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DOCTORAL THESIS
Doctor of Philosophy (PhD)

THE INFLUENCE OF EMOTIONAL MALTREATMENT, EMOTIONAL SCHEMAS, AND AVOIDANCE ON GAMING ADDICTION AND EXERCISE ADDICTION

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ABSTRACT

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The Influence of Emotional Maltreatment, Emotional Schemas, and Avoidance on Gaming Addiction and Exercise Addiction

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The aim of the current study was to examine the mediator roles of negative emotional schemas and avodaince on the relationship between emotional maltreatment (i.e. emotional abuse and emotional neglect) and two kinds of behavioral addictions (i.e. gaming addiction and exercise addiction). These addictions were evaluated as distinct behavioral addictions sharing similar vulnerability and coping mechanisms. The study recruited 431 participants from video game players and 300 participants from exercisers. The demographic form, the Childhood Trauma Questionnaire-Short Form, Leahy's Emotional Schemas Scale, Cognitive Behavioral Avoidance Scale, Game Addiction Scale, and Exercise Dependence Scale-21 were administered in the study. To test the proposed model on different sample groups, two path analyses were performed. Emotional maltreatment variables were the exogenous variables; emotional schemas, and avodaince were mediators; and gaming addiction and exercise addiction were the endogenous variables. The findings indicated that players with emotional abuse had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance and cognitive nonsocial

avoidance, and these kinds of greater avoidance translated into higher gaming addiction. Moreover, exercisers with emotional abuse and neglect had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance, and this greater avoidance translated into higher exercise addiction. However, those with emotional abuse and neglect had more negative beliefs about emotions, which in turn was associated with greater behavioral nonsocial avoidance, and this greater behavioral nonsocial avoidance translated into lower exercise addiction. The clinical implications, limitations and recommendations for further studies were discussed.

Keywords: Behavioral Addictions, Gaming Addiction, Exercise Addiction, Emotional Schema Theory, Avoidance.

ÖZET

Doktora Tezi

Duygusal Kötü Muamelenin, Duygusal Şemaların ve Kaçınmanın Oyun Bağımlılığı ve Egzersiz Bağımlılığına Etkisi

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Bu çalışmanın amacı duygusal kötü muamele (duygusal istismar ve duygusal ihmal) ile iki tür davranışsal bağımlılık (oyun bağımlılığı ve egzersiz bağımlılığı) arasındaki ilişkide olumsuz duygusal şemaların ve kaçınmanın aracı rolünü incelemektir. Oyun bağımlılığı ve egzersiz bağımlılığı ayrı davranışsal bağımlılıklar olarak ele alınmıştır. Araştırma örneklemi 431 video oyunu oynayan oyuncu ve 300 egzersiz yapan katılımcıdan oluşmaktadır. Çalışmada iki farklı demografik bilgi formu, Çocukluk Çağı Travmaları Ölçeği Kısa Form, Leahy Duygusal Şema Ölçeği, Bilişsel Davranışsal Kaçınma Ölçeği, Oyun Bağımlılığı Ölçeği ve Egzersiz Bağımlılığı Ölçeği-21 uygulanmıştır. Önerilen modelin uygunluğu, iki farklı örneklem grubu üzerinde ayrı ayrı gerçekleştirilen yol analizleri ile test edilmiştir. Duygusal kötü muamele değişkenleri dışsal değişkenler iken duygusal şemalar ve kaçınma değişkenleri aracı değişkenleridir. Oyun bağımlılığı ve egzersiz bağımlılığı ise içsel değişkenlerdir. Araştırmanın bulguları duygusal istismara uğrayan oyuncuların duygular hakkında daha fazla olumsuz inançlara sahip olduğunu, bu inançların daha yüksek davranışsal sosyal kaçınmayı ve bilişsel sosyal olmayan kaçınmayı yordadığını, ve bu kaçınma

türlerinin daha fazla oyun bağımlılığına dönüştüğünü göstermektedir. Ayrıca, duygusal istismara ve duygusal ihmale uğrayan egzersiz yapan kişilerin duygular hakkında daha fazla olumsuz inançlara sahip olduğu, bu inançların daha yüksek davranışsal sosyal kaçınmayı yordadığı ve bu kaçınmanın daha fazla egzersiz bağımlılığına dönüştüğü bulunmuştur. Öte yandan, duygusal istismara ve duygusal ihmale uğrayan egzersiz yapan kişilerin duygular hakkında daha fazla olumsuz inançlara sahip olduğu, bu inançların daha yüksek davranışsal sosyal olmayan kaçınmayı yordadığı ve bu kaçınmanın düşük düzeyde egzersiz bağımlılığı ile sonlandığı bulunmuştur. Klinik çıkarımlar, sınırlılıklar ve ileride yapılacak çalışmalar için öneriler tartışılmıştır.

Anahtar Kelimeler: Davranışsal Bağımlılıklar, Oyun Bağımlılığı, Egzersiz Bağımlılığı, Duygusal Şemalar Kuramı, Kaçınma.

