physical world as an effect of experiences lived in a video game (Csikszentmihalyi, 2020; Ortiz de Gortari & Gackenbach, 2021; Ortiz de Gortari & Griffiths, 2016 Ortiz de Gortari, 2018; Gutierrez, 2021).

In the C-DOG model, the body-mind detachment is hypothesized to relate to some extent to all the psychological processes described earlier. However, we posit that the closer the individual is to the dissociation side of the continuum, the more the body-mind detachment is experienced (Casale et al., 2021; Casale, Fioravanti, & Musicò, 2022; Casale, Musicò, Gualtieri, & Fioravanti, 2022).

**Table 3**
Key dimensions of contrast of the C-DOG model main constructs.

| | Active escapism | Escape | Dissociation |
|---|---|---|---|
| **Description/ definition** | Taking advantage from the simulative environment of gaming to compensate for physical life struggles. | Gaming to avoid a rejected physical environment that threatens the sense of agency and and stability of the self-image. | Rigidly split virtual and physical environments and the respective parts of the self. |
| **Direction of the movement** | Bidirectional | Unidirectional | No movement |
| **Purpose (goal)** | Process emotions associated with psychological needs | Avoid the threats and protect the self | Preserve psychic integration |
| **Status of needs in the physical world/ environment** | Unsatisfied | Frustrated | Denied |
| **Perception of the physical environment (and its threats)** | Amendable (threats to sense of identity or mastery compensated through the game) | Rejected (threats to self-efficacy and personal value avoided through the game) | Dangerous and predatory (threats to psychic integration) |
| **Relation to problematic gaming** | Less severe gaming patterns: gaming can be used to improve one's situation in the physical environment | More severe gaming patterns: gaming is less likely to improve one's situation in the physical environment | Severe gaming patterns: gaming assumes compulsive behavioral patterns |

### 4.5. Gaming-related relaxation

Relaxation has been considered part of the escapism construct whenever escapism was framed as a temporary distraction (e.g., taking a break from daily tasks and concerns; Yee, 2006). In the context of the C-DOG model, we define gaming-related relaxation as a state of peace, feeling of safety, sense of regulation, and positive activation experienced while gaming.

We posit that this state is experienced for different reasons and to different degrees, depending on the position on the C-DOG continuum. First, relaxation in gaming has been compared to a meditative-like state (Snodgrass et al., 2011) and thus can relate to the body-mind detachment itself. Moreover, gaming-related relaxation can also relate to the sense of regulation experienced when psychological needs are met, as has been hypothesized to happen through active escapism (Boldi, Rapp, & Tirassa, 2022; Kuo, Lutz, & Hiler, 2016). However, the form of gaming-related relaxation with the most evidence has been the short-term relaxation resulting from diversion, or the escape of physical life worries through gaming (Larche et al., 2021). For example, in a recent study has been showed that higher level gaming-related relaxation ("Engaging in gaming provides me with a feeling of calm, relaxation and of being in control") predicted a stronger relationship between emotional distress and problematic gaming during the lockdown due to COVID-19 in Italy (Giardina et al., 2021). However, on the dissociation pole, this state of relaxation is reduced to the minimum. Indeed, the attempt to "turn off" mental contents by splitting physical and virtual environments may generate strong internal arousal, which prevents relaxation.

## 5. Clinical implications and future research directions

The C-DOG model complements the atheoretical perspective assumed in classical nosography manuals (e.g., GD as defined in *ICD-11*) by combining qualitative (i.e., the distinction between compensatory and dissociative processes) and quantitative (i.e., the degree of integration between the physical and the gaming environment) approaches to psychopathology. Put differently, increasing levels of impairment associated with gaming involvement may correspond to qualitatively different underlying psychological processes (Wright, 2011). This approach has direct implications for clinical and research practice, and it could reduce the risk of pathologizing gaming behaviors (Billieux et al., 2019; Schimmenti, 2023) by suggesting a higher threshold at which gaming becomes problematic (or pathological).

After being empirically validated, the C-DOG model can thus be a valuable framework to feedback individuals with a more in-depth picture of their functioning in relation to gaming in the assessment phase preceding psychological intervention or psychotherapy (Dudley, Kuyken, & Padesky, 2011).

For example, we expect individuals whose problematic gaming is primarily characterized by active escapism to be blocked in achieving in physical life what is possible for them to achieve in virtual life (e.g., individuals who have fulfilling game experiences but who feel alone and have a reduced social life). A therapeutic approach in this case might include exploration of the obstacles that prevent the individual from overcoming the "fear of life" (Shumaker & Manning, 2021) and the development of assertive communication of needs in social and family contexts (McGinn & Arnedillo-Sánchez, 2018; Watson, McKinney, Hawkins, & Morris, 1988). Moreover, therapy should capitalize the resources developed inside the game to nurture physical happenings (e.g., encourage the individual to physically meet friends met online, start a physical activity that involves competition, or invest in training to apply personal skills gained through gaming; see Giardina et al., 2023 ). Ultimately, an *expressive* type of psychotherapy might be applied in these cases to increase patients' awareness about their ways of functioning in light of their developmental challenges (Gabbard, 2009).

Moving toward the dissociative pole through escape and

dissociation, there are individuals who are more problematically involved in gaming, less likely to capitalize on gaming to improve their situation, and likely to be more resistant to treatment (e.g., struggling with trust and therapeutic alliance; lacking words to describe their feelings and condition, both inside and outside the game). A *supportive* psychotherapy approach that first focuses on strengthening the therapeutic alliance might be necessary to (1) help individuals recontact their own personal needs, and (2) provide a safe relational experience from which to explore the mental pain that sustains their urge to get away from the physical world to find a psychological retreat in virtual worlds (Gabbard, 2009; Giardina et al., 2023; Öztürk, Erdogan, & Derin, 2021). These individuals might also need more flexible therapy settings and, depending on the developmental stage, combined clinical work with the couple/family.

