

UNDERSTANDING THE INTERNET GAMING DISORDER:  
ITS ASSOCIATIONS WITH VIDEO GAME GENRE, PERCEIVED STRESS,  
METACOGNITIONS, COPING SKILLS, AND PROCRASTINATION



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## **PLAGIARISM**

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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## ABSTRACT

The current study investigates predictors of internet gaming disorder and explores the relationship between video game genres and internet gaming disorder. Participants (1466) were recruited through various social media platforms and the inclusion criteria were being over 18 and to play video games at least one time a week. Participants filled the Internet Gaming Disorder Scale Short Form, Metacognitions about Online Gaming Scale, Perceived Stress Scale, Tuckman Procrastination Scale, Cognitive Attentional Syndrome 1 Scale, and Coping Styles Scale-Brief Form. Negative metacognitions, perceived stress, positive metacognitions, procrastination, cognitive attentional syndrome, mental disengagement-denial, and substance use significantly predicted higher internet gaming disorder scores. Battle Royale, Role-playing, Adventure, Action-adventure, Shooter, Survival, Platform, Multiplayer Online Battle Arena, and Massive Multiplayer Online Role-playing Game genres were found to be positively correlated with internet gaming disorder scores. In the final section, findings were discussed; limitations, further study recommendations, and clinical implications were elaborated on. In conclusion, this study contributed to the literature on internet gaming disorder by examining predictors and video game genre preferences in the Turkish population.

*Keywords:* internet gaming disorder, metacognitions, perceived stress, coping, procrastination

## ÖZET

Bu çalışma, internet oyun oynama bozukluğunun yordayıcılarını ve video oyunu türleri ile internet oyun oynama bozukluğu arasındaki ilişkiyi araştırmaktadır. Katılımcılara (1466) çeşitli sosyal medya platformları üzerinden ulaşılmıştır. Araştırmaya katılım kriterleri 18 yaşını doldurmuş olmak ve haftada en az bir kez video oyunu oynamaktır. Katılımcılar, İnternet Oyun Bozukluğu Ölçeği-Kısa Form, Çevrimiçi Oyun Oynama Hakkında Üstbilişler Ölçeği, Algılanan Stres Ölçeği, Tuckman Erteleme Ölçeği, Bilişsel Dikkat Sendromu 1 Ölçeği ve Başa Çıkma Stilleri Ölçeği-Kısa Form'unu doldurmuştur. Olumsuz üstbilişler, algılanan stres, olumlu üstbilişler, erteleme, bilişsel dikkat sendromu, zihinsel geri çekilme-inkar ve madde kullanımı internet oyun bozukluğu skorunu anlamlı olarak yordamıştır. Battle Royale, Rol Yapma, Macera, Aksiyon-macera, Nişancı, Hayatta Kalma, Platform, Çevrimiçi Çok Oyunculu Savaş Arenası ve Devasa Çok Oyunculu Çevrimiçi Rol Yapma Oyunu türlerinin internet oyun bozukluğu skoru ile pozitif ilişkisi olduğu bulunmuştur. Son bölümde ise bulgular tartışılmış; sınırlılıklar, gelecek araştırmalar için öneriler ve klinik çıkarımlar üzerinde ayrıntılı olarak durulmuştur. Sonuç olarak Türk popülasyonu ile yapılan bu çalışma, yordayıcıları ve video oyunu türü tercihlerini inceleyerek internet oyun bozukluğu literatürüne katkıda bulunmuştur.

*Anahtar Kelimeler:* internet oyun oynama bozukluğu, üstbiliş, algılanan Stres, başa çıkma, erteleme

To My Cat Dobby, A Free Elf



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## 1. INTRODUCTION

### 1.1. Behavioral Addictions

#### 1.1.1. Conceptualization of Behavioral Addiction

Addiction is broadly defined as extreme use of substances or extreme engagement in a behavior (Petry, 2015, pp. 1-5). Addictions tend to onset when a person is an adolescent or a young adult due to neurodevelopmental changes that lead to a greater drive for novelty while still having an underdeveloped inhibitory control system (Chambers et al., 2003). According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Revised (DSM-5-TR), ‘Substance-Related Disorders’ are described as using substances (alcohol, caffeine, cannabis, hallucinogens, opioids, inhalants, sedative, hypnotic and anxiolytics, stimulants, tobacco, and other substances) as a mean to activate the brain reward system leading to neglecting normal activities and adaptive behaviors that could activate the system in the long term (American Psychiatric Association, 2022). The concept of ‘behavioral addiction’ is still being debated and DSM-5-TR only has ‘Gambling Disorder’ listed as a ‘Non-Substance-Related Disorder’ for the time being (APA, 2022). Even though DSM-5-TR does not use the term ‘addiction’ for classifying substance and non-substance-related disorders, both are categorized under the umbrella term of ‘Substance-Related and Addictive Disorders’ (APA, 2022; Petry, 2015, pp. 1-5). International Classification of Diseases 11th Revision (ICD-11) additionally classifies Gaming Disorders as being a ‘disorder due to addictive behaviors’ under the ‘disorders due to substance use or addictive behavior’ category alongside Gambling Disorder (WHO, 2019).

Evidence shows that excessive engagement in certain behaviors, just like *substance use disorders*, can cause negative outcomes such as psychological distress, and

social or financial problems (Petry, 2015, pp. 1-5). Behavioral addiction could be described as being unable to stop engaging in an activity despite negative consequences (Rosenberg & Feder, 2014). Some similarities between substance use disorders and behavioral addictions are craving beforehand, being in a good mood after the initiation, and withdrawal symptoms after a cessation period (Grant et al., 2010).

### **1.1.2. Internet Gaming Disorder (IGD)**

Video gaming is a popular activity. A study done by Palma-Ruiz et al. (2022) showed that in 2019, there were 1 billion and 203 million players across Asia, Western Europe, and North America. Playing video games can be beneficial. Green and Bavelier (2006) found that playing action video games can increase visual working memory. Another study reported that video games have benefits for women by enhancing social, cognitive, and physical faculties (Lopez-Fernandez et al., 2019). In a systematic review done by Pallavicini et al. (2018) it is shown that video games could improve emotional (e.g., decreasing stress and inducing positive emotions) and cognitive skills (e.g., processing speed, reaction times, task switching, visual and spatial working memory). It can improve task-switching, processing speed, and attentional control (Nuyens et al., 2019). Playing games was found to also decrease stress and increase positive mood (Russoniello et al., 2009).

However, excessive gaming behavior may turn into a severe problem leading to deterioration in everyday life. DSM-5-TR includes Internet Gaming Disorder (IGD), as a behavioral addiction, but its diagnostic criteria are in preparation for the upcoming DSM for it to be considered an official disorder (APA, 2022). There are 9 suggested criteria for IGD: preoccupation, withdrawal, increasing time spent playing games, not being able to stop playing, losing interest in other activities, continued excessive playing while having

psychosocial problems, lying to others about playtime, playing to decrease negative mood, risking or losing an important opportunity considering relationships, jobs or education due to gaming (APA, 2022).

A meta-analysis done by Fam (2018) showed that the prevalence of IGD among adolescents was %4.6, male adolescents have more prevalence than female adolescents and Asians have more prevalence among people from four continents (i.e., Asia, Australia, North America, and Europe). Kuss and Griffiths (2012) reported a distinction between excessive use and addiction in their systematic review which indicated that while excessive use is %8-12, addiction is 2-5% prevalent in young people. The prevalence rate is not agreed upon in the literature due to conceptual and methodological inconsistencies (Lopez-Fernandez et al., 2019). In terms of demographic risk factors, a study done by Elliot et al. (2012) revealed that not being a high school graduate, being unemployed, retired or disabled are risk factors for problematic gaming while being married is a protective factor

Literature shows that the genre of games also matters about being addicted to games. Evidence indicates that real-time strategy and role-playing games have a stronger relationship to pathological play than action and other games (Einchenbaum et al., 2015). Elliott et al. (2012) found that playing First Person Shooter (FPS), action-adventure, Massive Multiplayer Online Role-Playing Game (MMORPG), and gambling games were more associated with problematic gaming. Another study reported that the risk of developing IGD is more associated with Role-Playing games (RPGs), Multiplayer Online Battle Arena (MOBA), and simulation games (Han et al., 2020). RPG was also found to be the most associated game genre with internet addiction in other studies (Kim et al., 2010; Lee et al., 2006). A study done in South Korea showed that MMORPG and FPS

players showed more prevalence of having IGD (Na et al., 2017). It was also found that online RPG and Shooter games are more strongly related to IGD (Lemmens & Hendricks, 2016). There could be several reasons for some genres to involve more risk for developing IGD than others. MMOPRG games provide gamers with social interaction with other gamers and make it possible to express themselves anonymously through their in-game characters (Cole & Griffiths, 2007), this could make gamers turn to games for social interaction and increase the risk for IGD (Han et al., 2020). MOBA games involve a battle arena and are played on a match-based system (Kou & Gui, 2014), thus its constant need for practice could lead to the development of IGD (Han et al., 2020) Both MMORPG and MOBA's are played online, and literature shows that online games are more strongly related to IGD than offline games (Lemmens & Hendriks, 2016). FPS games' ability to create immersion through their first-person camera angle and their competitive nature could lead to problematic gaming (Elliott et al., 2012).

IGD shares some characteristics with other addictions such as tolerance, repeated unsuccessful attempts to decrease engagement and decreased functioning in everyday life (APA, 2022). There is research that compared IGD with other addictions. Choi et al. (2014) found that people with IGD scored higher on Barrat Impulsiveness Scale than people with Gambling Disorder (GD) did. A systematic review by Kuss and Griffiths (2012) revealed that the brains of people with IGD showed similar reactions to game cues as the brains of substance addicts' reactions to substance-related rewards. Another study showed that the craving for gaming is emotionally similar to the craving for gambling (Stoeber et al., 2011).

Research also shows that people with IGD have some dysfunctional characteristics including mental health problems, cognitive/neuropsychological problems,

and social problems. For instance, IGD is positively associated with alexithymia, negative affect (Bonnaire & Baptista, 2019), depression, anxiety (Bonnaire & Baptista, 2019; Fazeli et al., 2020); insomnia, and stress (Fazeli et al., 2020). González-Bueso et al. (2018) also reviewed various studies and reported comorbidity numbers between IGD and anxiety (%92), depression (%89), ADHD (%85), and social anxiety and obsessive-compulsive symptoms (%75). Academic stress was also found to be associated with problematic gaming. A recent study showed that the relationship between academic stress and problematic gaming was mediated by self-control in adolescents (Jeong et al., 2019). Király et al. (2014) reviewed and summarized some of the etiological factors that could contribute to the development of IGD which are depressive symptoms, state/trait anxiety, social phobia, loneliness feelings, failure to self-regulate, inadequate satisfaction in life, decreased self-esteem, emotional intelligence, and psychological well-being, aggression, and narcissistic personality. In addition, trait and state anxiety, aggression, and neuroticism were found to be predictors of gaming addiction (Mehroof & Griffiths, 2010).

People with IGD also show differences in cognitive/neuropsychological aspects. They have lower impulse control, impaired response inhibition (Argyriou et al., 2017), and impaired decision-making (Nuyens et al., 2017). Rho et al. (2017) identified some risk factors associated with IGD which are impulsivity, low self-control, and desire to reach goals. Literature also provides findings considering people with IGD to have problems and differences in their social lives. King and Delfabbro (2016) showed that adolescents with IGD have maladaptive cognitions and they are categorized as giving more value to rewards and identities, inflexibility in gaming situations, depending on games for self-esteem, and getting socially accepted through gaming. In addition, problems that people

with IGD could show differences according to the game genre they play. Bonnaire and Baptista (2019) investigated the differences between MOBA and MMORPG gamers and reported that IGD is associated with having problems with describing emotions for MOBA players but for MMORPG gamers it is the anxiety that is associated with IGD. Similar to game genres, gaming motivation is also an area of interest in terms of problematic gaming. Escape motive (playing video games to escape reality or real-life problems) was found to be associated with problematic gaming (Király et al., 2017; Wu et al., 2016). Taken together, it seems that there are differences among game preferences and their association with IGD and some genres could be more of a risk factor for developing IGD than others. Some of the underlying factors for IGD will be investigated throughout this study.

In addition, in this study, IGD is considered a concept, not a diagnosis. IGD is a multifaceted concept that should only be diagnosed with information gathered through various methods such as interviewing and clinical evaluations. Literature consists of different names for the same concept such as gaming addiction, problematic gaming, and gaming disorder. In order to decrease complications, in this study, it was decided to use IGD for describing the problem since this is the official name for the problem according to DSM-5TR (APA, 2022). However, it is necessary to express clearly, that this study does not intend to diagnose.

## **1.2. Metacognition & IGD**

Metacognition can roughly be explained as cognitive monitoring through knowledge, experiences, and goals of strategies of one's own (Flavell, 1979).

Metacognitions can be divided into two: positive and negative metacognitions. While positive metacognitions mean thinking about the advantages of engaging a certain

strategy for regulation, negative metacognitions mean the uncontrollability of that strategy used for regulation (Aydın et al., 2020). Metacognition also includes metacognitive knowledge (beliefs about own cognitions), metacognitive experience (appraisals, judgments, and interpretation of the cognitions), and metacognitive strategies (behaviors to control cognition) (Wells, 2000).

Literature shows that metacognitions are related to state anxiety (Spada et al., 2010), worry (Spada et al., 2012), and depression (Solem et al., 2017). Moreover, it was found that metacognition was positively associated with perceived stress (Sarıçam, 2015; Spada et al., 2008). Spada et al. (2008) elaborated on their findings by stating that people with metacognitive beliefs regarding uncontrollability and the need of worrying would use maladaptive coping mechanisms and this could lead to more perceived stress in time. Similarly, Ramos-Cejudo and Salguero (2017) found that negative metacognitions showed moderation effects between perceived stress and anxiety. Its relationship with anxiety and obsessive-compulsive symptoms was also reported in the literature (Irak & Tosun, 2008). They found that metacognition (specifically uncontrollability and danger) is a mediator between anxiety and obsessive-compulsive symptoms. In a systematic review done by Hamonniere and Varescon (2018) it was shown that metacognitions contribute to addictive behaviors because they affect the start (by positive metacognition) and the continuation (by negative metacognitions) of the addictive behavior. For instance, it was associated with problem drinking (Spada et al., 2007), problem gambling (Lindberg et al., 2011), procrastination (Spada, et al., 2006), problematic internet use (Spada & Marino, 2017), problematic social networking site use (Ünal-Aydın et al., 2021), digital gaming addiction (Yavuz et al., 2018), and IGD (Aydın et al., 2020; Casale et al., 2021). Lindberg et al. (2017) argued that problematic gamblers interpret though

about gambling as an indicator of loss of control, and worry and ruminate about them. This, in turn, leads them to more gambling to gain some mental control over their thoughts. Spada and Marino (2017) explained their findings by stating that metacognitions could lead to maladaptive coping strategies and this could result in increased use of the internet for self-regulation.

Spada and Caselli (2017) adapted two kinds of metacognitions (positive and negative) for gaming in their study that they developed ‘Metacognitions about Online Gaming Scale’. Positive metacognitions roughly indicated the benefits of engaging in online gaming for the regulation of affect and cognition; and negative metacognitions indicated the dangers and uncontrollability of the gaming session as a regulation strategy (Spada & Caselli, 2017). Marino and Spada (2017) stated in their review that while positive metacognitions can contribute to the initiation of gaming, negative metacognitions can contribute to its continuation (e.g., “*Online gaming will stop my worry*” as positive metacognition and “*Once I start online gaming it is difficult to stop*” as negative metacognition) (Caselli et al., 2021, p. 174).