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ABBREVIATIONS

APA	American Psychiatric Association
DSM	Diagnostic and Statistical Manual of Mental Disorders
OCD	Obsessive-compulsive disorder
WHO	World Health Organization
ICD	International Classification of Disease
IGD	Internet Gaming Disorder
et. al.	et alia/and others
a.k.a	as known as
i.e.	id est/in other words
e.g.	exempli gratia/for example
p.	page number
MMORPGs	Massively Multiplayer Online Role-Playing Games
MOBA	Multiplayer Online Battle Arena
MUD	Multi User Dungeons
FPS	First-Person Shooter Games
RTS	Real-Time Strategy Games
BMI	Body Mass Index
APSAC	American Professional Society on the Abuse of Children
LESS	Leahy Emotional Schema Scale
CBAS	Cognitive Behavioral Avoidance Scale
GAS	Game Addiction Scale
EDS-21	21-item Exercise Dependence Scale
ANOVA	Analysis of Variance
CFA	Confirmatory Factor Analysis
PCA	Principal Component Analysis
RMSEA	Root Mean Square of Error of Approximation
CFI	The Bentler Comparative Fit Index
TLI	Tucker-Lewis Index
SRMR	Standardized Root Mean Square Residual
EA	Emotional Abuse

EN	Emotional Neglect
PA	Physical Abuse
PN	Physical Neglect
SA	Sexual Abuse
TCHT	Total Childhood Trauma
BSA	Behavioral Social Avoidance
BNSA	Behavioral Nonsocial Avoidance
CSA	Cognitive Social Avoidance
CNSA	Cognitive Nonsocial Avoidance
TA	Total Avoidance
NBAE	Negative Beliefs About Emotions
GA	Gaming Addiction
ExA	Exercise Addiction
MGCFA	Multigroup Confirmatory Factor Analysis

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CHAPTER ONE
INTRODUCTION

1.1. BEHAVIORAL ADDICTIONS

1.1.1. Diagnostic History of Addictions

During several decades, conceptualizing addiction has been frequently questioned by the scientific community and clinicians (Black, 2013: 249; Grant & Chamberlain, 2016: 300; Griffiths, 2005: 191; Mann, 2017: 187). The American Psychiatric Association's (APA) first Diagnostic and Statistical Manual of Mental Disorders (DSM) recognized alcohol and drug addictions as secondary diagnosis under the class of 'Sociopathic Personality Disorder with a Range of Various Antisocial and Deviant Behaviors' (APA, 1952), while those addictions were accepted as primary diagnoses under the chapter of 'Personality Disorders and Certain Other Non-Psychotic Mental Disorders' in DSM-II (APA, 1968). In DSM-III-R (APA, 1987), addiction was conceptualized as a distinct category on Axis I under 'Psychoactive Substance-Induced Organic Mental Disorders'. Defining a clear set of criteria for addiction as the compulsive drug-seeking behavior was an essential contribution to the mental health field (O'Brien, Volkow, & Li, 2006: 764). In those days, the committee member agreed upon on the definition of addiction; however, concerns about the label that should be used arisen. Some members thought that the term 'addiction' is applicable because it is about the compulsive drug-taking condition that anyone can experience. However, others believed that the term 'dependence' is more appropriate since it emphasizes the physical dependence of all drugs. In the end, "dependence" won over "addiction" (O'Brien et al., 2006: 764) and it was also conceptualized under the chapter 'Substance Related Disorders' in DSM-IV (APA, 1994).

In 2013, the latest revision of the DSM (DSM-5) combined abuse and dependence criteria into one disorder, namely substance-use disorders under the chapter 'Substance-Related and Addictive Disorders' including two subdivisions: (1) substance-related disorders and (2) non-substance-related disorders (APA, 2013). In

DSM-5, it has been proposed that major elements of addiction consist of a state of craving or an urge that immediately precedes behavior, impaired control over behavior, impairment in life domains, risky behavior without concerning adverse effects, tolerance, and withdrawal (Chamberlain et al., 2016: 842; Starcevic, 2016: 722). One of the most dramatic changes in DSM-5 is that gambling disorder was moved to the chapter on Substance-Related and Addictive Disorders which identifies a variety of behaviors that are common in both chemical and non-chemical addictions (Clark, 2011: 55; Grant & Chamberlain, 2016: 301; Potenza: 2014: 2).

Not only renaming of the disorder from pathological gambling to gambling disorder, but also relocation of gambling disorder from an impulse control disorder to an addictive disorder is a crucial step for the acceptance of behavioral addictions (Billieux, Schimmenti, Khazaal, Maurage, & Heeren, 2015: 120; Grant & Chamberlain, 2016: 301; Robins & Clark, 2015: 66; Starcevic, 2016: 721). As the concept of behavioral addiction has been recognized through DSM-5, some debates arise over whether a range of behaviors such as internet use, videogame playing, shopping, and exercising are in that group or not (Andreassen et al., 2013: 90; Black et al., 2014: 215; Grant & Chamberlain, 2016: 301). Internet gaming disorder has been included in the Conditions for Further Study section, which suggests that it may be officially recognized in the future versions of DSM. It was considered to put disorders related to excessive eating in addictive disorders rather than eating disorders in the DSM-5; however, no change was made eventually (Thege, Woodin, Hodgins, & Williams, 2015: 2). Other behavioral addictions have been located in various chapters in the DSM-5, suggesting a lack of agreement on the conceptualization of behavioral addictions. For example, kleptomania and pyromania are under the class of 'disruptive, impulse-control and conduct disorders', while trichotillomania, skin-picking disorder, and muscle dysmorphia as a specifier for body dysmorphic disorder are under the 'obsessive-compulsive and related disorders' (Starcevic, 2016: 723). Due to insufficient evidence for the inclusion of problematic internet use, compulsive shopping and compulsive sexual behavior, only inclusion of gambling disorder was accepted (Grant & Chamberlain, 2016: 302). Nevertheless, several individuals need to health care for these problems; thus, informing about these behaviors is crucial to help public health initiatives to improve (Potenza, 2014: 2).