Another area in which the C-DOG model will be valuable is clinical research about the link between excessive involvement in gaming and social isolation phenomena, such as the Japanese *hikikomori*, that has emerged in diverse cultural contexts (Kato, 2020; Kato, Shinfuku, & Tateno, 2020; Morese, Palermo, Torello, & Sechi, 2020; Stavropoulos, Anderson, Beard, Latifi, Kuss, & Griffiths, 2019). Indeed, a growing body of research points to the condition of many young people, predominantly males, who experience psychosomatic symptoms when going to school and gradually withdraw from physical social life to isolate in their rooms, with their avatars as the only means of maintaining contact with the outside world (Piotti, 2021; Silić, Vukojević, Čulo, & Falak, 2019; Stip et al., 2016). This seemingly voluntary withdrawal generates great confusion in the environment of individuals, who perceive it as a threat to their development and often attribute the escalation of such behaviors to the allure of virtual life (De Luca, Louët, Thompson, & Verdon, 2020; Silić et al., 2019).

Psychological process-based and cultural-wise approaches such as those of the C-DOG model have the potential to circumvent the "chicken and egg" dilemma in this domain (Kato et al., 2020). These approaches facilitate the examination of clusters of processes, allowing for a nuanced exploration that may, in turn, inform targeted interventions. This is particularly relevant for adolescents and young adults for whom premature diagnostic labels may compromise identity development rather than providing a purposeful meaning to an apparently meaningless experience of distress (Berman & Rizzo, 2019; De Luca et al., 2020).

## 6. Future research and durability of the C-DOG model

Despite being based on a consistent body of qualitative and quantitative empirical research, the C-DOG model remains a theoretical account. Future research should invest in exploring the validity of the hypothesized dimensions and test it in clinical populations, establish cut-offs for clinical screening, evaluate the use of the model to monitor treatment efficacy, and investigate different types of problematic gamers (including the hikikomori condition). It is noteworthy that, for the purpose of enhancing generalizability, the current model incorporates a certain level of abstraction, resulting in a simplification of the intricate dynamics concerning online games. However, it is imperative to acknowledge that video games should not be perceived as a "passive" or neutral environment, especially in light of recent advancements in artificial intelligence and deep learning, which adapt game characteristics based on players' behavior (Skinner & Walmsley, 2019). Consequently, future research ought to examine how distinct game genres and/or game mechanics (e.g., loot boxes) may impact the psychological processes posited in the C-DOG model (King et al., 2019; Kolek, Ropovik, Šisler, van Oostendorp, & Brom, 2023; Spicer, Nicklin, Uther, Lloyd, Lloyd, & Close, 2022). Along the same line, Hussain et al. (2021) underscored regional variations, highlighting that escapism in western countries exhibited stronger associations with negative outcomes compared to eastern ones, where it was linked with positive outcomes. Consequently, future studies should also explore the potential influence of diverse cultural and demographic factors on the processes delineated in the present model.

Finally, developing a theory-based model from the idea of gaming as a simulative environment is an insurance that the model could fit with future development in virtual technologies, psychotherapy, and research. In this sense, the application of the model to the broader domain of human-computers interactions and internet-based behaviors should be explored.

## 7. Conclusions

In this article, we critically examined the compensatory and dissociative processes related to problematic gaming, with a focus on escapism. We thus presented the C-DOG model, a multidimensional framework of psychological processes accounting for problematic gaming. This model is based on the view of gaming as a simulative environment that can be integrated to different degrees with the physical environment. Specifically, on the compensatory pole operationalized by active escapism, the simulative environment of gaming entertains a homeostatic relationship with the physical one in which individuals meet psychological needs through the game that could not be otherwise met. In between compensation and dissociation, escape represents the rejection of the physical environment and the retreat into the gaming one without actively taking advantage of it. Finally, on the dissociative pole, the two environments are disconnected from each other, with this lack of integration leading to significant and potentially pathological alterations in the individual's self and to problematic gaming symptoms.

The novelty of this model lies in the original reorganization of well-established constructs in the field according to a modern theoretical frame. After a measurement tool based on the model is validated, the model will have relevant clinical and research implications. First, it will facilitate assessment and provide avenues for individuals seeking treatment for gaming-related issues, as well as promote appropriate decision making for treatment of problematic gamers. Second, it will help researchers explore the link between problematic gaming and social withdrawal conditions such as hikikomori. Ultimately, this approach can be adapted in the future to investigate our psychological functioning in online virtual environments other than video games.

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## CRediT authorship contribution statement

**Alessandro Giardina:** Conceptualization, Investigation, Methodology, Project administration, Resources, Writing – original draft, Writing – review & editing. **Adriano Schimmenti:** Conceptualization, Supervision, Writing – review & editing. **Vladan Starcevic:** Validation, Writing – review & editing. **Daniel L. King:** Writing – review & editing. **Maria Di Blasi:** Conceptualization, Writing – review & editing. **Joël Billieux:** Conceptualization, Methodology, Project administration, Supervision, Validation, Writing – review & editing.

## Declaration of competing interest

Joël Billieux serves as an editorial board member for Computers in Human Behaviors. Please note, however, that he was not involved at any stage during the editorial process. All other authors declare that they have no conflict of interest regarding this manuscript.

## Data availability

No data were used for the research described in the article.

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