Metacognitions were found to be related to different types of games as well. In a study carried out by Ricker and Richert (2020), games with high interactive features (adaptivity, feedback, and control) were positively related to metacognitive awareness but games with low interactive features were not. Games with high adaptivity allow players to change the game according to their needs; high control means the ability to navigate the game environment more freely without strict rules and orders to follow, and high feedback features provide players more frequent information about the player activity. A possible explanation for this could be that the games with higher interactivity make it possible for children to demonstrate and evaluate their cognitions according to in-game

activities, leading to increased metacognitive awareness (Ricker & Richert, 2020).

Moncarz (2012) also found that metacognitive awareness was related to games with Coherent Worlds (CWG) but not to games with Non-Coherent Worlds (NCWG). CWGs include games that are high in role-playing, challenges, and character development. The level of engagement, world manipulation, and the need to learn new strategies to overcome challenges that CWGs contain could enhance metacognitive awareness, since they encourage players to learn and reflect (Moncarz, 2012).

Matthews and Wells (1994) were the first to link metacognition with psychological problems and conceptualized them into a model they called “The Self-Regulatory Executive Function” (S-REF) (Hamonniere & Varescon, 2018). This model explains maladaptive processing linked with emotional problems and is based upon a three-level cognitive functioning system: automatic processing; attentionally demanding, voluntary processing; and self-beliefs (Wells & Matthews, 1996). The S-REF specifically consists of processing affected by self-beliefs and is considered the most relevant to emotional problems (Wells & Matthews, 1996). This system demands attention to both external and internal cues and is guided by self-beliefs and self-knowledge, thus S-REF system has a metacognitive function (Wells & Matthews, 1996) involving cognitive, affective, and behavioral self-regulation, helping to reduce self-discrepancies and threats through guiding action (Matthews & Wells, 2016, pp. 233-259).

In this system, any intrusion into consciousness is evaluated by self-knowledge, and a strategy is executed accordingly (Matthews & Wells, 2016, pp. 233-259). When metacognitive beliefs (metacognitions) are activated, they lead to a set of self-regulatory coping strategies: worry, rumination, threat monitoring, thought suppression, avoidance, substance use (Hamonniere & Varescon, 2018), and self-injury (Wells, 2013). According

to the S-REF model, psychological problems are caused by and continued through these coping strategies (Wells, 2013), and these coping strategies are called Cognitive Attentional Syndrome (CAS) (Hammonier & Varescon, 2018). The general purpose of these coping strategies is to deal with negative thoughts, beliefs, and emotions (Wells, 2013) however they can vary in their purposes. Worry and rumination serve to detect future threats and analyze a past one, respectively; threat-monitoring is attending to possible internal/external threats; thought suppression, avoidance, substance use, and self-injury lead to a decreased level of sense of control over thinking by transferring cognitive control and doing so contributing not developing a sense of cognitive control (Wells, 2013). There are positive (“Worrying will help me avoid problems”) and negative metacognitions (“I cannot control my worry”) about CAS strategies (Wells, 2013, p.188). Thus, metacognitions are integral parts of the S-REF and CAS systems.

As stated before, it was reported that metacognition is positively correlated with perceived stress (Sarıçam, 2015; Spada et al., 2008). Spada et al. (2008) explained this by elaborating that when people have metacognitive beliefs about the effectiveness of maladaptive coping strategies and act accordingly, it increases perceived stress levels. Sarıçam (2015) shared a similar explanation that having nonfunctional metacognitions and using maladaptive coping strategies contribute to the formation and maintenance of several psychological problems including perceived stress. Perceived stress will be elaborated upon in the next part more thoroughly.

### **1.3. Perceived Stress & IGD**

Perceived stress is defined as the degree to which people find their lives stressful (Cohen et al., 1983). It is an evaluation of the hardship of taking care of challenges (Spada et al., 2008). Literature shows that there are gender differences in coping with

perceived stress. While women tend to seek social help, men reported alcohol and substance use (Misigo, 2015). Kadzikowska-Wrzosek (2012) found that as perceived stress increases, some mental health problems also increase with it such as anxiety, insomnia, somatic symptoms, depression, and social problems. It was also found to be related to decreased academic performance (Varghese et al., 2015), and sleep disturbances (Kashani et al., 2010). Perceived stress showed a relationship with several dysfunctional behaviors and behavioral addictions. It was found that perceived stress was positively correlated with internet addiction (Al- Gamal et al., 2016; Singh et al., 2020); was associated with mobile phone addiction with self-control as a mediator (Liu, Zhang et al., 2018) was associated with risk of alcohol abuse, risk of eating disorders and risk of cyber addiction (internet addiction) (Tavolacci et al., 2013) and gambling (Lostutter et al. 2013). Lostutter et al. (2013) elaborated on their findings by saying that stress could lead people to cope with gambling and this could result in gambling problems. According to Tavolacci et al. (2013), people could use the internet to cope with stress and this could lead to problematic behavior. It was also found that perceived stress was related to higher IGD scores (Canale et al., 2019; Lin et al., 2021; Rajab et al., 2020).

As the mentioned section above, various game genres have different characteristics that affect gaming behavior itself (Cole & Griffiths, 2007; Han et al., 2020; Kou & Gui, 2014; Lemmens & Hendriks, 2016). Similarly, perceived stress was associated with game type as well. Shallock (2019) found that people with more stressful lives have immersion-focused play styles and gamers with immersion-focused playstyles tend to play more MMORPG, Single Player RPG, and adventure games; and playing games with escape and distract motives are positively correlated with perceived stress.

IGD and stress have a complicated and intriguing relationship. People with IGD showed different physiological symptoms to acute and chronic stress than healthy participants. They reported more chronic and acute stress and they had greater negative affective stress responses in synch with their level of IGD severity (Kaess et al., 2017). Some studies reported that people could play online games to stay away from daily life stress, but problematic gaming could result in more stress in the long run (Snodgrass et al. 2014). A similar result from a recent study also showed that people with IGD and people who use gaming as a coping strategy showed increased perceived stress (Lin et al., 2021). Koban et al. (2021) found that perceived stress strengthens the link between gaming and negative outcomes. This means that when gaming is used as a leisure activity by people with usually stress-free lives, even though plenty of time was spent on gaming, it does not have to be necessarily concerning. However, it could pose a threat to people who are already living a severely stressful life. Taken together, stress seems to be both a precipitating and a perpetuating factor for problematic gaming (Lin et al., 2021; Snodgrass et al. 2014).

Kardefelt-Winther (2014) found that perceived stress was related to negative gaming outcomes and their relationship was mediated by escapism motivation. People who were more prone to gaming as an escape from the real world were found to have more stress and depression (Lin et al., 2021). In that respect, coping as a concept was found to be related to problems such as depression, anxiety, and stress (Loton et al., 2016). Its relationship with stress is intrinsic because coping as a definition means the ways to deal with a problem that causes distress (Roth & Cohen, 1986), and “stress leads to coping” (Carver, 2011, p. 222). Garland (2007) argued that being unable to develop

adaptive coping strategies connects stress-activated physiology and emotional distress and contributes to stress-related mental or physical illness.

#### **1.4. Coping & IGD**

Coping can be defined as a way of handling a threatening situation by removing the threat or decreasing the negative effects on the self (Carver, 2011, pp. 222-223). Researchers conceptualized coping in differing ways. Lazarus and Folkman (1984, p. 150) stated that there are two kinds of coping: emotion-focused and problem-focused. While emotion-focused coping aims to regulate emotions a problematic situation caused; problem-focused coping deals with directly problem management (Lazarus & Folkman, 1984, p. 150). However, it is argued that there are coping strategies that do not seem to fall between either category, such as blaming oneself, since it does not remove the problem and sometimes increases the distress caused by the problem (Carver, 2011, p. 223). Another way to conceptualize coping is to divide it into approach coping and avoidance coping (Roth & Cohen, 1986). While approach coping means dealing with the stressor and the subsequent emotions directly; avoidance coping means escaping from that stressor (Carver, 2011, p. 223). It was found that while approach coping was negatively related to stress, avoidance coping was positively related to stress (Crary, 2013; Soderstrom, et al., 2000). Perceived stress was shown to be positively correlated with avoidant coping, negatively correlated with problem-focused coping; and associated with dysfunctional coping and coping with gaming (Lin et al. 2021). However, conceptualizing all coping strategies and finding a distinction that includes all may not be possible (Carver, 2011, p. 224) and some sources argue that gaming behavior (Blasi et al., 2019; Lin et al., 2021) may itself be a coping strategy, and could be a maladaptive one (Blasi et al., 2019).

Recent studies demonstrated that coping was related to problematic gaming behavior (Lin et al., 2021; Melodia et al., 2020) in the literature. People with game addiction seem to be more likely to use maladaptive coping strategies (Lin et al., 2021; Melodia et al., 2020). People who use dysfunctional coping strategies also use gaming as a coping strategy, and people who use gaming as a coping strategy are found to be higher in perceived stress (Lin et al. 2021). In a similar vein, Blasi et. al. (2019) argued that problematic gamers use gaming as a dysfunctional coping style to escape from their real-life problems. People who use emotion-focused coping styles tend to use gaming as a way to recover from stress (Reinecke, 2009). Avoidance coping was found to be a predictor of IGD and a mediator between anxiety and problematic gaming (Melodia et al., 2020). Similarly, avoidance coping was found to explain a relationship between video game addiction and stress (Loton et al., 2016). People with a higher level of video game addiction used more avoidance coping and in return, people who used avoidance coping showed higher levels of stress. Coping is also related to other psychological problems. Thompson et al. (2010) reported that there was a relationship between depressive symptoms and maladaptive coping, and this relationship got stronger if the adaptive coping level was low. Obsessive-compulsive disorder was associated with more use of maladaptive coping strategies and less use of adaptive coping strategies (Moritz et al., 2018). Problematic gambling was also found to be associated with maladaptive coping strategies (Jauregui et al., 2017). They reported that problem-focused disengagement and problem avoidance predicted problematic gambling.

S-REF model encompasses coping strategies as stated before. These coping strategies are driven by Cognitive Attentional Syndrome (CAS) and they contribute to the beginning and the continuation of psychological problems and are intrinsically related to

metacognition (Wells, 2013). Muneer et al. (2019) argued that positive and negative metacognition of a certain behavior carries a judgment about its usefulness or danger and these beliefs ultimately have an impact on choosing a said behavior to cope with a certain situation. When a person is in distress, selecting a coping strategy is based on the person's metacognitive beliefs about a certain strategy and since the CAS system includes maladaptive coping strategies, that problem never gets resolved, and it creates a cycle (Spada et al., 2015). Even though studies about metacognitive belief and coping strategies are not plentiful (Muneer et al., 2019), there are still some that show relationships (Mohammadi Bytamar et al., 2017). Beer and Moneta (2012) reported that adaptive metacognitions lead to adaptive coping and prevent perceived stress. They also showed that the lack of maladaptive metacognition could prevent maladaptive coping. Similarly, Ghafoor et al. (2019) found that metacognition, regarding uncontrollability and danger, was positively correlated with negative coping strategies.

These relationships between perceived stress, negative coping strategies, and IGD also bring the emergence of complex issues such as procrastination which may contribute to gaming addiction (Yeh et al., 2017). Therefore, the concept of procrastination will be elaborated upon in the next section.

### **1.5. Procrastination & IGD**

Procrastination is a form of maladaptive self-regulation for managing a behavior or emotion (Fernie et al., 2017) and is defined as unnecessary delaying of things that need to get done (Klingsieck, 2013) until it is almost too late (Beheshtifar et al. 2011). Literature shows that procrastination is negatively correlated with academic performance (Kim & Seo, 2015) and the tendency to procrastinate decreases with age (Steel, 2007). Ferrari (1993) divided procrastination into two categories: behavioral and decisional

procrastination. Chun Chu and Choi (2005) also divided procrastination behavior into two categories, active and passive procrastination. While passive procrastinators do not necessarily want to procrastinate but are unable to act fast, active procrastinators decide to postpone and procrastinate to manage their time accordingly they usually get their responsibilities met last minute, and also tend to work better under pressure (Chun Chu & Choi, 2005). Some studies found procrastination to be associated with psychological problems such as depression, hostility, impulsivity (Yeh et al., 2017), stress (Stead et al., 2010), negative affect (Fernie et al., 2016), and lower levels of self-compassion (Sirois, 2013). Pychyl et al. (2000) showed that people tend to do more pleasurable activities when they procrastinate but they do not feel happy doing so.

There are studies that showed a positive correlation between problematic internet use (Aznar-Diaz et al., 2020) and problematic social media use (Wartbert et al., 2021) with procrastination; and procrastination as a mediator between perceived stress and internet addiction (Gong et al. 2021), but literature is scarce on the gaming part. Yeh et al. (2017) found that people with IGD tend to procrastinate more and the severity of the IGD was associated with procrastination tendency. They argued that using gaming as a procrastination method can provide people with instant rewards thus leading to further delaying of real-world responsibilities and making them more prone to IGD. Nordby et al. (2019) found that procrastination was positively correlated with video gaming time but only very weakly. In addition, they found that people who play games to escape from reality and stress showed a higher level of procrastination (Nordby et al., 2019). These two findings together show that problematic gaming was more related to procrastination behavior, not the playing hours. Hinsch and Sheldon (2013) reported that cutting down the time spent playing socially connected online games reduced procrastination.

Procrastination was found to be associated with related addictive behaviors, as stated above. Literature shows that there is a positive relationship between internet addiction and academic procrastination (Can & Zeren, 2019; Demir & Kutlu, 2008; Tras & Gökçen, 2020); problematic mobile use and academic procrastination (Erdoğan et al., 2013); mobile phone addiction and procrastination (Liu, Zhang, et al., 2018); and internet addiction and procrastination (Geng et al., 2018; Saleem et al., 2015).

Flett et al. (1995, p. 151) found that procrastinators tend to have a higher level of perceived stress and the combination of stress and procrastination leads to more adjustment problems (Flett et al., 1995, p.155). Schraw et al. (2007) reported procrastination results in a higher level of stress with time. In a similar vein, Tice and Baumeister (1997) found that students who procrastinate had higher levels of stress at the end of a school term, and in total, even though they had less stress at the beginning of the semester. Reinecke et al. (2018) reported that trait procrastination was positively correlated with perceived stress. Gong et al. (2021) showed that procrastination was a mediator between perceived stress and internet addiction in their study. Beleaua and Cocoradă (2016) also found that people who procrastinate showed a higher level of stress. In a study done with primary school teachers, Verešová (2013) reported that there is a positive correlation between stress and procrastination. Some sources argue that procrastination behavior (Pychyl & Sirois, 2016) may itself be a coping strategy. It was found that procrastination was positively correlated with avoidance coping (Beleaua & Cocoradă's, 2016; Verešová, 2013). A meta-analytic study (Sirois & Kitner, 2015) showed that procrastination was positively correlated with maladaptive coping and negatively correlated with adaptive coping; and maladaptive coping explained the relationship between stress and procrastination. Procrastinators have negative attribution

for their ability to cope when faced with a stressor and use emotion-oriented and avoidance coping and not task-oriented coping (Flett et al., 1995, p.156-165). Authors argued (Flett et al., 1995, p.164) that procrastinators, when faced with a stressor, may turn to maladaptive coping strategies such as avoidance, instead of dealing with the stressor with a problem-solving approach and this, in turn, could lead to more distress.

Some studies also showed relations between metacognition and procrastination. Procrastination can be explained from the S-REF model's point of view (Fernie et al., 2016). According to this model, procrastination can be considered as a metacognitive control strategy that helps to regulate emotions and cognitions, and it starts to be problematic when it becomes a part of the CAS system that is unable to lead to a change in belief or completion of a task (Fernie et al., 2016). It can also affect the start of other strategies like rumination which contribute to perseveration (Fernie et al., 2016). Spada et al. (2006) showed that beliefs concerning cognitive confidence predict behavioral procrastination and positive beliefs concerning worry predict decisional procrastination. Fernie et al. (2016) also found that decisional procrastination is related to metacognitions (negative beliefs about thoughts concerning uncontrollability and danger, cognitive confidence, beliefs about the need to control thoughts, and cognitive self-consciousness). Fernie and Spada (2008) identified two types of metacognitive beliefs about procrastination: positive metacognitions about procrastination that signify the usefulness of procrastination, and negative metacognitions about the uncontrollability of procrastination, and they were found to be related to both decisional and behavioral procrastination (Fernie et al., 2009). It was found that metacognitive awareness was negatively correlated with academic procrastination (Çikrikci, 2016) and procrastination

(Wong, 2012). Mohammadi Bytamar et al. (2018) also reported that both positive and negative metacognitions were predictors of academic procrastination.