1.1.2. Definition of Behavioral Addiction and Its Diagnosis

What behavioral addiction defines is a matter of debate (Black, 2013: 249; Potenza, 2014: 1). Although the term *addiction* originally described enormous use of psychoactive chemicals, the concept of non-chemical addiction has been proposed to refer to a repetitive pleasurable behavioral pattern occurring when a person has an uncontrollable desire to maintain the activity that causes adverse effects on the individual's life (Andreassen et al., 2013: 90; Black, 2013: 249; Mann, 2017: 187). Indeed, the term 'behavioral addiction' was firstly introduced as repeated urges to behave in a counter-productive manner by Isaac Marks in 1990. It was suggested that obsessive-compulsive disorder (OCD), compulsive spending, overeating, hypersexuality, and kleptomania should be included in that group (Starcevic, 2016: 721). Robins and Clark described behavioral addiction as "the behavior performed for its own sake" (2015: 66). Some behavioral addictions such as shopping, sexual activities, using the Internet or mobile phones, exercising, and working imply activities that are a part of daily life to some extent, whereas some (e.g. kleptomania, gambling disorder) can be accepted as pathological. Addiction to eating or food is also a different type of behavioral addiction that includes the ingested 'substance' (i.e. food). In regard, it can be easily seen the heterogeneity of the concept of behavioral addiction (Starcevic, 2016: 721).

Individuals lose their control over addictive behaviors which disrupt their interpersonal relationships, everyday activities, and responsibilities as well as health. The question of how we find a balance between overpathologizing normal-range behavior and overlooking true pathology is a hot topic (Billieux et al., 2015: 122; Ko & Yen, 2015: 130). Firstly, defining the difference between *addictive behaviors* and *behavioral addictions* is essential to mark the boundaries of psychopathology (Ko & Yen, 2015: 130; Spada, 2015: 124). It is necessary to emphasize that the main difference between excessive behaviors and behavioral addiction is reduced control (Thege et al., 2015: 2). However, it is difficult to propose the predetermined 'amount' of activity since it varies from one person to another and from time to time (Starcevic, 2016: 723). Secondly, addictive behaviors are mostly specific and context-dependent; therefore, diagnostic approach is too simplistic description that is ignoring the

specificity of the key processes (Billieux et al., 2015: 122). Hence, adopting an idiographic approach to the conceptualization of behavioral addictions is needed (Spada, 2015: 125). Indeed, most of new behavioral addiction researches arise from anecdotal observations including a target behavior as a predefined addictive behavior and those behaviors are screened by the tools that are developed based on substance addiction criteria. Then, risk factors are investigated to confirm the target behavior as a behavioral addiction. It has been criticized that this atheoretical and confirmatory approach lacks the understanding of unique factors and processes (Billieux et al., 2015: 121). Besides, the behavioral addiction research field equate disordered behaviors based on their similarities with substance addiction criteria rather than their potential differences. It has been argued that it can be problematic because distinct differences are important to define a disorder and distinguish it from other disorders (Kardefelt-Winther, 2015: 127). For instance, defining tolerance and withdrawal symptoms of behavioral addiction is debatable because these constructs are based on the biological effects of some substances on the brain (Ko & Yen, 2015: 131). The limitation of examining neurobiological mechanisms of non-chemical addictions is that it cannot be observed in experimental animals, as chemical addictions do (Grant & Chamberlain, 2016: 302).

For the diagnostic criteria of behavioral addictions, Kardefelt-Winther and his colleagues (2017: 1709) have proposed two inclusion criteria: (1) significant functional impairment because of the activity, (2) distress persistence over a prolonged time-period and four exclusion criteria: (1) having other diagnosis offering better explanation for symptoms (e.g., depressive disorder), (2) the activity is a willful choice, (3) no functional impairment, (4) the behavior has a coping function. However, Thege (2017: 1716) argued that most people with mental disorders has maladaptive behaviors as coping strategy with their emotional and cognitive problems as in the case of addictions. For instance, individuals with bulimia nervosa use compensatory behaviors to cope with fears of overweight or individuals with depersonalization disorder experience amnesia as a way of coping with traumatic events. Moreover, Sussman, Rozgonjuk and van den Eijnden (2017: 1717) stated that whether a behavior with lack of choice should be accepted as an addiction is also controversial issue. For

example, this kind of distinction is less clear-cut in distinguishing alcoholism from excessive drinking which may be a willful choice despite adverse consequences.

The term ‘impulsivity’ which has at least three different features that are trait impulsivity, impulsive action, and impulsive choice refers to giving importance to immediate rewards rather than long-term rewards, being unable to delaying gratifications and disinhibited and inappropriate behavior to the context (Mitchell & Potenza, 2014: 2; Robins & Clark, 2015: 66) and the term ‘compulsivity’ means unpleasant and repetitive behavior to prevent perceived negative outcome (Starcevic, 2016: 722). Compelling evidence demonstrated that impulsivity is associated with a number of psychopathology (e.g., bipolar disorder, attention deficit hyperactivity disorder, borderline personality disorder and substance addictions) (Mitchell & Potenza, 2014: 2). For instance, impulsivity is closely associated with pathological gambling (Robins & Clark, 2015: 67) and substance use problems (Ready et al., 2002). The World Health Organization’s (WHO) International Classification of Disease (ICD-11) Working Group suggested that the category of impulse control disorders should be broadened, and gambling disorder, kleptomania, compulsive sexual disorder, pyromania, and intermittent explosive disorder should be included in that category (Grant & Chamberlain, 2016: 303; Starcevic, 2016: 724). As consistent with this argument, pathological gambling was placed in the Impulse-Control Disorders Not Elsewhere Classified section in DSM-IV and its earlier revisions. However, pathological gambling was renamed as ‘gambling disorder’ and was moved to the chapter ‘Substance Related and Addictive Disorders’ in DSM-5 (Petry et al., 2014: 495).