Taken together, considering literature findings these variables seem to be important factors to explain internet gaming disorder. However, to our knowledge, there is no published study that investigates all of the variables together. As a result of this, the current study is thought to provide a more comprehensive point of view.

### **1.6. Aims of the Study**

This study aims to investigate whether these four variables (perceived stress, metacognitions, coping strategies, and procrastination behavior) significantly predict internet gaming disorder. In addition, the relationship between game types and internet gaming disorder will be investigated. In the light of the information mentioned above, the hypotheses of the research are as follows:

*Exploratory research question:* The relationship between game genres (i.e. Role Playing Games, Multiplayer Online Battle Arena (MOBA), Massive Multiplayer Online Role-Playing Games (MMORPG), Shooter games) and internet gaming disorder will be investigated.

*Hypothesis:* Metacognitions, perceived stress, coping strategies, and procrastination will significantly predict internet gaming disorder (IGD).

## 2. METHODS

### 2.1. Participants

In the present study, 2527 participants were recruited; however, 1045 of them were removed from the data since they did not complete the survey. Inclusion criteria were being above 18 and playing video games at least one time a week. 16 participants were under 18 therefore, they were also excluded from the study. Totally, 1466 participants remained. The mean age of the participants was 23.97 ( $SD= 5.00$ ) and the age ranges from 18 to 54 years old. 1263 participants were male (86.2%), 186 were female (12.7%) and 17 identified themselves as 'other' (1.2%). The mean GPA of the participants was 2.92 ( $SD= .60$ ). Frequency and descriptive analyses were carried out for participants' general and game-related characteristics. For instance, the average gaming hour per day was 2.77 ( $SD= 1.98$ ). Participants were asked if they experienced any recent stress factors in their lives. 1259 participants provided answers, and 601 of the answers (47.73%) included economy-related stress factors (i.e., economy, finance, money, dollar, euro, lira, inflation, debt, insufficient livelihood, inoccupation, costliness, rent, purchasing power, minimum wage, exchange rate). Detailed information about demographics can be seen in Table 1 and Table 2.

In addition, participants were examined for IGD criteria. Pontes and Griffith (2015) suggested that a score of 36 out of 45 (answering all 9 items at least 'often') is disordered gaming. However, they argued that these criteria should be for research purposes only, and to diagnose someone with IGD further evaluations should occur. The data was examined both according to original criteria and in monothetic format (all criteria must be met, in this case answering all items at least as 'sometimes') (Baysak et al., 2016). In our study, 3.1% of the participants scored 36 and higher on Internet Gaming

Disorder Scale-Short Form (IGDS9-SF) and showed disordered gaming. Using the monothetic method, 15.3% of the participants were revealed to be disordered gamers.

**Table 1**

*General Demographic Characteristics of the Participants*

| Variables                    | Frequency | Percentage (%) |
|------------------------------|-----------|----------------|
| Gender                       |           |                |
| Men                          | 1263      | 86.2           |
| Women                        | 186       | 12.7           |
| Other                        | 17        | 1.2            |
| Education Level              |           |                |
| Literate                     | 1         | .1             |
| Elementary school graduate   | 2         | .1             |
| Middle school graduate       | 7         | .5             |
| High school graduate         | 132       | .9             |
| University student           | 698       | 47.6           |
| University graduate          | 457       | 31.2           |
| Postgraduate student         | 67        | 4.6            |
| Postgraduate                 | 66        | 4.5            |
| Other                        | 36        | 2.5            |
| Grade, if university student |           |                |
| First grade                  | 108       | 7.4            |
| Second grade                 | 129       | 8.8            |
| Third grade                  | 101       | 6.9            |
| Fourth grade                 | 115       | 7.8            |
| Fifth grade                  | 11        | .8             |
| Sixth grade                  | 5         | .3             |
| Other                        | 1         | .1             |
| Employment status            |           |                |
| Full-time working            | 450       | 30.7           |
| Part-time working            | 126       | 8.6            |
| Non-working                  | 890       | 60.7           |

**Table 2**

*Gaming-related Characteristics of Participants*

| Variables                 | Frequency | Percentage (%) |
|---------------------------|-----------|----------------|
| Playing video games since |           |                |
| 0-1 year                  | 7         | .3             |
| 1-3 year                  | 31        | 2.1            |
| 3-5 year                  | 69        | 4.7            |
| 5-10 year                 | 231       | 15.8           |
| 10+ year                  | 1128      | 76.9           |

| Variables                     | Frequency | Percentage (%) |
|-------------------------------|-----------|----------------|
| Preferred gaming type         |           |                |
| Online games                  | 68        | 4.6            |
| Offline games                 | 215       | 14.7           |
| Both                          | 1183      | 80.7           |
| Gamer type                    |           |                |
| Professional e-sports player  | 6         | .4             |
| Amateur e-sport player        | 22        | 1.5            |
| Hobby player                  | 1438      | 98.1           |
| Amount of gaming day per week |           |                |
| 1 day                         | 33        | 2.3            |
| 2 days                        | 105       | 7.2            |
| 3 days                        | 160       | 10.9           |
| 4 days                        | 232       | 15.8           |
| 5 days                        | 254       | 17.3           |
| 6 days                        | 126       | 8.6            |
| 7 days                        | 556       | 37.9           |

## 2.2. Instruments

In the present study, participants were asked to fill following forms and scales: demographic information form, Internet Gaming Disorder Scale-Short Form, Metacognitions about Online Gaming Scale, Perceived Stress Scale, Tuckman Procrastination Scale, Cognitive Attentional Syndrome 1 Scale, and Coping Styles Scale Brief Form.

### 2.2.1. Demographic Information Form

A Demographic Information Form was used to collect the participants' sociodemographic characteristics. It consisted of two parts that are general characteristics and game-related characteristics. In the first part, the form included questions for age, gender, education level, current overall GPA and grade (if university student), occupation status, and a brief description of a recent stressful event (if any).

In the second part, the gaming preferences of the participants were questioned. For instance, they were asked how long ago they started gaming, the type of gaming group they belong to as a gamer, the frequency of gaming per week, and gaming duration per

day. In addition, the participants' preferences for game genres were investigated. For this question, a list of game genres was used. To check the inter-rater reliability, two independent gamers (i.e., one of them is the researcher in the present study) categorized games and compared them to each other, resulting in .96 compatibility. There were 22 game genres with examples (i.e. MOBA, MMORPG, FPS, Simulation).

### **2.2.2. Internet Gaming Disorder Scale-Short Form (IGDS9-SF)**

Internet Gaming Disorder Scale-Short Form which was developed by Pontes and Griffiths (2015) and translated into Turkish by Arıcak et al. (2018). was used to scan gaming addiction based on the proposed diagnostic criteria for gaming addiction in DSM-5 (Pontes & Griffiths, 2015). The scale consists of 9 items and is scored in a 5-point Likert type (1-Never, 2-Rarely, 3-Sometimes, 4-Often, 5-Very often) with a single dimension. The minimum score that can be obtained is 9 and the maximum score is 45. In addition, a score of 36 out of 45 indicates an increased risk of addiction and the higher scores indicate higher degrees of gaming disorder (Arıcak et al. 2018; Pontes & Griffiths, 2015). While Cronbach's Alpha for the original scale is .87, it is .82 for the Turkish adaptation. In the present study, Cronbach's Alpha was .795.

### **2.2.3. Metacognitions About Online Gaming Scale (MOGS)**

Metacognitions about Online Gaming Scale was developed by Spada and Caselli (2017) and adapted to Turkish by Nazlıgül and Süsen (2021). The scale consists of 12 items and it is scored on a 4-point Likert type (1-I do not agree, 2-I agree very little, 3- I somewhat agree, 4- I completely agree). While the original scale consisted of 3 sub-dimensions (positive metacognitions about online gaming, negative metacognitions about the uncontrollability of online gaming, and metacognitions about the dangers of online gaming), the Turkish adaptation includes two sub-dimensions: Positive metacognitions

about online gaming (first 6 items) and negative metacognitions about online gaming (last 6 items). The higher scores indicate higher levels of metacognition. In terms of internal reliability, Cronbach's alpha levels were good for both the original study (.84, .86, and .79, respectively) and Turkish adaptation (.88 and .86). The present study's Cronbach's Alphas were .920 for positive metacognitions subscale and .824 for negative metacognitions subscale.

#### **2.2.4. Perceived Stress Scale (PSS)**

Perceived Stress Scale (PSS) was developed by Cohen et al. (1983) and was adapted into Turkish by Eskin et al. (2013). The scale aims to assess the degree to which a person finds certain situations stressful in their lives (Cohen et al., 1983). The scale consists of 14 items and is scored on a 5-point Likert type (0-Never, 1-Almost never, 2-Sometimes, 3-Quite often, 4-Very often). The score that the person can get varies between 0-56 and higher scores indicate higher perceived stress. While any sub-dimension was not specified in the original scale, there are 2 sub-dimensions in the Turkish adaptation: Insufficient self-efficacy perception (i.e., feeling like not being able to cope with everyday situations) and stress/discomfort perception (i.e., feeling stressed and angry). The Cronbach's Alpha of the original scale was tested with three sample groups and varies between .84 and .86 for the total scale. In addition, the Cronbach's Alphas for the Turkish version were .81 and .76 for the sub-dimensions, respectively, and it was .84 for the total scale. In the present study, Cronbach's Alpha for the total scale was .883.

#### **2.2.5. Tuckman Procrastination Scale**

The 16-item Tuckman Procrastination Scale was developed by Tuckman (1991) to measure the procrastination behavior of university students. The Turkish adaptation study

of the scale was conducted by Özer et al. (2013). Both the original study and the Turkish adaption of the scale are one-dimensional; however, two items were removed after analysis, leaving 14 items for the Turkish version. The internal consistency was .86 for the original scale, and it was found as .90 and .85 for the Turkish version including two different samples. The scale is scored on a 5-point Likert type (1-Strongly disagree, 2-Disagree, 3-Undecided, 4-Agree, 5-Strongly agree). Higher scores indicate more procrastination. In the present study, the internal consistency score was .926.

#### **2.2.6. Cognitive Attentional Syndrome 1 Scale (CAS-1)**

The Cognitive Attentional Syndrome 1 (CAS-1) scale was developed by Wells (2009, pp. 32-35) and translated into Turkish by Gündüz et al. (2019). S-REF theory (Wells, 2013) suggested that psychological problems are related to coping strategies in the CAS system. The scale aims to measure the activation of the cognitive attentional syndrome (Gündüz et al., 2019) and the degree to which certain coping strategies were used (Wells, 2009, p. 32). The scale consists of 16 items. The first eight items are scored on 9-point Likert-type, ranging from 0 to 8 (0-Never, 4-Half of the time, 8-The whole time), and the next eight items are scored on 11-point Likert-type, ranging from 0-100 (0 =I completely do not believe, 100 =I completely believe that this is correct). To calculate the total score, the first 8 items are recoded as 0-100 system and the total score is calculated by summing up all 16 items' scores. Higher scores from the scale indicate higher CAS system activation. The Cronbach's Alpha coefficient value of the original scale was .86 (Fergus, Bardeen & Orcutt, 2012) and it was .77 for the Turkish version. The present study's Cronbach's Alpha was .758.

#### **2.2.7. Coping Styles Scale Brief Form (CSS-BF/ The Brief Cope)**

The Brief Cope was developed by Carver (1997) as a short version of the COPE Inventory (Carver et al. 1989). The scale was adapted to Turkish by Bacanlı et al. (2013). The scale was developed to assess coping in spontaneous situations (Carver, 1997). COPE Inventory has 60 items under 15 subscales that are further categorized into three groups: problem-focused coping, emotion-focused coping, and maladaptive coping (Bacanlı et al., 2013). The original Brief Cope scale consists of 28 items and 14 sub-dimensions. For the Turkish version of the Brief Cope scale, an item pool was created using both the original items from COPE Inventory and items from The Brief Cope. After analysis, a scale was formed including 28 items and 14 sub-dimensions which are instrumental social support, humor, focusing on venting of emotions, substance use, acceptance, suppression of competing activities, turning to religion, denial, behavioral disengagement, mental disengagement, restraint coping, positive reinterpretation, using emotional social support and planning. The scale is scored on a 4-point Likert-type scale from 1 to 4 (1-I never do such a thing, 2-I rarely do such a thing, 3-I sometimes do such a thing, 4-I do such a thing most of the time). Each subscale is calculated separately, and higher scores obtained from that subscale indicate that a relevant coping strategy is used frequently. The Cronbach's alpha values of the original scale were between .50 and .90 (Carver, 1997). Similarly, internal consistencies were found between .39 and .92 in the Turkish version (Bacanlı et al., 2013). Cronbach's Alphas in the present study were .702 for focusing on venting of emotions, .457 for mental disengagement, .680 for denial, .668 for behavioral disengagement, .565 for acceptance, .908 for Turning to Religion, .942 for humor, .535 for restraint coping, .410 for using emotional social support, .479 for suppression of competing activities, .898 for substance use, .692 for positive reinterpretation, .821 for instrumental social support, and .748 for planning. Due to these

low internal consistency scores, further analysis was run in the present study. The analysis for factor structure was indicated in the 'Result' section.

### **2.3. Procedure**

Before data collection, the ethical permission for the present study was approved by Yeditepe University Human and Social Research Ethics Committee. For data collection, the announcement of the present study was shared on various social media platforms such as Twitter, Instagram, and WhatsApp, and the volunteers were asked to respond to a set of questions through Qualtrics, an online data collection software. Participation was anonymous and each participant filled out an informed consent form before answering study questions. Only the participants who approved the form could see the rest of the questionnaire set with randomization and completing the study took approximately 15-20 minutes. The data was collected from January 2022 to March 2022 for 3 months. After the participants completed the scales, a debriefing form including a brief description of the study and necessary contact information for psychological help was introduced.

### **2.4. Data Analysis**

The data collected from the participants in this study were analyzed via IBM SPSS Statistics for Windows, Version 23.0. Normality test and frequency analysis for variables; principal component exploratory analysis for The Brief Cope; Spearman correlation analysis for testing genre preferences and IGD scores, and for examining the relationship between independent and dependent variables; Analysis of Variance (ANOVA) test to examine group differences in terms of IGD scores; residual normality and multicollinearity test for checking assumptions of linear regression, and lastly a stepwise linear regression analysis were carried out.

### 3. RESULTS

In this section, several descriptive analyses and the main hypothesis testing will be reported. To examine the structure of the scale, exploratory factor analyses were run for the Coping Styles Brief Form. After checking normality assumptions, a series of correlation analyses and ANOVA were conducted. Besides, a stepwise multiple regression analysis was conducted.

#### 3.1. Factor Analysis for Coping Styles Scale-Brief Form (CSS-BF/The Brief Cope)

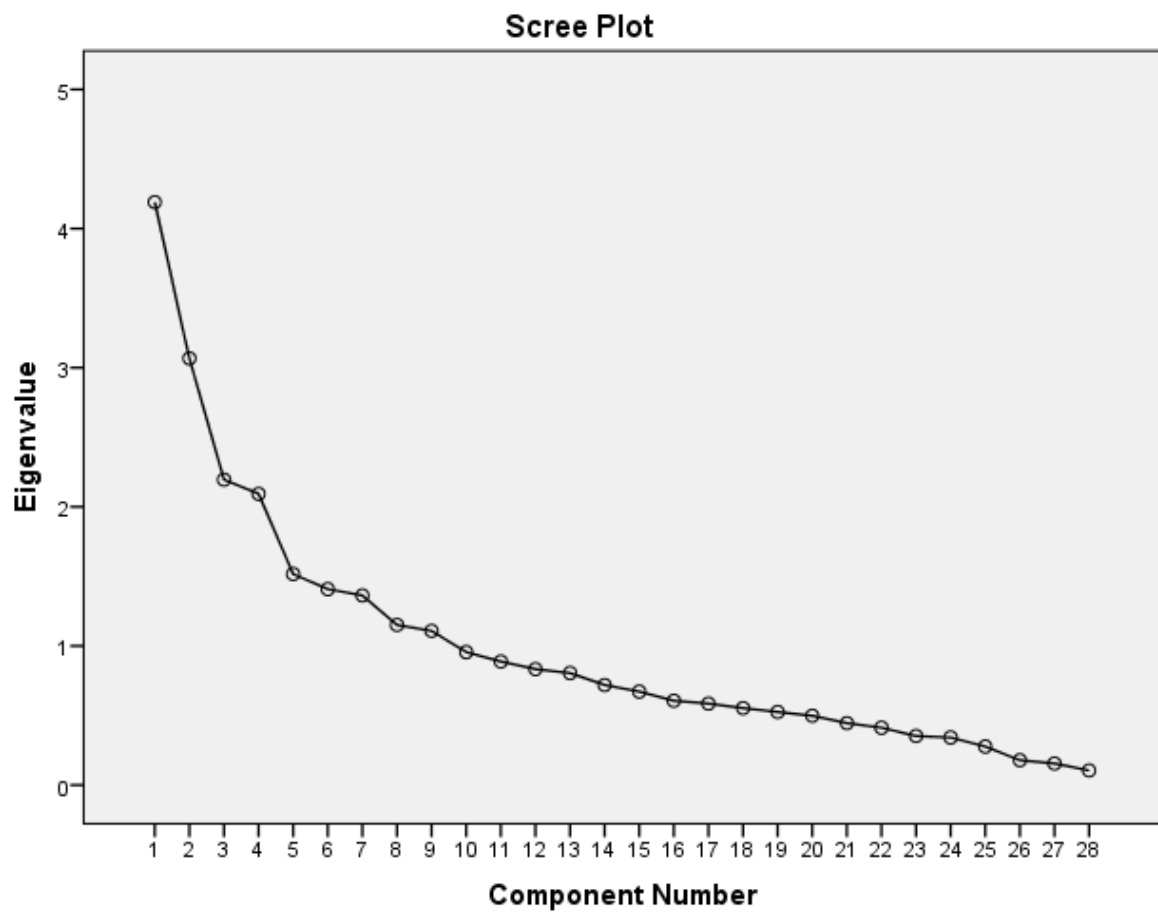
As mentioned earlier, the Brief Cope is a short version of the COPE Inventory (Carver, 1997; Carver et al., 1989). The Turkish version was created from an item pool of the original scales, thus there are item and subscale inconsistencies across different versions of the scales. The original COPE Inventory has 60 items and 15 subscales categorized under 3 higher ordering factors: (1) problem-focused coping, (2) emotion-focused coping, and (3) maladaptive coping (Bacanlı et al., 2013). However, both the original and the Turkish version of the Brief Cope Scale had 14 subscales and it did not confirm the second-order structure. In addition, reliability scores for some subscales were relatively weak in the present study as mentioned in the method section. Consequently, a principal component exploratory factor analysis was needed to investigate if the factor structure of the present data shows similarity with the original study and the Turkish adaptation study. Firstly, data was forced to fit the Turkish version of a 14-subscale structure. The results showed that some items did not load in their intended factors (e.g., items of suppression of competing activities fell under different factors). Secondly, a principal component exploratory analysis without any restriction in terms of the number of factors was done, and a 9-factor structure was found to explain 64.616 % of the variance (see Table 3 and Figure 1).

The results of factor analysis showed that the ‘humor’ (factor 3), ‘turning to religion’ (factor 4), ‘substance use’ (factor 6), acceptance (factor 7), and ‘suppression of competing activities’ (factor 8) factors had same loadings with the Turkish version of the scale. However, some factors were loaded together; therefore, they were renamed considering their commonalities in terms of the meaning of the items. The first factor included all the items of positive reinterpretation (i.e., ‘I try to approach the problem from another angle so that I can see the more positive aspects’ and ‘I try to see the bright side of things’) and planning (i.e., ‘I try to develop a strategy for what I should do’ and ‘I think about how the problem can best be handled’). It is named as ‘active coping’ because the items referred to a coping style that includes accepting the problem, trying to change the point of view in a positive way, and creating a strategy to solve the problem. The second factor included all the items of focusing on venting of emotions (i.e., ‘When I encounter a problem, I feel down and let my emotions out’ and ‘I let my emotions), using emotional social support (i.e., ‘I tell someone how I feel’ and ‘I try to gain the sympathy and understanding of others’), and instrumental social support (i.e., ‘I talk to people who can do something concrete about the problem’ and ‘I ask people who have faced similar situations what they did in this situation’). This factor is named ‘emotional-social coping’ because the items show a coping style that uses showing emotions and requesting help from the social circle to solve problems. The fifth factor included all the items from restraint coping (i.e., ‘I won’t do anything about it until the conditions are right’ and ‘I force myself to wait for the right time to do something’) and behavioral disengagement (i.e., ‘I accept I cannot deal with it and stop trying’ and ‘I immediately give up trying to reach my goal’). It is named ‘behavioral cessation’ because the items referred a coping style that includes retreating from the problem and actively stopping self to wait until the

right moment for problem-solving. The ninth factor consisted of all the items of mental disengagement (i.e., ‘I go to movies or watch TV to think less about this event’ and ‘I tend to do something or lean to other activities to not think about problems’) and denial (i.e., ‘I act like it never happened’ and ‘I act as if the problem didn’t really happen’). The factor was named ‘mental disengagement-denial’ because it shows a coping style that includes not accepting the problem and turning attention to something else in order to avoid it.

**Figure 1**

*Scree Plot of Principal Component Factor Analysis*



**Table 3***Principal Component Factor Analysis for Coping Styles Scale Brief Form*

| Factors                                        | Item Names                                    | Loadings |
|------------------------------------------------|-----------------------------------------------|----------|
| Factor 1 'active coping'                       | Positive Reinterpretation (item 14)           | .773     |
|                                                | Positive Reinterpretation (item 21)           | .741     |
|                                                | Planning (item 16)                            | .436     |
|                                                | Planning (item 22)                            | .572     |
| Factor 2 'emotional-social coping'             | Focusing on Venting of Emotions (item 1)      | .625     |
|                                                | Focusing on Venting of Emotions (item 13)     | .803     |
|                                                | Using Emotional Social Support (item 9)       | .764     |
|                                                | Using Emotional Social Support (item 18)      | .414     |
|                                                | Instrumental Social Support (item 15)         | .524     |
|                                                | Instrumental Social Support (item 26)         | .598     |
| Factor 3 'humor'                               | Humor (item 7)                                | .972     |
|                                                | Humor (item 20)                               | .973     |
| Factor 4 'turning to religion'                 | Turning to Religion (item 6)                  | .958     |
|                                                | Turning to Religion (item 27)                 | .953     |
| Factor 5 'behavioral cessation coping'         | Restraint Coping (item 8)                     | .771     |
|                                                | Restraint Coping (item 28)                    | .728     |
|                                                | Behavioral Disengagement (item 4)             | .450     |
|                                                | Behavioral Disengagement (item 10)            | .403     |
| Factor 6 'substance use'                       | Substance Use (item 12)                       | .971     |
|                                                | Substance Use (item 19)                       | .970     |
| Factor 7 'acceptance'                          | Acceptance (item 5)                           | .815     |
|                                                | Acceptance (item 25)                          | .768     |
| Factor 8 'suppression of competing activities' | Suppression of Competing Activities (item 11) | .804     |
|                                                | Suppression of Competing Activities (item 17) | .756     |
| Factor 9 'mental disengagement-denial'         | Mental Disengagement (item 2)                 | .726     |
|                                                | Mental Disengagement (item 24)                | .676     |
|                                                | Denial (item 3)                               | .479     |
|                                                | Denial (item 23)                              | .419     |

*Note.* Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .713 and the Bartlett Test of Sphericity was significant  $\chi^2(378) = 14275.400$ ,  $p < .001$ .

### 3.2. Correlations and Testing Group Differences

Prior to the analyses, assumptions for normality, linearity, homoscedasticity, and multicollinearity were examined. A Kolmogorov-Smirnoff normality test was carried out for study variables and genre preferences. Since data could be accepted as normally distributed if the Skewness and Kurtosis values are between  $\pm 1.96$  (Hair et al., 2009) it could be concluded that the data did not show a deviation from normality for all the variables except the Substance Use factor of the Coping Styles Scale Brief Form (skewness = 1.952, kurtosis = 3.018), Music/Party game genre (skewness = 2.180, kurtosis = 4.895) and GPAs of the participants (skewness = -1.445, kurtosis = 4.675). In addition, the histogram and box plot of the variables were used to examine normality. In terms of multicollinearity, VIF scores of the study variables were reported. All the scores fit the acceptable range (see Table 4).

**Table 4**

*Skewness, Kurtosis and Multicollinearity Scores of Variables*

| Variables | Skewness | Kurtosis | VIF   |
|-----------|----------|----------|-------|
| PSS       | -.119    | -.260    | 1.858 |
| MOGS-NM   | 1.142    | .766     | 1.202 |
| MOGS-PM   | .101     | -.949    | 1.088 |
| TPS       | .033     | -.675    | 1.581 |
| CAS-1     | -.211    | .053     | 1.629 |
| CSSBF-AC  | -.381    | -.232    | 1.477 |
| CSSBF-ESC | -.404    | .128     | 1.159 |
| CSSBF-H   | -.450    | -.930    | 1.102 |
| CSSBF-TR  | -.152    | .128     | 1.068 |
| CSSBF-BC  | .445     | .143     | 1.393 |

| Variables | Skewness | Kurtosis | VIF   |
|-----------|----------|----------|-------|
| CSSBF-SU  | 1.952    | 3.018    | 1.167 |
| CSSBF-A   | -.483    | -.135    | 1.135 |
| CSSBF-SCA | -.347    | .128     | 1.157 |
| CSSBF-MDD | .548     | -.092    | 1.361 |

*Note.* PSS: Perceived Stress Scale; MOGS-NM: Metacognitions about Online Gaming Scale-Negative Metacognitions; MOGS-PM: Metacognitions about Online Gaming Scale-Positive Metacognitions; TPS: Tuckman Procrastination Scale; CAS-1: Cognitive Attentional Syndrome 1 Scale; CSSBF-AC: Coping Styles Brief Form Scale-Active Coping; CSSBF-H: Coping Styles Brief Form Scale-Humor; CSSBF-BC: Coping Styles Brief Form Scale-Behavioral Cassation; CSSBF-SU: Coping Styles Brief Form Scale-Substance Use; CSSBF-A: Coping Styles Brief Form Scale-Acceptance; CSSBF-MDD: Coping Styles Brief Form Scale-Mental Disengagement-Denial.

Moreover, Spearman correlation analysis was done among the study variables. The results showed that IGD score is positively correlated with playing time per week ( $r = .290, p < .001$ ), and playing hour per day ( $r = .143, p < .001$ ), and negatively correlated with age ( $r = -.110, p < .001$ ), and GPA ( $r = -.144, p < .01$ ). The findings revealed that there was a significant correlation between IGD score and many study variables, except emotional-social coping, turning to religion and suppression of competing activities (see Table 5). In addition, it was found that IGD score was significantly correlated with Battle Royale ( $r = 0.54, p < .05$ ), Role-playing Game ( $r = .119, p < .001$ ), Adventure ( $r = .062, p < .05$ ), Action-adventure ( $r = .090, p < .01$ ), Shooter ( $r = .083, p < .01$ ), Survival ( $r = .087, p < .01$ ), Platform ( $r = .054, p < .05$ ), Multiplayer Online Battle Arena (MOBA) ( $r = .137, p < .001$ ), and Massive Multiplayer Online Role-playing Game (MMORPG) ( $r = .127, p < .001$ ) genres.

**Table 5***Spearman Correlation Matrix and Descriptives for Study Variables*

| Variables     | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8      | 9       | 10      | 11      | 12     | 13      | 14      | 15     | 16     | 17     | 18    | 19      | 20   |
|---------------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|-------|---------|------|
| 1. IGDS9-SF   |         |         |         |         |         |         |         |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 2. MOGS-PM    | .261**  |         |         |         |         |         |         |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 3. MOGS-NM    | .538**  | .166**  |         |         |         |         |         |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 4. TPS        | .325**  | .050    | .301**  |         |         |         |         |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 5. PSS        | .300**  | .082**  | .216**  | .454**  |         |         |         |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 6. CAS-1      | .280**  | .165**  | .163**  | .256**  | .525**  |         |         |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 7. CSSBF-AC   | -.122** | .034    | -.133** | -.275** | -.334** | -.035   |         |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 8. CSSBF-ESC  | -.004   | .111**  | .042    | -.053*  | -.051*  | .076**  | .268**  |        |         |         |         |        |         |         |        |        |        |       |         |      |
| 9. CSSBF-H    | .100**  | .030    | .090**  | .166**  | .066*   | .115**  | .113**  | .079** |         |         |         |        |         |         |        |        |        |       |         |      |
| 10. CSSBF-TR  | -.002   | .038    | .015    | -.110** | -.046   | .007    | .032    | .098** | -.103** |         |         |        |         |         |        |        |        |       |         |      |
| 11. CSSBF-BC  | .234**  | .070**  | .230**  | .401**  | .287**  | .232**  | -.191** | .026   | .090**  | .043    |         |        |         |         |        |        |        |       |         |      |
| 12. CSSBF-SU  | .076**  | .095**  | .130**  | .130**  | .173**  | .240**  | -.096** | .119** | .082**  | -.133** | .126**  |        |         |         |        |        |        |       |         |      |
| 13. CSSBF-A   | -.085** | -.039   | -.108** | -.058*  | -.047   | .090**  | .251**  | .125** | .089**  | .031    | -.014   | -.030  |         |         |        |        |        |       |         |      |
| 14. CSSBF-SCA | .047    | .028    | .056*   | -.077** | -.001   | .125**  | .268**  | .212** | .041    | .008    | -.049   | .041   | .156**  |         |        |        |        |       |         |      |
| 15. CSSBF-MDD | .268**  | .192**  | .223**  | .293**  | .219**  | .256**  | -.147** | .000   | .157**  | .063*   | .369**  | .151** | -.118** | -.098** |        |        |        |       |         |      |
| 16. Age       | -.110** | -.067** | -.086** | -.192** | -.173** | -.107** | .060*   | .100** | -.216** | .081**  | -.013   | .067*  | -.032   | -.014   | -.022  |        |        |       |         |      |
| 17. Day       | .290**  | .129**  | .115**  | .100**  | .061*   | .014    | -.015   | -.045  | .067*   | -.062*  | .055*   | -.030  | -.070** | -.018   | .045   | -.056* |        |       |         |      |
| 18. Hour      | .143**  | .061*   | .141**  | .054*   | .040    | .016    | -.001   | -.028  | -.025   | .002    | .037    | -.041  | .001    | .015    | .071** | -.006  | .093** |       |         |      |
| 19. GPA       | -.144** | .089*   | -.137** | -.141** | -.070   | -.012   | .076    | .011   | -.020   | .079    | -.128** | -.063  | .057    | .036    | -.034  | -.011  | -.062  | -.009 |         |      |
| 20. Grade     | .088    | -.054   | .114*   | .093*   | .060    | -.017   | -.085   | -.015  | -.039   | .121**  | .040    | -.060  | .046    | .007    | .067   | .480** | -.012  | .068  | -.212** |      |
| Mean          | 20.71   | 14.47   | 9.79    | 42.45   | 31.51   | 861.01  | 2.97    | 2.47   | 2.91    | 1.76    | 2.17    | 1.40   | 3.13    | 2.62    | 2.01   | 23.97  | 5.16   | 2.77  | 2.92    | 2.59 |
| SD            | 6.58    | 5.35    | 3.81    | 12.59   | 9.32    | 217.64  | .61     | .62    | .97     | .92     | .57     | .75    | .65     | .68     | .58    | 5.00   | 1.78   | 1.98  | .60     | 1.21 |
| Min-Max       | 9-44    | 6-24    | 6-24    | 14-70   | 3-55    | 0-1475  | 1-4     | 1-4    | 1-4     | 1-4     | 1-4     | 1-4    | 1-4     | 1-4     | 1-4    | 18-54  | 1-7    | 0-20  | 0-4     | 1-6  |

*Note.* IGDS9-SF: Internet Gaming Disorder Scale-Short Form; MOGS-PM: Metacognitions about Online Gaming Scale-Positive Metacognition; MOGS-NM: Metacognitions

about Online Gaming Scale-Negative Metacognitions; TPS: Tuckman Procrastination Scale; PSS: Perceived Stress Scale; CAS-1: Cognitive Attentional Syndrome 1 Scale;

CSSBF-AC: Coping Styles Scale Brief Form – Active Coping; CSSBF-ESC: Coping Styles Scale Brief Form – Emotional-social Coping; CSSBF-H: Coping Styles Scale Brief

Form – Humor; CSSBF-TR: Coping Styles Scale Brief Form – Turning to Religion; CSSBF-BC: Coping Styles Scale Brief Form – Behavioral Cessation; CSSBF-SU: Coping

Styles Scale Brief Form – Substance Use; CSSBF-A: Coping Styles Scale Brief Form – Acceptance; CSSBF-SCA: Coping Styles Scale Brief Form – Suppression of Competing

Activities; CSSBF-MDD: Coping Styles Scale Brief Form – Mental Disengagement-denial; Day: game frequency in terms of day per week; Hour: game longevity in terms of

the hour in a day; GPA: Grade Points Average; Grade: University grade (if student).