It is also important to acknowledge that the issue of classification and behavioral addictions’ place in psychiatric nosology including a clear distinction between a category of obsessive-compulsive spectrum disorders and behavioral addictions remains controversial (Robins & Clark, 2015: 66; Starcevic & Khazaal, 2017: 1). In fact, both behavioral addictions and obsessive-compulsive spectrum disorders focus on repetitive and problematic behaviors (Starcevic, 2016: 723). However, there are major differences between behavioral addictions and obsessive-compulsive disorder (OCD). Individuals with OCD often report excessive doubt whereas individuals with behavioral addictions do not. Moreover, OCD is generally

related with the egodystonic behaviors, contrary to egosyntonic or hedonic nature of behavioral addictions (Alegria, Bernardi, & Blanco, 2010: 135). Epidemiological studies examining the comorbidity of OCD and behavioral addictions also suggest that behavioral addictions are weakly associated with OCD as compared to other disorders such as attention-deficit hyperactivity disorder and eating disorders, which indicate that they should not be recognized as obsessive-compulsive spectrum disorders (Starcevic & Khazaal, 2017: 5). Besides, it has been commonly accepted that the mechanism of negative reinforcement maintains the harm avoidant-behavior in OCD, whereas disordered gambling is associated with partial reinforcement contingencies (Horsley, Osborne, & Wells, 2012: 438). However, opponent evidence has been found in the studies revealing the role of positive reinforcement (e.g., hoarding) in obsessive-compulsive behavior and negative reinforcement (e.g. relief of anxiety) in disordered gambling (Robins & Clark, 2015: 67). The critical point is that many research showed that a candidate behavioral addiction is reinforced; however, the extent to which components of behavior are reinforcing remains unknown (James & Tunney, 2017: 73).

1.1.3. Similarities between Behavioral and Substance-Related Addictions

Despite the unclear range and criteria to define behavioral addictions, literature commonly proposes that non-substance addictions and substance-related addictions show phenomenological similarities (Chamberlain et al., 2016: 842; Grant, Schreiber, & Odlaug, 2013: 252; Thege et al., 2015: 1). According to Griffiths's (2005) 'component model', all addictions have common components which are salience, mood modification, tolerance, withdrawal, conflict, and relapse. *Salience* implies the particular activity dominating an individual's thinking, feelings and behavior as the most important thing in daily life. *Mood modification* implies the subjective shift in mood that occurs as a result of performing the particular activity. *Tolerance* implies the need for increased amount of the particular activity to achieve the former effects while withdrawal implies adverse emotional and physical effects of the cessation of the particular activity. *Conflict* implies interpersonal and intrapersonal problems because of the particular activity. *Relapse* implies the return of earlier behavior

patterns after abstinence or control. The author pointed out the importance of the interaction of the individual's biological predisposition; psychological factors such as personality, attitudes and beliefs; social environment; and structural features of the activity.

Past research has examined the similarities between behavioral and substance addictions. One overlap between behavioral and substance addictions is that the onset of these addictions is more common during adolescence or young adulthood than during any other developmental period (Chambers, Taylor, & Potenza, 2003: 1041). Regarding gender, it was found that the initial behavior rapidly progresses to problematic behavior in women with pathological gambling (a.k.a., the telescoping phenomenon), similar to that observed in substance addictions (Black, 2013: 250). Further, both individuals with substance and non-substance addictions have an urge or craving before initiating the behavior. These behaviors relieve anxiety and enhance a positive mood state as is the case for substance intoxication (Grant, Potenza, Weinstein, & Gorelick, 2010: 233). It was found that people with pathological gambling, kleptomania, compulsive sexual behavior, and compulsive buying experience decreased positive mood effects with repeated behaviors so that they need to increased intensity of behavior to attain the same mood effect (Grant, Brewer, & Potenza, 2006: 924). A recent study showed that emotion dysregulation plays a key role in both gambling and alcohol cravings following early abstinence (de Castro, Fong, Rosenthal, & Tavares, 2007: 1555).

It has been shown that there are neurobiological and neuroanatomical similarities in both substance-related and behavioral addictions (Fattore, Melis, Fadda, & Fratta, 2014: 272) For instance, similar deterioration on inhibition, cognitive flexibility and planning tasks was seen in both gambling addiction and alcohol dependence (Goudriaan, Oosterlaan, de Beurs, & van den Brinck, 2006: 534). Further, some changes in neural plasticity can be seen as a result of neuroadaptations in brain regions in both behavioral and drug addictions (Fattore et al., 2014: 273). Neuropsychological studies showed that similar serotonergic dysregulation (Blanco, Orensanz-Munoz, Blanco-Jerez, & Saiz-Ruiz, 1996: 191) and activity in the brain reward system (Mann, 2017; 187) have been found in both chemical and non-chemical behaviors. Specifically, evidence showed that persistent drug use is associated with

lower dopamine receptor binding (D2/D3) and dopamine transporter availability in substance addictions (Hou, Wang, Jia, Hu, & Tian, 2014: 765). It was also found that there is a positive correlation between dopamine binding and gambling severity and impulsivity although it is not the same as in drug addiction (Boileau et al., 2013: 953). Additionally, family studies demonstrated that first-degree relatives of pathological gamblers and compulsive buyers reported increased substance abuse or dependence (Black, 2013: 250).

Regarding treatment, cognitive behavioral therapy approaches, motivational interviewing and manuals adapted from substance addiction treatments have been successfully used in behavioral addictions such as pathological gambling, compulsive sexual behavior and compulsive buying (Cowlishaw et al., 2012:1; Grant et al., 2013: 252). Although none of medications was approved for the treatment of behavioral addictions, controlled clinical trials showed that some medications (e.g., Naltrexone) used in the treatment of substance addictions are efficacious for pathological gambling and kleptomania as well (Grant et al., 2013: 252).