\*  $p < .05$ , \*\*  $p < .01$  (two-tailed).

To test the mean differences in gaming addiction among various groups, a series of ANOVA was run. Regarding gender, results revealed that there was no difference between gender groups,  $F(2, 1463) = .762, p = .467$ . In terms of educational level (i.e., elementary school graduate, middle school graduate, high school graduate, university student, university graduate, post-graduate student, post-graduate, other), the results showed that there was a significant difference among the groups ( $F(7, 1457) = 3.215, p < .01$ ). Tukey's post hoc test showed that high school graduates ( $M = 22.08, SD = 7.32$ ) have significantly higher IGD scores than both post-graduate students ( $M = 18.62, SD = 5.36$ ) and post-graduates ( $M = 18.95, SD = 6.43$ ). Regarding the occupational status group (i.e. unoccupied, part-time worker, full-time worker), results showed that there was a significant difference among groups  $F(2, 1463), 5.000, p < .01$ . Tukey's post hoc analysis revealed that both part-time workers ( $M = 21.48, SD = 6.32$ ) and unoccupied people ( $M = 21.00, SD = 6.46$ ) had significantly higher IGD scores than full-time workers ( $M = 19.92, SD = 6.83$ ).

Lastly, the period passed since started playing video games, gamer type, and gaming type groups were compared within. Regarding the groups indicating the amount of time since the participants first started gaming (i.e., 0-1 year, 1-3 years, 3-5 years, 5-10 years, 10+ years) did not differ from each other in terms of IGD scores ( $F(4, 1461), .624, p = .646$ ). In terms of gamer-type groups (i.e. professional e-sports players, amateur e-sports players, hobby players) results showed that there was a significant difference among groups,  $F(2, 1465), 6.194, p < .01$ . Tukey's post hoc test showed that professional e-sports players ( $M = 29.66, SD = 7.76$ ) had significantly higher IGD scores than both amateur e-sports players ( $M = 22.18, SD = 7.80$ ) and hobby players ( $M = 20.65, SD = 6.54$ ). Since homogeneity of variances was not met for gaming type groups (i.e., online

gaming, offline gaming, both online and offline gaming) Brown-Forsythe  $F$  test and Welch test were chosen for group comparison. Both analyses showed that there was a significant difference among groups (Welch's  $F(2, 154.744)$ , 9.743,  $p < .001$ ; Brown-Forsythe  $F(2, 185.122)$ , 8.484,  $p < .001$ ). Games-Howell post hoc test revealed that offline gamers ( $M = 19.02$   $SD = 6.22$ ) had significantly lower IGD scores than online gamers ( $M = 22.19$   $SD = 7.57$ ) and gamers who play both offline and online ( $M = 20.93$   $SD = 6.54$ ).

### 3.3. Stepwise Multiple Regression Analysis

To test the main hypothesis, a stepwise multiple linear regression analysis was carried out. Due to non-significant correlations between IGD scores and emotional-social coping, turning to religion, and suppression of competing activities factors of the CSS-BF (see Table 5), those subscales were not included in the regression analysis. In the present study, metacognitions, perceived stress, coping strategies (i.e. maladaptive coping strategies included in the CAS, mental disengagement-denial, substance use), and procrastination were predictor variables and internet gaming addiction was the outcome variable. Prior to analysis, homoscedasticity and linearity assumptions were examined and found to meet the assumptions. As the normality assumption of regression analysis is decided according to the normality of the residuals (Casson & Farmer, 2014), results revealed that the assumptions of regression analysis were met in the present study. The findings of stepwise multiple regression analysis showed that the overall model significantly predicted internet gaming disorder ( $F(1, 1458) = 7.975$ ,  $p < .01$ ) and explained 40% variance of the dependent variable. In the first step, negative metacognition significantly predicted IGD scores ( $\beta = .450$ ,  $p < .001$ ) and explained 31% variance of the dependent variable. In the second step, perceived stress significantly predicted IGD scores ( $\beta = .098$ ,  $p < .001$ ) and explained 4% variance of the dependent

variable. In the third step, positive metacognitions significantly predicted IGD scores ( $\beta = .147, p < .001$ ) and explained 3% variance of the dependent variable. In the fourth step, procrastination significantly predicted IGD scores ( $\beta = .116, p < .001$ ) and explained 1% variance of the dependent variable. In the fifth step, cognitive attentional syndrome significantly predicted IGD scores ( $\beta = .096, p < .001$ ) and explained .6% variance of the dependent variable. In the sixth step, mental disengagement-denial significantly predicted IGD scores ( $\beta = .080, p < .001$ ) and explained the .5% variance of the dependent variable. Lastly, in the seventh step substance use significantly predicted IGD scores ( $\beta = -.060, p < .01$ ) and explained the .3% variance of the dependent variable. The active coping, humor, behavioral cessation coping, and acceptance factors of the CSS-BF did not significantly predict IGD scores. The model can be seen in Table 6.

**Table 6**

*Stepwise Linear Regression Analysis*

| Variables  | B     | STE  | Beta  | t      | Sig. | Adj. R Square | F Change | Sig. F Change |
|------------|-------|------|-------|--------|------|---------------|----------|---------------|
| (Constant) | 2.204 | .736 |       | 2.997  | .003 |               |          |               |
| MOGS-NM    | .776  | .038 | .450  | 20.518 | .000 | .309          | 654.659  | .000          |
| PSS        | .069  | .018 | .098  | 3.738  | .000 | .349          | 91.061   | .000          |
| MOGS-PM    | .181  | .026 | .147  | 6.998  | .000 | .374          | 61.197   | .000          |
| TPS        | .061  | .013 | .116  | 4.816  | .000 | .386          | 29.744   | .000          |
| CAS-1      | .003  | .001 | .096  | 3.851  | .000 | .392          | 15.479   | .000          |
| CSSBF-MDD  | .892  | .249 | .080  | 3.589  | .000 | .397          | 11.105   | .001          |
| CSSBF-SU   | -.529 | .187 | -.060 | -2.824 | .005 | .399          | 7.975    | .005          |

*Note:* MOGS-NM: Metacognitions about Online Gaming Scale-Negative Metacognitions; PSS: Perceived Stress

Scale; MOGS-PM: Metacognitions about Online Gaming Scale-Positive Metacognition; TPS: Tuckman Procrastination

Scale; CAS-1: Cognitive Attentional Syndrome 1 Scale; CSSBF-MDD: Coping Styles Scale Brief Form – Mental

Disengagement-denial; CSSBF-SU: Coping Styles Scale Brief Form – Substance Use.



## 4. DISCUSSION

This current study examines video game players' characteristics and genre preferences and their relationships with internet gaming disorder. Furthermore, potential predictors of internet gaming disorder were studied. In this section, the results will be discussed in depth. Firstly, participant characteristics will be addressed. After that, genre preferences and their correlations with internet gaming disorder will be addressed. The results of the group differences considering internet gaming disorder will be discussed in the third step. After this, predictors of the internet gaming disorder will be discussed and the related hypothesis will be examined. After the discussions of the results, clinical implications, limitations, and the suggested further study topics will be elaborated.

### 4.1. Discussion of the Participant Characteristics

In this current study, the mean age of the participants was 23.97. A review done by Durak and Seferoğlu (2016) showed that social media users are mostly between 16-24 years of age, followed by 25-34 years of age. In addition, playing video games is more common among younger people under the age of 35 (Entertainment Software Association, 2020). Considering data was collected from video game players through various social media platforms, this result was in line with the trend. Out of 1466 participants, only 186 were women, and 17 of the participants chose 'other'. These numbers are not surprising it has been shown in the literature that more men play online video games, and men play video games more frequently (Veltri et al., 2014). Participants were mostly university students (47,6%) and most of the participants were non-working (60,7%) which is in line with the mean age of the participants. In terms of video gaming experience, most of the participants played games for longer than 10 years (76,9%), play 7 days a week (37,9%), play both online and offline games (80,7%), and play video

games as a recreational activity (98,1%). In addition, some participant characteristics showed correlations with IGD scores. People who played more times in a week and longer hours in a day showed increased IGD scores. Considering two of the proposed criteria for IGD were increasing time spent playing games and continued excessive playing while having psychosocial problems (APA, 2022), it is plausible that people who have a higher score for IGD also tend to play more frequently and for longer periods. In the current study, IGD score was also negatively correlated with GPA and age. Griffiths et al., (2012) reported in their review that problematic gaming is associated with decreased academic performance. The negative relationship between IGD score and age could be a result of video games being more popular among younger people (ESA, 2020).

#### **4.2. Discussion of Correlations Between Video Game Genre and IGD Scores**

Literature findings indicate that different video game genres could be more related to problematic gaming than others (Eichenbaum et al., 2015; Elliott et al., 2012; Han et al., 2020; Kim et al., 2010; Lee et al., 2006; Na et al., 2017; Lemmens & Hendricks, 2016). Similar to the literature, the current study revealed differences between genres regarding IGD scores. Results showed that Battle Royale, RPGs, Adventure, Action-adventure, Shooter, Survival, Platform, MOBA, and MMORPG games are positively correlated with IGD scores. MOBA (Han et al., 2020) and MMORPG (Elliott et al., 2012; Na et al., 2017) were found to be related to IGD in the literature. MMORPGs create an environment where people can communicate and play with each other anonymously (Cole & Griffiths, 2007). This could lead people to seek out social interactions through online gaming and make them prone to developing problematic gaming (Han et al., 2020). MOBAs are fast-paced, match-based online games and players need to play more frequently to be better at playing them (Han et al., 2020). Both MMORPGs and MOBAs

are played online and require a constant connection, and online games tend to be more related to IGD (Bodi et al., 2021; Lemmens & Hendricks, 2016). In our study Shooter games, category included both first-person shooter (FPS) and third-person shooter games and showed a significant positive correlation with IGD scores. FPSs were found to be related to IGD in the literature (Elliott et al., 2012; Na et al., 2017), they are thought to increase immersion since they use first-person cameras and they are competitive (Elliott et al., 2012). Even though our categorization does not only include games that use a first-person camera, the competition part still holds. Battle Royale games are new to the gaming industry, thus literature on this genre is scarce. A recent study showed that people who play Battle Royale games were more likely to have IGD (Manchanayake et al., 2022). Players in Battle Royale games are put together on a map and fight each other (with a team or as single players) to be the last survivor (Bálint et al., 2021). Battle Royale games are played online, match-based, and can be played both from the first-person and from the third-person shooter perspective. It could be concluded that BR games include some aspects similar to MMORPG, MOBA, and Shooter games, hence it is understandable it is found positively correlated with IGD scores in this current study like the aforementioned genres.

Similar to literature (Han et al., 2020; Kim et al., 2010; Lee et al., 2006; Lemmens & Hendricks, 2016) RPGs were found to be positively correlated with IGD scores in this study. RPG games include creating or developing a character and playing the game according to this character's abilities (Kim et al., 2010) and could be identified as the umbrella genre for MMORPGs. In this study, we asked participants their preferences for each genre separately. Considering the example games are only offline RPGs, people who prefer to play these games more still showed increased IGD scores. This could be

interpreted as even without being online, the immersive nature of the RPGs may be enough to be potentially problematic. Defining aspects of Action-adventure games are exploration and combat, and they are more frequently presented in a third-person shooter view (Elliott et al., 2012). A wide and explorable world could create immersion and may explain its relationship with problematic gaming (Elliott et al., 2012). Example games we included as Action-adventures are also story-driven, and can be played multiple times. If we are to speculate, these aspects could add to their immersive part. Adventure games include storytelling through solving puzzles, certain sets and rules of actions that players need to find and follow exploring its world (Vara, 2009). Literature on the relationship between IGD and adventure games is close to being nonexistent. Lopez-Fernandez et al. (2019) found that adventure games and IGD showed significant negative correlations among female gamers. Our example games for the Adventure category included point-and-click games that are popular among adventure genre players. We can speculate that exploration of the world and unraveling the storyline through puzzles could create immersion which can lead to problematic gaming in our sample. Platform games include side-scrolling or static screens in which the player controls a character to fight with enemies or overcome obstacles mostly using run and jump action (Minkinen, 2016). To our knowledge, there is no published study that examines the relationship between platform games and IGD scores. Our platform genre includes story-rich, high in replayability games. These two characteristics could contribute to player engagement and help us to explain the genre's relationship with IGD. Survival games were mostly considered horror games in literature. In this study, we asked participants about their interest in these genres separately, since there are survival games that do not include horror aspects. In a broad sense, survival games provide limited resources to a player and

the player needs to find ways to stay alive, where death is most of the time permanent (Reid & Downing, 2018). The fact that horror games did not show any correlation with IGD scores in our study could indicate that these aspects (possible permanent death and constant management of the resources) of survival games are more likely to be related to IGD through immersive qualities.

One of the aims of this study was to examine and understand video game genres regarding IGD. Results showed us that some video game genres are more closely related to IGD than others. In this current study, only a correlational relationship was examined. Therefore, it is both possible that people with a higher score of IGD prefer certain genres to play but it is also possible that some of the genres could contribute to increasing of IGD scores due to their qualities. It could be argued that characteristics that are specific to these genres could create diversions. The reasons why gamers choose specific genres to play could help explain problems that emerge with IGD. Therefore, future studies could examine specific and homogenous groups to see if similar results would show within groups.

#### **4.3. Discussion of Group Differences Regarding IGD Scores**

In this study, a group difference was not found among genders in terms of IGD scores. Literature shows that IGD is more prevalent among males (González-Bueso et al., 2018). The reason that this current study failed to show similar results to the literature could be the differences in sample sizes. In this study out of 1466 participants, only 186 were women, and 17 of them identified as neither. This size difference between groups could prevent us from finding any significant differences among them in terms of gender. Regarding education level, high school graduates showed increased IGD scores than both post-graduate students and post-graduates. Lower-level education is related to high IGD

risk in the literature (Tullet-Prado et al., 2021). This could be explained by the tendency of people who do not have real-life achievements to seek out gratification from gaming (King & Delfabbro, 2018). Our study showed that both unemployed people and part-time workers have higher IGD scores compared to full-time workers. Being unemployed is a risk factor for IGD (Elliott et al., 2012) in the literature. Unemployed people could have more time to play video games and this could contribute to problematic gaming (Elliott et al., 2012). Economic reasons can also be a factor. Economic problems affect our stress levels and our ways to cope with stress (Catalano, 2010). People who are not in steady jobs may be having these economic problems and this could increase their stress levels, leading them to use gaming as a coping mechanism. Studies showed that people who use video gaming to cope had increased perceived stress levels (Lin et al., 2021).

In the second part of the group comparison analyses, participants were compared according to their gaming preferences and experiences. Participants did not differ according to how long they have been playing video games in terms of IGD scores. One explanation for this result could be group size. We only had 7 participants who started gaming 1 year ago or prior, and 31 participants who started playing 1 to 3 years ago. Collecting data from fewer newer gamers could be the reason that we could not find a significant group difference. Regarding gamer-type, professional e-sports players showed increased IGD scores than both amateur e-sports players and recreational players. A recent study showed that professional e-sports players who are training for tournaments and gaining income from playing games are training 5.28 hours a day (Kari & Karhulahti, 2016). Bányai et al. (2019) in their review suggested that esports players can show problematic gaming since they experience stress during training and competitive activities. Considering literature provides a relationship between stress and problematic

gaming (Lin et al., 2021; Snodgrass et al. 2014), e-sports players having an increased level of IGD scores seems inferable. However, some argued that playing video games excessively should not be considered a gaming addiction since it is a part of the player's occupation, instead they could be considered workaholics (Griffiths, 2017). Lastly, our study showed that offline gamers have lower IGD scores than both online gamers and gamers who play both online and offline games. This result is in line with the literature since online games are shown to be more related to problematic gaming (Bodi et al., 2021; Lemmens & Hendricks, 2016).

#### **4.4. Discussion of the IGD Scores and Its Predictors**

Metacognitions, perceived stress, coping strategies, and procrastination was hypothesized to be predictors of higher IGD scores. In this section, the main hypothesis will be discussed, and the regression model will be explained.

Metacognitions were found to be predictors of higher IGD scores in this current study. Positive metacognitions and negative metacognitions were entered into the model separately since they fundamentally differ in their meanings and our scale also divides them into two different concepts. Positive metacognitions are thinking patterns that include the advantage of using a certain strategy for regulation, and negative metacognitions include believing in the uncontrollability of that strategy (Aydın et al., 2020). In terms of gaming, thinking that gaming helps to stop worrying is an example of positive metacognition, while thinking that stopping gaming is difficult once started is an example of negative metacognition (Caselli et al., 2021, p. 174). In this current study, both metacognitions were found to be predictors of higher IGD scores, but while negative metacognitions were the first and biggest predictor of higher IGD scores, positive metacognitions were the third. This means that in terms of gaming disorder, thinking

about the uncontrollability and the dangers of the gaming activity is the biggest contributor to IGD scores in our study. Positive metacognitions are also shown to be important but perhaps their effect was mostly on the initiation part of the problematic gaming while negative metacognitions take it further and contribute more to the continuation of the problem (Caselli et al., 2021). Thinking that gaming is hard to stop arguably could create a cycle that the gamer could not escape from, since they think it is inescapable. In addition, our data consists of mostly the gamers that have been playing for a long period of time. This could support the finding that negative metacognitions are the stronger predictors since they are closely related to the continuation of the problem.

Perceived stress was also found to be a predictor of higher IGD scores in our study. It is the second biggest predictor among study variables, after negative metacognitions. Literature shows that perceived stress was found to be related to IGD, repeatedly (Canale et al., 2019; Lin et al., 2021; Rajab et al., 2020). In the literature, perceived stress is shown to be both a contributing factor to problematic gaming and its result (Lin et al., 2021; Snodgrass et al. 2014). It could be argued that people who are high in perceived stress use gaming for escaping that stress, but in turn develop problematic gaming behavior. Kardefelt-Winther (2014) showed that escapism was a mediator between perceived stress and negative gaming outcomes. In our study, theme analysis of the stress factors revealed that a big number of participants (47.73% of the responses) reported the economic status in Turkey. Literature shows that having economic problems is related to experiencing stress and affects how we cope with stressors (Catalano, 2010). Since economic stress is shown to be related to how we cope with stressful situations (Catalano, 2010), it could also be expected that this participant

trend has affected the stress levels and in turn increased problematic gaming, showing a stronger relationship in our study.

Coping was examined in two different ways in this current study. Cognitive Attentional Syndrome (CAS) scores were put in the model. CAS includes metacognitions that are linked to maladaptive coping strategies, and the coping strategies that contribute to the continuation of psychopathology themselves (i.e., perseverative thinking, threat monitoring, thought suppression, substance/alcohol use, avoidance) (Gündüz et al., 2019). Cognitive Attentional Syndrome score was found to be a predictor of higher IGD scores in this current study. It could be argued that the tendency to start engaging and staying in maladaptive coping strategies could lead to internet gaming disorder. This finding is in line with the literature. People with problematic gaming behavior were found to use maladaptive coping strategies in general (Lin et al., 2021; Melodia et al., 2020). In addition, it was decided to include a second coping strategy battery that consists of a variety of coping mechanisms. Due to internal reliability problems and the inconsistencies between different versions of the selected scale (Coping Styles Scale Brief Form), we evaluated and made changes to the factor structure of the scale. Three of the subscales (emotional-social coping, turning to religion, suppression of competing activities) did not show a significant linear relationship with IGD scores and were excluded from further research. Emotional-social coping consists of getting help from others and sharing emotions in order to cope. Studies showed that hiding emotions (Lin et al., 2020) and having social phobia (Sioni et al., 2017) are positively related to IGD. Some researchers found that religious belief was negatively associated with gaming frequency and gaming addiction and they provided an explanation that spiritual people would not depend on a made-up world that they create to escape from problems (Braun et al., 2016). Suppression

of competing activities is a coping style that puts other activities that could distract one from the problem on hold. Since video gaming could be used to escape from a problem, it is understandable that people who use suppression of competing activities as a coping mechanism are not likely to show higher IGD scores. These findings and explanations could help identify why IGD scores did not show a relationship with seeking help from others, showing emotions, turning to religion, and suppressing other activities as coping mechanisms.

From the coping strategies that were entered in the model, active coping, humor, acceptance, and behavioral cessation did not predict IGD scores. In our study, active coping included positive reinterpretation and planning. Planning is a problem-focused coping that includes thinking about how to deal with the problem step by step (Carver et al., 1989). Positive reinterpretation is a way of thinking to deal with emotions that a stressor caused to make it possible to deal with the real stressor (Carver et al., 1989). Humor could be a way to mentally change the meaning and the affective burden of a stressful event (Abel, 2002). Acceptance is a useful strategy that includes realizing that there is a problem and potentially being eager to handle the problem (Carver et al., 1989). It could be argued that these coping strategies include a way of thinking that helps people accept the problem, mentally decrease the burden of a certain problem, and a tendency to solve the problem. Since they have aspects that could potentially solve a stressful problem using a non-destructive strategy, they can be conceptualized as adaptive. Meyer (2001) also conceptualized the aforementioned coping strategies as adaptive in their study. Since people with problematic gaming are more prone to use maladaptive coping strategies (Lin et al., 2021; Melodia et al., 2020), it is understandable that these coping strategies did not predict IGD scores. Behavioral cessation also did not predict IGD scores. In our study,

behavioral cessation included restraint coping and behavioral disengagement. Restraint coping is waiting for the right moment to deal with a certain problem, actively stopping self from action; and behavioral disengagement is decreasing or giving up the action that needed to be done to cope with a stressor (Carver et al., 1989). Both coping strategies include a degree of removing self behaviorally from the stressor or the problem. Since gaming behavior could itself be a coping strategy (Blasi et al., 2019), this could arguably mean that people who behaviorally inhibit themselves when faced with stress also refrain from gaming. This could explain the reason that this particular coping strategy was not a predictor of IGD scores in this current study.

Two of the variables entered into the model were found to be predictors of higher IGD scores: mental disengagement-denial and substance use. Mental disengagement-denial included mental disengagement and denial in our study. Mental disengagement is a strategy people use to distract themselves and escape from a problem, including engaging in other immersive activities (Carver et al., 1989). Denial is refusing the reality of the stressor (Carver et al., 1989). Therefore, denial can be thought of as a way of distracting the self since the existence of any stressor is discarded from attention. Playing video games to escape from real-life problems was found to be related to problematic gaming in the literature (Király et al., 2017; Wu et al., 2016). This finding could be interpreted as people who use mental disengagement and denial as coping strategies, tend to use gaming as escaping from real-life problems, and this, in turn, creates problematic gaming.

Another study showed that cognitive nonsocial avoidance predicted gaming addiction, which means that people who use strategies such as denial, and distraction are more likely to escape via gaming to a problematic extent in order to avoid real-life problems (Denizci Nazlıgöl, 2019). Lastly, substance use was a predictor of IGD scores in the current study

but the relationship was negative, meaning that the lesser use of substances predicted higher IGD scores. People who have substance use disorders spend a big amount of time during and recovering from using the substance and sometimes plan their other activities around substance use; and they decrease the time they spend on hobbies and other activities (APA, 2022). This aspect of substance use could be an indicator of decreased gaming activities since they could be spending time using and recovering from substances rather than playing video games as a coping mechanism or as a recreational activity.

Procrastination was found to be a predictor of higher IGD scores in our study. Procrastination can be defined as the unnecessary delaying of things that need action (Klingsieck, 2013). Procrastination itself could be a coping method (Pychyl & Sirois, 2016), and people who procrastinate show more avoidance coping (Beleau & Cocoradă's, 2016; Verešová, 2013), and maladaptive coping (Sirois & Kitner, 2015). It could be argued that people who procrastinate use gaming as a coping method to further procrastinate and potentially escape from real-life problems, leading to problematic gaming. Flett et al. (1995, p.164) argued that when faced with a stressor, procrastinators turn to maladaptive coping strategies (in this case, gaming), they delay dealing with the stressor and this could lead to more distress (in this case, problematic gaming). It could be argued that people who use both procrastination and gaming as coping mechanisms could create a cycle that feeds itself. Procrastination can also be elaborated through the S-REF model. It is argued that procrastination is a regulative metacognitive strategy that could be problematic if it becomes a part of the CAS system, and could lead to a cycle of problems since it does not help solve problems (Ferne et al., 2016). Taken together, it could be assumed that procrastinators use gaming as a coping method to further procrastinate while thinking that this is a useful strategy and it is hard to stop.

Literature also shows that deficit in self-regulatory is associated with both IGD (Fumero et al., 2020) and procrastination (Balkis & Duru, 2015). It could be argued that people who lack sufficient self-regulation efficacy could turn to procrastinating real-life problems and gaming as regulatory coping mechanisms. Some studies also showed similarities in terms of personalities between procrastinators and problematic gamers. Both procrastination (Steel, 2007) and IGD (Chew, 2022) were found to be negatively correlated with conscientiousness. Being conscientious means making and pursuing plans, being hardworking, punctual, and organized (McCrea, 2002; McCrea & Costa, 1987). It is understandable that a conscientious person would not procrastinate real-life problems and use gaming as a coping to escape from real life to a problematic extent. Thus, it could be argued that people with particular personality types could be more prone to both procrastination and problematic gaming,

In addition, our study showed a negative correlation between procrastination and GPA and a negative correlation between procrastination and age, repeating literature findings (Kim & Seo, 2015; Steel, 2007). In our study, we used the Tuckman Procrastination scale, which is a scale that contains academic-oriented procrastination items (Tuckman, 1991). Our participants consisted of mostly young people. It could be argued that younger people tend to procrastinate more and this could lead them to be academically insufficient. Therefore, focusing on procrastination may help younger people both decrease IGD scores and increase their academic achievements. In addition, this relationship may be tested with a more general procrastination scale and with an older population to examine if the relationship shows similar results, in future studies.

Taking all the variables into consideration, our results showed that metacognitions, perceived stress, and procrastination predicted higher IGD scores.

Coping also predicted higher IGD scores partially. In conclusion, we could interpret this result as people with higher perceived stress, with metacognitive belief indicating the advantages and uncountability of gaming, a tendency to procrastinate, and a tendency to use certain aforementioned coping strategies showed increased IGD scores. These results indicate that our hypothesis was partially supported.

#### **4.5. Limitations and Future Research**

The current study has some limitations. Firstly, our study has only 186 women compared to 1263 men. This could affect our finding's generalizability for women gamers. The female gamer population is growing (Lopez-Fernandez et al., 2019), and a study that has not the subsequent amount of female gamer participants is thought to have decreased generalizability. A remarkable amount of participants reported economy as their stress factor, showing a trend. This frequent common stress factor could affect our results since stress is one of the predictors of IGD scores in our study. In addition, during the data gathering period, the worldwide COVID-19 pandemic was still in effect even though precautions have been loosened. Since online gaming participation during COVID-19 has increased (King et al., 2020), our data could also be affected by this period. Lastly, one of the scales we used (Coping Styles Scale Brief Form) has been found to have problems in terms of reliabilities and the factorial loadings of its scales in our results. The results we gathered from analyzing this scale's data may not be reliable and affect our results. Further research should seek out more female participants to increase generalizability. Furthermore, since this research is focused on only Turkish gamers, future studies could replicate it in other cultures. In addition, we did not divide participants into clinically diagnosed game addicts and non-addicts. Future research could get on this specific group of people and examine them. Lastly, future research should

include gaming motivations, especially since escapism motivation is both related to problematic gaming and stress (Kardefelt-Winther, 2014; Lin et al., 2021).

#### **4.6. Clinical Implications**

This study showed that IGD has several predictors. Therapy methods potentially can help with these predictors and prevent IGD from developing in the long term. Metacognitive Therapy (MCT) has methods to challenge metacognitions and ineffective coping mechanisms. An MCT therapist helps clients to see the problem in their reactions to their beliefs and thoughts, helps them develop techniques to handle useless coping mechanisms, and conducts behavioral experiments for metacognitive beliefs (Wells, 2013). MCT was found to be helpful for changes in metacognitions and decreasing CAS in several studies (Wells, 2013). Since emotional distress and psychopathology are caused and continued by maladaptive CAS (Fernie et al., 2017), perceived stress could also be decreased by modifying this noneffective cycle through MCT. Sharma et al. (2022) reported in their review that MCT is useful for treating a variety of psychological problems including trauma stress-related disorders, mood disorders, anxiety disorders, and substance use disorders. However, uncontrollability beliefs concerning a certain problematic behavior (e.g. being unable to stop playing video games) could also prevent someone from seeking treatment since they may not believe that they could be better even in therapy.

Another therapy method called Cognitive Behavioral Therapy (CBT) could also be considered for treatment. CBT focuses on decreasing symptoms and improving the functionality of the client by challenging dysfunctional cognitions and behavioral patterns (Hoffman et al., 2012). CBT was shown to be effective in treating perceived stress (Hamdan-Mansour et al., 2009; Shahrokhian et al., 2021) and avoidance coping

(Hamdan-Mansour et al., 2009), internet gaming disorder (Stevens et al., 2019), and procrastination (Rozental et al., 2018). These findings indicate that CBT can be effectively used to treat predictors of IGD and prevent it from developing, and treat IGD if it is present.

Furthermore, to prevent developing problematic gaming from a young age, schools could implement preventive methods for their students. A study done with 13-14-year-olds in a school setting revealed that a prevention method containing information about the dangers of problematic use, focusing on other priorities, and assisting them with different protective factors (e.g. self-control) is found to be effective in decreasing IGD rates (Bonnaire et al., 2019). Video game genres could be another point of concern. Parents could take a notice of which genres their children frequently play since some genres were found to be more closely related to developing problematic gaming. Understanding underlying motivations to play specific genres could be a concern point in both therapeutic settings and in the home.