The implication of the tendency to categorize a wide range of behaviors as addictions is at the heart of the matter. Lay people's judgements about what defines an addictive behavior can lead to many outcomes for people with addictive behaviors including feel stigmatized or not seeking treatment (Thege et al., 2015: 25). According to Haslam's folk psychiatry model (Haslam, Ban, & Kaufmann, 2007: 135), lay people use four dimensions (i.e. pathologizing, moralizing, medicalizing and psychologizing) to understand mental disorders. Studies (Gagnon, Côté, April, Julien, & Tessier, 2013: 123; Neighbors, Geisner, & Lee, 2008: 433) examining public opinion about addictions proposed that addictions are often perceived as acts of personal choice and moral failure (i.e. moralizing) rather than medical conditions (i.e. medicalizing). Evidence of that lay people perceive individuals with behavioral addictions more negatively in a moral manner has been found in a study (Thege et al., 2015: 29) comparing social judgments of behavioral vs substance-related addictions. This study suggested that the public assume that people with non-substance addictive behaviors such as work, sex, and shopping have a personal responsibility to give up these behaviors, albeit substance-related addictions have more perceived addiction liability. Another study (Lang & Rosenberg, 2017: 82) demonstrated that participants reported

alcohol as significantly more addictive than pornography and marijuana. The moralizing attitude towards addictions may lead to increased stigmatization of addictive people. Further, negative emotions like anger or social distance may arise at individual levels (Thege et al., 2015: 29). A recent study conducted by Thege and colleagues (2015: 12) showed that people with excessive behaviors do not usually seek professional help to deal with their problems, except excessive exercising and eating. On the other hand, when people seek help for their excessive behaviors, they tend to get professional health care rather than social support. It may suggest that these people consider their problems as a medical issue instead of lifestyle or other concern. The conceptualization of particular disorders as behavioral addiction may provide overcome their neglect, increase awareness and gain research funding (Starcevic, 2016: 722). That is why it is necessary to think that psychological area of study consider deeply the investigation of these addictions.

As emphasized above, behavioral addiction is a heterogeneous concept. To explain individual differences among behavioral addictions, Andreassen and her colleagues (2013: 94) investigated the role of personality. They found different associations for different behavioral addictions. For instance, neuroticism, extroversion, and conscientiousness were positively, and agreeableness was negatively associated with exercise addiction; whereas conscientiousness was negatively associated with video game addiction. In the current study, two kinds of behavioral addictions were chosen: gaming addiction (i.e. internet gaming disorder) and exercise addiction. The reason behind this decision is that these addictions seem to very different than each other in daily life. For example, individuals with gaming addiction mostly refuse to go to school or stay home in order to play and they are physically inactive, while individuals with exercise addiction spend their hours to exercise and they are overly active. Another important difference is that exercise is more likely to be perceived as a positive behavior, rather than gaming. However, individuals in both groups feel irresistible desire to excessive engage in that particular activity. As mentioned above, the DSM-5 has defined the criteria for gaming addiction, namely internet gaming disorder, albeit not for exercise addiction. To understand the common and distinct characteristics of gaming addiction and exercise addiction, their nature and psychosocial factors will be reviewed in detail. However, relatively little is known

about what identical and different processes have an impact on their occurrence. It might be more useful to attempt to understand their underlying pathways. Thus, two of those (gaming addiction vs. exercise addiction) were selected to closely examine underlying emotion-related pathways in the present study.

1.1.4. Gaming Addiction (Internet Gaming Disorder)

1.1.4.1. Definition and Nature of Gaming Addiction

The last century witnessed inconceivable technological changes in digital world. It is difficult to doubt that video gaming will influence more adolescents and young adults within the entertainment world (Kuss, Griffiths, & Pontes, 2017: 103). Although it has become one of the most favorite leisure activities, scientific findings have suggested that video gaming might become the specific pattern of problematic behavior and cause functional impairment (Nuyens et al., 2016: 351). Until recently, the term used in describing this behavior is inconsistent (e.g., digital gaming, problematic online gaming, compulsive gaming, and pathological gaming) but an official definition has been introduced to the field with the inclusion of the Internet Gaming Disorder (IGD) in the DSM-5 (Irmak & Erdoğan, 2016: 129). Due to the lack of evidence regarding its etiology and course, IGD has not been accepted yet; however, it was positioned as "Condition for Further Study" in Section 3 of the DSM-5 (Männikkö, Billieux, & Kääriäinen, 2015: 281). In the DSM-5, IGD has been characterized by (a) preoccupation with internet games; (b) withdrawal symptoms when internet gaming is discontinued; (c) the need to spend increasing amounts of time engaged in internet gaming (i.e. tolerance); (d) unsuccessful attempts to control engagement in internet gaming; (e) loss of interest in hobbies and entertainment as a result of, and with the exception of, internet gaming; (f) continued excessive use of internet games despite the knowledge of psychosocial problems; (g) deception of family members, therapists, or others regarding the amount of internet gaming; (h) use of internet gaming to escape or relieve a negative mood; and (i) loss of a significant relationship, job, or educational or career opportunity because of engagement in internet games (APA, 2013).

The emerging criticisms about the viability of including the word "internet" in IGD have suggested that gaming addiction does not necessarily have to appear online (Kuss et al., 2017: 104). The DSM-5's (APA, 2013) description of IGD is also ambiguous saying that "Internet Gaming Disorder most often involves specific Internet games, but it could involve non-Internet computerized games as well, although these have been less researched. It is likely that preferred games will vary over time as new games are developed and popularized, and it is unclear if behaviors and consequences associated with Internet Gaming Disorder vary by gaming type" (as cited in Kuss et al., 2017: 106). A recent study (Lemmens & Hendriks, 2016: 270) comparing the addictive potential of nine video game genres showed that there is a significant relationship between IGD and time spent playing both online and offline games, however, online games were more strongly correlated with time spent in gaming.