In addition, certain psychological problems and characteristics could be taken into account. Studies show that risk-taking behavior and impulsivity are associated with problematic gaming. Dong and Potenza (2016) reported that people with IGD make risky decisions more swiftly. Weinstein et al. (2016) also found that people with problematic gaming showed impaired delay discounting and a high level of risk-taking. This could mean that people with problematic gaming prefer immediate rewards through gaming instead of activities that require longer engagement, and they have impaired decision-making. A systematic review by Şalvarlı and Griffiths (2022) also revealed that people with IGD showed more impulsivity. Taken together, these related characteristics could indicate important aspects of a person and be the focus points during the therapy process.

Lastly, studies show that loneliness is positively correlated with IGD and gaming could be a way to handle loneliness feelings (Traş, 2019). Similarly, Kılıç (2020) reported that digital game addiction is positively correlated with feelings of emotional and social loneliness. Approaching feelings of loneliness and increasing interpersonal relationship skills in therapy could help people decrease their problematic gaming behavior.

#### **4.7. Conclusions**

This study mainly examined the relationship between internet gaming disorder, metacognitions, coping, perceived stress, and procrastination. All of the variables have been found to predict internet gaming disorder to a degree. In addition, this study also shed a light on the gamer characteristics and preferences in terms of IGD. To our knowledge, this is the only study that examines all the aforementioned variables together. Several therapy techniques were reported to be effective in treating both IGD and its predictors. The current research also contributes to the literature by studying Turkish gamers. Future studies should enrich the literature by choosing more specific groups, increasing female participants, replicating this study in other cultures, and including gaming motivations.

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## Appendix A: Informed Consent Form

### EK 1. Kullanılacak Form ve Ölçekler

#### Katılımcı Bilgilendirilmiş Onam Formu

Bu çalışma Yeditepe Üniversitesi Psikoloji Bölümü'nde görev yapmakta olan Dr. Öğr. Üyesi Merve Denizci Nazlıgül danışmanlığında, Yeditepe Üniversitesi Klinik Psikoloji Yüksek Lisans Programı öğrencisi Kardelen Çakıcı tarafından yürütülmektedir. Çalışmanın amacı oyun oynama davranışı ile oyun oynayan kişinin düşünceleri, duyguları ve davranışlarını araştırmaktır.

Bu çalışma kapsamında vereceğiniz tüm bilgiler tamamen gizli kalacaktır. Çalışmaya katılımınızın anonim olmasını sağlamak amacıyla sizden isim-soy isim gibi bilgiler istenmemektedir. Çalışmanın objektif olması ve elde edilecek sonuçların güvenilirliği bakımından tüm soruları duygu ve düşüncelerinizi yansıtacak şekilde içtenlikle yanıtlamanız önemlidir. Araştırmayı tamamlamanın yaklaşık 20 dakika süreceği tahmin edilmektedir. Çalışmaya katılım tamamıyla gönüllülük esasına dayanmaktadır. Katılım sırasında herhangi bir nedenden ötürü kendinizi rahatsız hissederseniz çalışmayı istediğiniz anda bırakmakta serbestsiniz. Yanıtlarınız ancak tüm sorulara cevap vermeniz halinde değerlendirmeye alınacaktır. Bu sebeple, soruların tamamını doldurmanız araştırma için büyük önem taşımaktadır. Verdiğiniz bilgiler sadece araştırmacılar tarafından değerlendirilecektir ve elde edilecek bilgiler bilimsel yayınlarda kullanılacaktır.

Çalışma hakkında daha fazla bilgi almak için Yeditepe Üniversitesi Klinik Psikoloji Yüksek Lisans Programı öğrencisi Kardelen Çakıcı ile iletişime geçebilirsiniz.

**“Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayınlarda kullanılmasını kabul ediyorum”.** (Kabul Ediyorum Butonu)

## Appendix B: Demographic Information Form

**Demografik Bilgi Formu****a. Demografik Bilgi Formu - Giriş:****b. Genel**

- Yaşınız : \_\_\_\_\_
- Cinsiyetiniz : ☐ Kadın ☐ Erkek ☐ Diğer

- Eğitim durumunuz : ☐ Okuryazarım.  
☐ İlkokul mezunuyum.  
☐ Ortaokul mezunuyum.  
☐ Lise mezunuyum.  
☐ Üniversite öğrencisiyim.  
☐ Üniversite mezunuyum.  
☐ Lisansüstü mezunuyum.  
☐ Diğer (Lütfen belirtiniz): \_\_\_\_\_

Üniversite öğrencisi iseniz sınıfınız: \_\_\_\_\_

Üniversite öğrencisi iseniz genel not ortalamanız (4 üzerinden): \_\_\_\_\_

- Çalışıyor musunuz? : ☐ Tam zamanlı çalışıyorum.  
☐ Yarı zamanlı çalışıyorum.  
☐ Çalışmıyorum.

- Şu anda stresinizi önemli derecede arttırdığını düşündüğünüz önemli bir yaşam olayı var mı? Lütfen kısaca belirtiniz.

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c. **Oyun:**

- Lütfen kaç yıldır video oyun oynadığınızı belirtiniz (eğer 1 yıldan az ise lütfen ay olduğunu belirtiniz, örneğin: 8 ay).

\_\_\_\_\_

- Lütfen size uygun olan seçeneği işaretleyiniz:

- ☐ Çevrimiçi (Online) oyunlar oynuyorum.
- ☐ Çevrimdışı (Offline) oyunlar oynuyorum.
- ☐ Hem çevrimiçi hem çevrimdışı oyunlar oynuyorum.

- Lütfen size uygun grubu işaretleyiniz.

- ☐ Profesyonel e-sporcu (Düzenli olarak aylık maaş alan)
- ☐ Amatör e-sporcu (Takımı var ve turnuvalara katılıyor. Turnuva oldukça para kazanabiliyor).
- ☐ Kendi zevkleri için oyunları oynayan

- Lütfen haftada kaç gün oyun oynadığınızı belirtiniz:

\_\_\_\_\_

- Lütfen günde kaç saat oynadığınızı belirtiniz:

\_\_\_\_\_

## Appendix C: Genre Preference Form

- Lütfen aşağıdaki oyun türlerini ne sıklıkla oynadığınızı işaretleyiniz.

|                                                                                                             | Hiç | Nadiren | Bazen | Sık | Çok Sık |
|-------------------------------------------------------------------------------------------------------------|-----|---------|-------|-----|---------|
| Simulasyon (Eylemi Yapanın Yerine Geçilen Oyunlar) (Örn: The Sims, Euro Truck Simulator, Farming Simulator) |     |         |       |     |         |
| Strateji (Örn: Age of Empires, Civilization, Europa Universalis)                                            |     |         |       |     |         |
| İnşa Etme ve Yönetme (Örn: Prison Architect, Cities: Skylines, Planet Coaster)                              |     |         |       |     |         |
| Yarış (Örn: Need for Speed, Gran Turismo, Forza Horizon)                                                    |     |         |       |     |         |
| Spor (Örn: PES, FIFA, NBA 2K)                                                                               |     |         |       |     |         |
| Battle Royale (Örn: H1Z1, PlayerUnknown's Battleground, Fortnite)                                           |     |         |       |     |         |
| Kart (Örn: Elder Scrolls Legends, Gwent, Hearthstone)                                                       |     |         |       |     |         |
| Bulmaca (Örn: Portal, The Room, The Witness)                                                                |     |         |       |     |         |
| RPG/Rol Yapma Oyunu (Örn: The Witcher 3, Fallout 4, Elder Scrolls 5: Skyrim)                                |     |         |       |     |         |
| Korku (Örn: Outlast, Silent Hill, Resident Evil)                                                            |     |         |       |     |         |
| Macera (Adventure) (Örn: Grim Fandango, The Secret of Monkey Island, Maniac Mansion)                        |     |         |       |     |         |
| Aksiyon-Macera (Action-Adventure) (GTA Serisi, The Last of Us, Tomb Raider)                                 |     |         |       |     |         |
| Shooter/Nişancı (FPS/TPS) (Specs Ops: The Line, Far Cry, Call of Duty)                                      |     |         |       |     |         |

|                                                                                                                           |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| Hayatta Kalma (Örn: The Long Dark, Rust, The Forest)                                                                      |  |  |  |  |  |
| Platform (Örn: Dead Cells, Inside, Ori and the Blind Forest)                                                              |  |  |  |  |  |
| Dövüş (Örn: UFC, Street Fighter, Mortal Kombat)                                                                           |  |  |  |  |  |
| Seçim Tabanlı (Örn: Heavy Rain, Life is Strange, Telltale's The Walking Dead)                                             |  |  |  |  |  |
| MOBA/Çevrimiçi Çok Oyunculu Savaş Arenası (Örn: League of Legends, Dota, Smite)                                           |  |  |  |  |  |
| MMORPG/ Devasa Çok Oyunculu Çevrimiçi Rol Yapma Oyunu (Örn: World of Warcraft, Black Desert Online, Elder Scrolls Online) |  |  |  |  |  |
| Müzik/Parti (Örn: Guitar Hero, Just Dance, Sing Star)                                                                     |  |  |  |  |  |
| Gizlilik (Örn: Thief, Hitman, Splinter Cell)                                                                              |  |  |  |  |  |
| Yürüme/Gezme Simulasyonu (Walking Simulator) (Örn: What Remains of Edith Finch, Vanishing of Ethan Carter, Dear Esther)   |  |  |  |  |  |

## Appendix D: Internet Gaming Disorder Scale-Short Form (IGDS9-SF)

### İnternet Oyun Oynama Bozukluğu Ölçeği-Kısa Formu

**Açıklama:** Aşağıda, geçen 1 yıl içerisindeki (son 12 ay) oyun faaliyetlerinizle ilgili sorular bulunmaktadır. Oyun faaliyetiyle bilgisayar/dizüstü bilgisayar, oyun konsolu veya diğer elektronik cihazlar (örneğin cep telefonu, tablet gibi) ile hem internette hem de internete bağlı olmadan oynanabilen her türlü oyunla ilişkili etkinlikler kastedilmektedir.

| No | Maddeler                                                                                                                                                                                                                                                      | Asla<br>(1) | Nadiren<br>(2) | Bazen<br>(3) | Sık sık<br>(4) | Çok sık<br>(5) |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------|----------------|----------------|
| 1  | Zihniniz sürekli oyun oynamayla meşgul mü? Örneğin; sonraki oyunu sabırsızlıkla bekliyor musunuz veya sonraki oyunda ne olacağını tahmin etmeye çalışıyor musunuz? Oyun oynamanın günlük hayatınızdaki en önemli etkinlik haline geldiğini düşünüyor musunuz? |             |                |              |                |                |
| 2  | Oyun oynamayı azaltmaya veya bırakmaya çalıştığınızda kendinizi daha sinirli, endişeli ve üzgün hissediyor musunuz?                                                                                                                                           |             |                |              |                |                |
| 3  | Oyuna doymak veya oyundan keyif alabilmek için oyun oynayarak geçirdiğiniz zamanı arttırma ihtiyacı hissediyor musunuz?                                                                                                                                       |             |                |              |                |                |
| 4  | Oyun oynama etkinliğinizi kontrol etmeye veya bırakmaya çalıştığınızda sürekli olarak başarısız oluyor musunuz?                                                                                                                                               |             |                |              |                |                |
| 5  | Oyunla meşgul olduğunuz için daha önceki hobilerinize ve diğer eğlence amaçlı etkinliklerinize olan ilginizi kaybettiniz mi?                                                                                                                                  |             |                |              |                |                |
| 6  | Oyun oynamanın diğer insanlarla sizin aranızda sorunlara neden olduğunu bildiğiniz halde oyun oynamaya devam ettiniz mi?                                                                                                                                      |             |                |              |                |                |
| 7  | Oyun oynama sürenizle ilgili ailenize, psikoloğa, rehber öğretmene veya başkalarına doğruyu söylemediğiniz oldu mu?                                                                                                                                           |             |                |              |                |                |
| 8  | Olumsuz duygularınızdan (örneğin çaresizlik, suçluluk, kaygı) geçici de olsa kaçmak veya rahatlamak için oyun oynar mısınız?                                                                                                                                  |             |                |              |                |                |
| 9  | Oyun etkinlikleriniz yüzünden önemli bir ilişkiyi, işi, eğitim veya kariyer fırsatını tehlikeye attınız mı veya kaybettiniz mi?                                                                                                                               |             |                |              |                |                |

## Appendix E: Metacognitions About Online Gaming Scale (MOGS)

### Çevrimiçi Oyun Oynama Hakkında Üstbilişler Ölçeği

**Açıklama:** Bu ölçek, kişilerin çevrimiçi (online) oyun oynama aktiviteleri hakkında sahip oldukları inançlar ile ilgilenmektedir. Aşağıdaki listede kişiler tarafından dile getirilen birçok inanç listelenmiştir. Lütfen aşağıdaki her bir maddeyi okuyunuz ve okuduğunuz maddeye genel olarak ne kadar katıldığınızı uygun sayıyı yuvarlak içine alarak belirtiniz. Lütfen bütün maddeleri değerlendiriniz. Yanlış ya da doğru cevap yoktur.

| No | Maddeler                                                                                   | Katılmıyorum<br>(1) | Çok az<br>katılıyorum<br>(2) | Biraz<br>katılıyorum<br>(3) | Tamamen<br>katılıyorum<br>(4) |
|----|--------------------------------------------------------------------------------------------|---------------------|------------------------------|-----------------------------|-------------------------------|
| 1  | Çevrimiçi (online) oyun oynamak, kaygı hislerimi azaltır.                                  |                     |                              |                             |                               |
| 2  | Çevrimiçi (online) oyun oynamak, zihnimizi problemlerden uzaklaştırır.                     |                     |                              |                             |                               |
| 3  | Çevrimiçi (online) oyun oynamak, olumsuz düşüncelerimi kontrol etmemde bana yardımcı olur. |                     |                              |                             |                               |
| 4  | Çevrimiçi (online) oyun oynamak, endişelerimi daha katlanılabilir hale getirir.            |                     |                              |                             |                               |
| 5  | Çevrimiçi (online) oyun oynamak, olumsuz hislerimi azaltır.                                |                     |                              |                             |                               |
| 6  | Çevrimiçi (online) oyun oynamak, endişe etmemi durdurur.                                   |                     |                              |                             |                               |
| 7  | Çevrimiçi (online) oyun oynamaya bir kez başladım mı duramam.                              |                     |                              |                             |                               |
| 8  | Ne kadar süre oynadığımı kontrol edemem.                                                   |                     |                              |                             |                               |
| 9  | Durmamın daha iyi olacağını düşünmeme rağmen oyun oynamaya devam ederim.                   |                     |                              |                             |                               |
| 10 | Çevrimiçi (online) oyun oynamak, bana kontrolümü kaybettirir.                              |                     |                              |                             |                               |
| 11 | Çevrimiçi (online) oyun oynamayla ilgili düşünceler işlevselliğimi bozar.                  |                     |                              |                             |                               |
| 12 | Çevrimiçi (online) oyun oynamayla ilgili düşüncelerim bir takıntı haline gelir.            |                     |                              |                             |                               |

## Appendix F: Perceived Stress Scale (PSS)

### Algılanan Stres Ölçeği (ASÖ-14)

**Açıklama:** Aşağıda geçtiğimiz ay içerisindeki kişisel deneyimleriniz hakkında bir dizi soru yöneltilmektedir. Her soruyu dikkatlice okuyarak size en uygun seçeneğin altındaki kutuya bir çarpı işareti koyarak cevaplayınız. Soruların doğru veya yanlış cevabı yoktur. Önemli olan sizin duygu ve düşüncelerinizi yansıtan yanıtları vermenizdir.

| No | Maddeler                                                                                                               | Hiçbir zaman<br>(0) | Neredeyse hiçbir zaman<br>(1) | Bazen<br>(2) | Oldukça sık<br>(3) | Çok sık<br>(4) |
|----|------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------|--------------|--------------------|----------------|
| 1  | Geçen ay, beklenmedik bir şeylerin olması nedeniyle ne sıklıkta rahatsızlık duydunuz?                                  |                     |                               |              |                    |                |
| 2  | Geçen ay, hayatınızdaki önemli şeyleri kontrol edemediğinizi ne sıklıkta hissettiniz?                                  |                     |                               |              |                    |                |
| 3  | Geçen ay, kendinizi ne sıklıkta sinirli ve stresli hissettiniz?                                                        |                     |                               |              |                    |                |
| 4  | Geçen ay, ne sıklıkta gündelik zorlukların üstesinden başarıyla geldiniz?                                              |                     |                               |              |                    |                |
| 5  | Geçen ay, hayatınızda ortaya çıkan önemli değişikliklerle etkili bir şekilde başa çıktığınızı ne sıklıkta hissettiniz? |                     |                               |              |                    |                |
| 6  | Geçen ay, kişisel sorunlarınızı ele alma yeteneğinize ne sıklıkta güven duydunuz?                                      |                     |                               |              |                    |                |
| 7  | Geçen ay, her şeyin yolunda gittiğini ne sıklıkta hissettiniz?                                                         |                     |                               |              |                    |                |
| 8  | Geçen ay, ne sıklıkta yapmanız gereken şeylerle başa çıkamadığınızı fark ettiniz?                                      |                     |                               |              |                    |                |
| 9  | Geçen ay, hayatınızdaki zorlukları ne sıklıkta kontrol edebildiniz?                                                    |                     |                               |              |                    |                |
| 10 | Geçen ay, ne sıklıkta her şeyin üstesinden geldiğinizi hissettiniz?                                                    |                     |                               |              |                    |                |
| 11 | Geçen ay, ne sıklıkta kontrolünüz dışında gelişen olaylar yüzünden öfkeleniniz?                                        |                     |                               |              |                    |                |
| 12 | Geçen ay, kendinizi ne sıklıkta başarmak zorunda olduğunuz şeyleri düşünürken buldunuz?                                |                     |                               |              |                    |                |
| 13 | Geçen ay, ne sıklıkta zamanınızı nasıl kullanacağınızı kontrol edebildiniz?                                            |                     |                               |              |                    |                |
| 14 | Geçen ay, ne sıklıkta problemlerin üstesinden gelemeyeceğiniz kadar biriktiğini hissettiniz?                           |                     |                               |              |                    |                |

## Appendix G: Tuckman Procrastination Scale

### Tuckman Erteleme Ölçeği

**Açıklama:** Bu ölçek bahsi geçen ifadelerin sizi ne kadar yansıttığını belirtebilmeniz için hazırlanmıştır. Lütfen her ifadenin sizi ne kadar tanımladığını karşısındaki kutulardan en uygununu işaretleyerek belirtiniz.

| No | Maddeler                                                                                   | Kesinlikle katılıyorum<br>(5) | Katılıyorum<br>(4) | Kararsızım<br>(3) | Katılmıyorum<br>(2) | Kesinlikle katılmıyorum<br>(1) |
|----|--------------------------------------------------------------------------------------------|-------------------------------|--------------------|-------------------|---------------------|--------------------------------|
| 1  | Önemli olsalar bile, işleri bitirmeyi gereksiz yere ertelerim.                             |                               |                    |                   |                     |                                |
| 2  | Yapmaktan hoşlanmadığım şeylere başlamayı ertelerim.                                       |                               |                    |                   |                     |                                |
| 3  | İşlerin teslim edilmesi gereken bir tarih olduğunda, son dakikaya kadar beklerim.          |                               |                    |                   |                     |                                |
| 4  | Çalışma alışkanlıklarımı geliştirmeyi ertelerim.                                           |                               |                    |                   |                     |                                |
| 5  | Bir şeyi yapmamak için bahane bulmayı başarıyorum.                                         |                               |                    |                   |                     |                                |
| 6  | Ders çalışmak gibi sıkıcı işlere dahi gerekli zamanı ayırırım. (T)                         |                               |                    |                   |                     |                                |
| 7  | Ben iflah olmaz bir zaman savurganıyım.                                                    |                               |                    |                   |                     |                                |
| 8  | Ben bir zaman savurganıyım ama bunu düzeltmek için hiçbir çaba gösteremiyorum              |                               |                    |                   |                     |                                |
| 9  | Bir şeyi yapacağıma dair önce kendime söz verir, sonra kararımı uygulamayı ağırdan alırım. |                               |                    |                   |                     |                                |
| 10 | Bir eylem planı yaptığımda, onu takip ederim. (T)                                          |                               |                    |                   |                     |                                |
| 11 | Bir işe başlayamadığımda kendimden nefret ederim, ama yine de bu beni harekete geçirmez.   |                               |                    |                   |                     |                                |
| 12 | Önemli işleri her zaman vaktinden önce tamamlarım. (T)                                     |                               |                    |                   |                     |                                |
| 13 | Bir işe başlamanın ne kadar önemli olduğunu bilsem de başlayamadan tükenir kalırım.        |                               |                    |                   |                     |                                |
| 14 | Bugünün işini yarına bırakmak benim tarzım değildir. (T)                                   |                               |                    |                   |                     |                                |

## Appendix H: Cognitive Attentional Syndrome 1 Scale (CAS-1)

### Cognitive Attentional Syndrome 1 (CAS-1) Ölçeği

Endişelenmek\*: evham yapmak, gelecekte olabilecek kötü olay ve sıkıntılar hakkında düşünüp durmak, kurmak.

1. Son 1 hafta boyunca ne kadar süre kendinizi problemlerinizi üzerine düşünüp dururken ya da probleminizi hakkında endişelenirken\* buldunuz? (Aşağıdaki sayılardan birini daire içine alın.)

|                |   |   |   |   |   |   |   |                     |
|----------------|---|---|---|---|---|---|---|---------------------|
| 0-Hiçbir zaman | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8-Sürenin tamamında |
|----------------|---|---|---|---|---|---|---|---------------------|

2. Son 1 hafta boyunca ne kadar süre dikkatinizi tehdit edici bulduğunuz şeyler (örneğin; belirtiler, düşünceler, tehlike) üzerine odakladınız? (Aşağıdaki sayılardan birini daire içine alın.)

|                |   |   |   |   |   |   |   |                     |
|----------------|---|---|---|---|---|---|---|---------------------|
| 0-Hiçbir zaman | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8-Sürenin tamamında |
|----------------|---|---|---|---|---|---|---|---------------------|

3. Son 1 hafta boyunca negatif duygularınızla ya da düşüncelerinizle baş etmek için aşağıdakileri ne sıklıkla yaptınız? (Her bir maddenin yanına aşağıdaki ölçekten bir sayı yazınız.)

|                |   |   |   |   |   |   |   |                     |
|----------------|---|---|---|---|---|---|---|---------------------|
| 0-Hiçbir zaman | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8-Sürenin tamamında |
|----------------|---|---|---|---|---|---|---|---------------------|

Olaylardan kaçındım \_\_\_\_\_ Bir şeyler hakkında düşünmemeye çalıştım \_\_\_\_\_ Alkol/madde kullandım \_\_\_\_\_

Rahatlamak için güvence aradım \_\_\_\_\_ Duygularımı kontrol etmeye çalıştım \_\_\_\_\_ Belirtilerimi kontrol altına almaya çalıştım \_\_\_\_\_

4. Aşağıda insanların sahip olduğu bazı inançlar yer almaktadır. Her maddeye ne kadar inandığınızı aşağıdaki ölçekten bir sayıyı seçerek o maddenin yanına yerleştirerek belirtiniz.

|                        |    |    |    |    |    |    |    |    |    |                                          |
|------------------------|----|----|----|----|----|----|----|----|----|------------------------------------------|
| 0-Buna hiç inanmıyorum | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100-Bunun doğruluğuna tamamen inanıyorum |
|------------------------|----|----|----|----|----|----|----|----|----|------------------------------------------|

Çok fazla endişelenmek bana zarar verebilir \_\_\_\_\_ Endişelenmek\* başa çıkmama yardımcı olur \_\_\_\_\_

Yoğun duygular tehlikelidir \_\_\_\_\_. Olası bir tehdit üzerine odaklanmak beni güvende tutabilir \_\_\_\_\_

Düşüncelerimi kontrol edemem \_\_\_\_\_ Düşüncelerimi kontrol etmem önemlidir \_\_\_\_\_

Bazı düşünceler aklımlı kaybetmeme sebep olabilir \_\_\_\_\_ Problemlerimi analiz etmek yanıt bulmama yardımcı olacaktır \_\_\_\_\_

## Appendix I: Coping Styles Scale Brief Form (CSS-BF/The Brief Cope)

### Başa Çıkma Stratejileri Kısa Formu (BÇS-Brief Cope)

**Açıklama:** Bu ölçek yardımıyla insanların günlük yaşamlarında güç veya bunalı verici olaylarla ya da sorunlarla karşılaştıkları zaman nasıl tepki verdiklerini araştırmayı amaçlıyoruz. İnsanların karşılaştıkları sorunlarla baş etmelerinin çok sayıda yolu olabilir. ancak yine de siz seçenekleri bir sorunla karşılaştığınızda genel olarak ne yaptığınızı ya da nasıl davrandığınızı düşünerek işaretlemeye çalışın. Seçenekleri işaretlerken bir öncekinden bağımsız düşünmeye özen gösteriniz. Seçenekleri işaretlerken aşağıda belirtilen puanlamayı kullanınız.

| No | Maddeler                                                                                 | Asla böyle<br>bir şey<br>yapmam<br>(1) | Çok az<br>böyle<br>yaparım<br>(2) | Orta<br>derecede<br>böyle<br>yaparım<br>(3) | Çoğunlukla<br>böyle<br>yaparım<br>(4) |
|----|------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------|---------------------------------------------|---------------------------------------|
| 1  | Sorunla karşılaştığımda moralim bozulur ve duygularımı dışarıya yansıtırım.              |                                        |                                   |                                             |                                       |
| 2  | Bu olay hakkında daha az düşünmek için sinemaya giderim ya da TV seyredirim.             |                                        |                                   |                                             |                                       |
| 3  | Olay hiç olmamış gibi davranırım.                                                        |                                        |                                   |                                             |                                       |
| 4  | Bununla baş edemeyeceğimi kabul eder ve denemekten vaz geçerim.                          |                                        |                                   |                                             |                                       |
| 5  | Olayın gerçekten olduğu fikrine kendimi alıştırırım.                                     |                                        |                                   |                                             |                                       |
| 6  | Allah'tan yardım isterim.                                                                |                                        |                                   |                                             |                                       |
| 7  | Söz konusu sorunla ilgili şakalar yaparım.                                               |                                        |                                   |                                             |                                       |
| 8  | Şartlar uygun olana kadar bu konuda hiçbir şey yapmam.                                   |                                        |                                   |                                             |                                       |
| 9  | Ne hissettiğimi birilerine anlatırım.                                                    |                                        |                                   |                                             |                                       |
| 10 | Amacıma ulaşmaya çabalamaktan hemen vaz geçerim.                                         |                                        |                                   |                                             |                                       |
| 11 | Soruna odaklanabilmek için diğer etkinliklerimi bir tarafa bırakırım.                    |                                        |                                   |                                             |                                       |
| 12 | Alkol ya da sakinleştirici alarak bir süre kendimi kaybedip olanları unutmaya çalışırım. |                                        |                                   |                                             |                                       |
| 13 | Duygularımı dışarı vururum.                                                              |                                        |                                   |                                             |                                       |
| 14 | Daha olumlu taraflarını görebilmek için sorunu başka bir açıdan ele almaya çalışırım.    |                                        |                                   |                                             |                                       |

| No | Maddeler                                                                                                    | Asla böyle<br>bir şey<br>yapmam<br>(1) | Çok az<br>böyle<br>yaparım<br>(2) | Orta<br>derecede<br>böyle<br>yaparım<br>(3) | Çoğunlukla<br>böyle<br>yaparım<br>(4) |
|----|-------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------|---------------------------------------------|---------------------------------------|
| 15 | Sorunla ilgili somut bir şeyler yapabilen kişilerle konuşurum.                                              |                                        |                                   |                                             |                                       |
| 16 | Ne yapmam gerektiği konusunda bir strateji geliştirmeye çalışırım.                                          |                                        |                                   |                                             |                                       |
| 17 | Sorunu çözmeye odaklanırım ve eğer gerekirse- yapmam gereken diğer şeyleri bir süre kendi haline bırakırım. |                                        |                                   |                                             |                                       |
| 18 | Başkasının sempatisini ve anlayışını kazanmaya çalışırım.                                                   |                                        |                                   |                                             |                                       |
| 19 | Sorunla daha az meşgul olmak için alkol ya da ilaç almaya çalışırım.                                        |                                        |                                   |                                             |                                       |
| 20 | Sorunla ilgili şaka yaparım.                                                                                |                                        |                                   |                                             |                                       |
| 21 | Olayların iyi yanını görmeye çalışırım.                                                                     |                                        |                                   |                                             |                                       |
| 22 | Sorunun en iyi nasıl ele alınabileceğini düşünürüm.                                                         |                                        |                                   |                                             |                                       |
| 23 | Sorun gerçekte olmamış gibi davranırım.                                                                     |                                        |                                   |                                             |                                       |
| 24 | Sorun olan şeyleri aklımdan atmak için bir şeyler yapmaya ya da başka türlü etkinliklere yönelirim.         |                                        |                                   |                                             |                                       |
| 25 | Böyle bir şeyin olduğu gerçeğini kabul ederim.                                                              |                                        |                                   |                                             |                                       |
| 26 | Benzer durumlarla karşılaşan kişilere bu durumda ne yaptıklarını sorarım.                                   |                                        |                                   |                                             |                                       |
| 27 | Dini inancımda huzur bulmaya çalışırım.                                                                     |                                        |                                   |                                             |                                       |
| 28 | Bir şeyler yapmak konusunda kendimi uygun ve doğru zamanı beklemeye zorlarım.                               |                                        |                                   |                                             |                                       |

## Appendix J: Debriefing Form

### **Bilgilendirme Formu**

Sayın Katılımcı

Video oyun oynama bağımlılığı ve alışkanlıkları, algılanan stres, üst-bilişler, baş etme stilleri ve erteleme arasındaki ilişkiyi inceleyen araştırmamıza katıldığınız için teşekkür ederiz. Araştırma boyunca rahatsız hissettiğiniz bir durum oluştuysa veya sormak istediğiniz bir soru varsa çalışmanın başında verilen e-mail adresinden bizimle iletişime geçebilirsiniz.

## Appendix K: Social and Human Sciences Ethical Committee of Yeditepe University



T.C.

YEDİTEPE ÜNİVERSİTESİ REKTÖRLÜĞÜ

13.01.2022

Sayı : E.50532705-302.14.01-1113  
Konu : Kardelen Çakıcı Kurul Onayı

### İLGİLİ MAKAMA

Üniversitemiz Sosyal Bilimler Enstitüsü Klinik Psikoloji Yüksek Lisans Öğrencilerinden Kardelen Çakıcı'nın, Dr. Öğr. Üyesi Merve Denizci Nazlıgül danışmanlığında gerçekleştireceği "Understanding the Internet Gaming Disorder: Its Associations with Video Game Genre, Perceived Stress, Metacognitions, Coping Skills, and Procrastination" başlıklı araştırmasının Beşeri Bilimler etik standartlarına uygunluğuna ilişkin Yeditepe Üniversitesi Beşeri ve Sosyal Araştırmalar Etik Kurulu Onayı ekte sunulmuştur.

Gerekli iznin verilmesi hususunu bilgilerinize arz ve rica ederim.

İmza  
Prof. Dr. Fatma Yeşim EKİNCİ  
Rektör a.  
Rektör Yardımcısı

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