In fact, there are several genres of online games such as Massively Multiplayer Online Role-Playing Games (MMORPGs), Multiplayer Online Battle Arena (MOBA), Multi User Dungeons (MUD), First-Person Shooter Games (FPS), Real-Time Strategy Games (RTS) and sports games. MMORPGs as being one of the most popular genres and the characteristics of these types of games allow thousands of players to engage in a game at the same time and use various personas without any limitation. MMORPGs (e.g. *World of Warcraft*) place the players at a real-time virtual world where they can read descriptions of environments or characters. Players make significant commitment in terms of time and energy, resulting in a higher addictive potential compared to other games. As forming a wide-range gaming society, players find themselves in growing social networks in a virtual world (Kuss et al., 2017: 103; Škařupová & Blinka, 2015: 108). In MUDs, social interaction is required because the environment is formed by players via texting (Schimmenti, Guglielmucci, Barbasio, & Granieri, 2012: 188). Another popular online video game, *League of Legends* which is a MOBA game, demand players' attention via daily updated international rankings and international competitions. In the past few years much has been written about the idea that online games may be a substituted form of incompetence in real-life. In fact, online games provide a feeling of success so that players maintain their gaming behaviors for more achievement and proud (Calado et al., 2014: 772). However, as online game genres

are not a homogenous group which exact factors predict the gaming addiction is unknown (Nuyens et al., 2016: 352). Overall, the existing literature suggests that the game genre is related with specific psychopathological profiles of players, which means that distinct types of players show unique disordered features. For instance, the players of MMORPGs reported high levels of social anxiety, while the players of FPS, RTS and sports game showed increased levels of impulsivity. At the same time, it was found that anxiety was positively associated with IGD in all genre groups (Na et al., 2017: 248).

The important question which yet to be unanswered is whether the rewarding mechanism of gambling disorder and IGD is the same or not. Behavioral psychologists have argued that the designs of certain games are addictive because of their schedules of reinforcement, rather than internet gaming itself. It has been noted that the integration of gambling themes into games often provide players secondary currency that is purchased by real money, which increasing gaming behavior. Some of the games (e.g., *Starcraft*) which are strategic and goal-directed do not use random ratio schedule, but they are highly addictive (James & Tunney, 2017: 72). King, Delfabbro and Griffiths (2010: 92) has classified the psychostructural properties that are common to most video games which may contribute to initiation, development and maintenance of playing; (1) social features (e.g., social interaction), (2) manipulation and control features (e.g., having influence on game outcomes), (3) narrative and identity features (e.g., building character), (4) reward and punishment features (e.g., win and lose), (5) presentation futures (e.g. sound and graphics). It may be noteworthy to consider that some elements may be more crucial than others for some video games.

1.4.1.2. Psychological Factors Related to Gaming Addiction

Addictive behaviors like gaming, shopping, gambling provide immediate gratification. The key differentiating feature of gaming addiction from 'being enthusiastic for games' is that it causes severe negative consequences (Loton, Borkoles, Lubman, & Polman, 2016: 567). Unfortunately, it adversely affects individuals' life in several domains including psychological, social and physical health (Männikkö et al., 2015: 281). As an inevitable consequence of playing longer hours,

most of players have reported physical health problems such as musculoskeletal symptoms, eating problems (Lee, Lee, & Choo, 2017: 479), fatigue and sleep problems (Männikkö et al., 2015: 284). It was found that individuals engaging in pathological gaming activity played twice as much time as nonpathological gamers and they suffered poorer grades in school, even after controlling for gender, age, and weekly amount of video-game play (Gentile, 2009: 594). In addition, comorbidity with attention deficit problems has seen in gaming addiction (Chan & Rabinowitz, 2006: 1; Gentile, 2009: 594). Several converging lines of evidence demonstrate that gaming addiction has been associated with elevated levels of depression (Andreassen et al., 2016: 252; Brunborg, Mentzoni, & Froyland, 2014: 30; Mentzoni et al., 2011: 591; Wei, Chen, Huang, & Bai, 2012:1), anxiety (Mentzoni et al., 2011: 591) and social anxiety (Wei et al., 2012:1). The question of that whether those problems lead to the development of gaming addiction or the disorder appears as a result of the aforementioned problems (i.e. depression, anxiety) warrants consideration. Some authors (e.g. Männikkö et al., 2015: 286) have proposed that gaming addiction resulted in depression and anxiety, while others (e.g. Hyun et al., 2015: 711) argued vice versa.

During recent years, certain psychological factors such as online game motivations, gender, self-control related traits, and self-esteem have been widely studied to understand the etiology of problematic online gaming (Billieux et al., 2015: 243). Gender and age have been identified as risk factors for IGD, suggesting that it is more likely to be common in males (Garcia-Oliva & Piqueras, 2016: 299; Hussain, Williams, & Griffiths, 2015: 227; Mentzoni et al., 2011: 591) and youngers (Mentzoni et al., 2011: 591; Na et al., 2017: 252; Škařupová & Blinka, 2015: 111). Further, a growing body of literature has suggested that IGD is associated with low self-esteem (Billieux et al., 2015: 247; Hyun et al., 2015: 711). Most players have hypersensitive and unstable self-esteem characteristics (Beard & Wickham, 2016: 507). There is good evidence that problematic relationships and lack of friends lead to an increase in internet gaming as a reaction to the feeling of incompetency (e.g., Griffiths, 2010: 121). In relation to interpersonal dependency, the findings of a research conducted by Škařupová and Blinka (2015: 111) demonstrated that dysfunctional detachment (i.e. fear of being hurt, fear of being overwhelmed by others) and destructive overdependence (i.e. fear of negative evaluation, reassurance seeking) were associated

with elevated levels of online game addiction. In addition, it was found that unhappier players were more likely to have higher scores of gaming addiction (Hull et al., 2013: 150). It is known that one of the major motivation to initiate and maintain internet gaming is social interaction (Calado, Alexandre, & Griffiths, 2014: 773; Hull, Williams, & Griffiths, 2013: 150; Kuss et al., 2017: 104; Liu & Chang, 2016: 912). Similarly, findings of a recent study showed that lower sociability has become a social health risk factor predicting gaming addiction (Männikkö et al., 2015: 286).

There is plenty of evidence that video games cause postgame aggressive behaviors (Breuer, Scharkow, & Quandt, 2015: 126). Paradoxically, it has also been stated that individuals with online game addiction play games significantly more frequently than 'normal' gamers as a reaction to anger and frustration (Kuss & Griffiths, 2012: 4). Research consistently showed a positive association between aggressive traits and online game addiction among adolescents with internet gaming disorder (Kim, Namkoong, Ku, & Kim, 2008: 212; Männikkö et al., 2015: 281). It has been emphasized that aggressive behavior may contribute to the development of online game addiction. The findings of preference of young males to play violent games rather than nonviolent ones as a means to release the aggressive impulses suggest that aggressive tendencies become a goal-directed behavior with rewards (Mehroof & Griffiths, 2010: 315).

Besides, a recent study (Kaess et al., 2017: 248) conducted with a group of young men showed that video gaming may serve as a stress-regulation strategy. Individuals with IGD reported greater every day and chronic stress than healthy controls. The more players with IGD experienced stress, the more they showed symptoms of IGD. Surprisingly, another study (Billieux et al., 2015: 248) stated that "unregulated escapers" who were problematic gamers had a high proportion of female players that explained by the higher prevalence of depressive disorders in women.

In general, it can be concluded that the underlying psychological dispositions of individuals may be the key to understand how gaming becomes a problematic behavior for them. As such, gaming addiction has been selected to examine more closely to its relationship with emotion-related constructs in the present study.

1.1.5. Exercise Addiction

1.1.5.1. Definition and Nature of Exercise Addiction

Exercise is commonly accepted as a positive behavior which provides psychological and physical benefits. Regular exercise can be defined as planned and repetitive gym activities implemented to promote health and prevent diseases (Berczik et al., 2012: 403). However, if the physical activity transformed into excessive exercising behavior, negative consequences can appear as a result of this overinvolvement (Egorov & Szabo, 2013: 200; Goodwin, Haycraft, & Meyer, 2014a: 1399; Hausenblas & Symons Downs, 2002a: 89).

Although recent empirical attention to exercise addiction exists, considerable debate remains regarding its definition. Exercise addiction has not been recognized as a medical or psychological disorder yet (Egorov & Szabo, 2013: 199). Thus, there is no objective criterion to decide a precise definition of exercise addiction. Moreover, exercise addiction literature proposes numerous definitions and terms including exercise dependence, obligatory exercise, commitment to physical activity, exercise commitment, excessive exercise, and negative addiction (Berczik et al., 2012: 404; Hamer & Karagerorghis, 2007: 447; Hausenblas & Symons Downs, 2002a: 89). In fact, exercise addiction has been realized with a study that examines the effects of exercise deprivation on sleep patterns. In 1970, Baekeland conducted a study to investigate the effects of one month of exercise deprivation on sleep. However, he experienced difficulty in recruiting *habitual exercisers* (athletes who were exercising five to six days a week) because they were not willing to abstain from exercise for one month despite monetary incentives. Eventually, *regular exercisers* (athletes who were exercising three to four days in a week) were recruited to the study. Findings suggested that regular exercisers experienced adverse psychological symptoms such as increased level of anxiety, frequent night awakenings, and sexual tension during exercise deprivation (Egorov & Szabo, 2013: 200; Hausenblas & Symons Downs, 2002a: 114).

Exercise addiction which is characterized by a multidimensional maladaptive pattern of uncontrollable excessive behavior comprises psychological (e.g., anxiety) and physiological (e.g., withdrawal) symptoms (Hausenblas & Symons Downs, 2002a:

89). It is necessary to distinguish exercise addiction from recreational exercise with a high frequency (Freimuth, Moniz, & Kim, 2011: 4070). As with other addictive behaviors, exercise addiction shows characteristics of substance dependence including tolerance (i.e. craving for significantly increased amounts of exercise to achieve the desired effect); withdrawal (i.e. feeling anxious in the absence of same amount of exercise); intention effects (i.e. exercising over a longer period than was intended); loss of control (i.e. unsuccessful attempt to stop exercising); time (i.e. a large amount of time is spent to exercise); reduction in other activities (i.e. impairments in social, occupational and leisure activities because of excessive exercising); continuance (i.e. continued exercise despite severe consequences) (Hausenblas & Symons Downs, 2002a: 113). Secondly, individuals with exercise addiction are likely to ignore negative outcomes of the behavior despite their knowledge as for other types of addictions (Freimuth, Moniz, & Kim, 2011: 4071). In exercise addiction, the behavior becomes an obligation rather than enjoyment (Egorov & Szabo, 2013: 200). Although some theorists conceptualize excessive exercise as an obsessive behavior, it can also be differentiated. Individuals with addiction have ruminative thoughts about realistic consequences of the target behavior, while obsessive people have excessive thoughts about unrealistic consequences of that behavior. Unlike impulse-control disorders, withdrawal and tolerance symptoms appear in exercise addiction (Freimuth, Moniz, & Kim, 2011: 4071)

It is crucial to highlight that the nature of primary exercise addiction and secondary exercise addiction differs from each other. In primary exercise addiction, the physical activity is an end in itself, whereas the major motivation for physical exercise is the control and manipulation of weight in secondary exercise addiction (Hamer & Karagerorghis, 2007: 477; Hausenblas & Symons Downs, 2002a: 113). People with secondary exercise addiction, called *anorexia athletica*, mostly suffer from eating disorders such as anorexia nervosa or bulimia nervosa (Egorov & Szabo, 2013: 200; Klein et al., 2004: 531). Therefore, it is supposed that the etiology of primary exercise addiction is not same as the secondary one (Berczik et al., 2012: 404). Yet, this distinction is not always clear as people with primary exercise addiction tend to have concerns about their weight and body image (Starcevic & Khazaal, 2017: 5).

Individuals with exercise addiction almost need to same amount of exercise to relieve or avoid withdrawal symptoms. In regard, habitual exercises reported several mood disturbances with the deprivation of exercise (Hamer & Karagerorghis, 2007: 479). For example, habitual runners reported greater somatic symptoms, insomnia, depressive and anxiety symptoms when they were deprived of exercise (Morris, Steinberg, Sykes, & Salmon, 1990: 493) Importantly, withdrawal signs can occur in both nondependent and dependent exercising; however, the later has more intense effects than the former (Hausenblas & Symons Downs, 2002a: 115). Findings obtained from eleven experimental exercise deprivation studies also suggested that people who experienced negative effects of exercise deprivation reported feelings of guilt, depression, irritability, restlessness, tension, stress, and anxiety. Nevertheless, exercise deprivation studies have very few chances to recruit dependent exercises as they refuse to participate in studies that impede their activity schedule (Hausenblas & Symons Downs, 2002a: 115). However, a study (Mondin et al., 1996: 1199) conducted with habitual exercisers who were experiencing three-day deprivation because of injury demonstrated that mood disturbance, depression, anxiety, and confusion were experienced, as well.

A number of empirical evidence has demonstrated the differences between genders. It was found that males reported greater exercise dependence symptoms as compared to females (Hausenblas & Symons Downs, 2002c: 171). More specifically, males are more likely to have primary exercise addiction symptoms, while females are more likely to have secondary exercise addiction symptoms (Berczik et al., 2012: 409). However, no difference was found between genders on the subscale of withdrawal effects (Hausenblas & Symons Downs, 2002c: 171). As exercise addiction has severe physiological and psychological effects, it is essential to investigate both antecedents and maintenance factors in this kind of addiction.

1.1.5.2. Psychological Factors related to Exercise Addiction

Researchers have attempted to explain the exercise paradox with various theoretical models. One of them, the *Cognitive Appraisal Hypothesis* (Szabo, 1995), suggests that some people may exercise to escape from an immediate life stress. And

then, exercise is perceived as a so-called healthy coping method with stress by those individuals because of the well-known positive effects of exercise in social life. When interference with other obligations and daily responsibilities become salient, decreased amount of exercise is needed which results in an increased vulnerability to stress. Eventually, withdrawal symptoms cause strong urge for exercise. Although this hypothesis has acknowledged the maintenance of exercise addiction, it does not give information about the onset. In the *Biopsychosocial Model* of exercise addiction (McNamara & McCabe, 2012), exercise addiction is the product of the interaction of biological (e.g., body mass index), social (e.g., parental or peer pressure), and psychological (e.g., self-esteem) factors, but this model has been proposed by the data of elite athletes who have different characteristics (e.g., training schedule or intensity) from the psychiatric cases. On the other hand, the *Interactional Model* (Egorov & Szabo, 2013) posits that a set of personal (e.g., personality, needs and values), situational (e.g., accessibility and cost) and motivational factors (e.g., physical health, social aspects) play a vital role on the occurrence of exercise addiction.

Meyer and her colleagues (2011: 174) have posited a cognitive behavioral model for the maintenance of exercise addiction. The model focuses on maintaining factors such as perfectionism, rigidity, eating pathology, obsessive-compulsiveness and emotion regulation. More specifically, it is highlighted that emotion regulation may have a crucial role through positive reinforcement and negative reinforcement. They suggested that regular exercise behavior is maintained by both positive reinforcement (e.g., a sense of achievement, a sense of well-being) and negative reinforcement (e.g., removal of negative emotions). Exercise addicts reported elevated levels of feelings of restless and stress before exercising, in addition to increased levels of depression, anxiety, and anger after missing an exercise (Anshel, 1991: 145). This process is not problematic on its own, but when individuals use exercise as an avoidant coping strategy it becomes a maladaptive emotion regulation strategy that interferes with healthy ways of coping with negative stimuli.

In a longitudinal study (Goodwin et al., 2014a: 1402), it was found that emotion regulation styles predicted exercise addiction in boys and girls twelve months later. Specifically, internal functional emotion regulation style (i.e. attempting to manage emotions by using rumination, repression and self-harm) was found as the only

significant unique predictor of exercise addiction. In addition, a recent study (Goodwin, Haycraft, & Meyer, 2014b: 85) showed that lower levels of anxiety predicted higher levels of exercise addiction among boys, which indicates that anxiolytic benefits of exercise may serve as a means of emotion regulation in a non-clinical sample. Notably, no significant predictor of exercise addiction was found for girls. On the other hand, another study (Goodwin, Haycraft, & Meyer, 2012: 706) indicated that the external functional emotion regulation (i.e. attempting to manage emotions by using advice seeking, physical contact or socializing) was the greatest unique predictor for boys while internal functional regulation was the greatest unique predictor for girls. Surprisingly, although emotion dysregulation and emotional maltreatment are closely related constructs (Kim & Cicchett, 2010: 706), the role of emotional maltreatment on development of exercise addiction has not been investigated in the literature.

With regard to specific risk factors, preliminary research has found that age and gender predicted exercise addiction. Specifically, men reported more exercise dependence symptoms than women. In addition, young adulthood and adulthood were found as the most critical age periods (Costa, Hausenblas, Oliva, Cuzzocrea, & Larcan, 2013: 216). Moreover, findings showed that baseline levels of exercise addiction predicted exercise addiction two years later (Goodwin, Haycraft, & Meyer, 2014b: 85). As a transdiagnostic construct, self-oriented perfectionism and socially prescribed perfectionism were significantly associated with exercise addiction (Goodwin, Haycraft, Willis, & Meyer, 2011: 655). Similarly, evidence showed that maladaptive perfectionism mediated the relationship between perceived parental control and exercise addiction (Costa, Hausenblas, Oliva, Cuzzocrea, & Larcan, 2016: 84). Indeed, there is evidence that unhealthy perfectionism is associated with beliefs about the unacceptability of experiencing negative emotions and emotional suppression (Tran & Rimes, 2017: 144). However, there is no research investigating the link between the unacceptance of emotions and exercise addiction.

Although all addictive behaviors differ in idiosyncratic ways, they commonly share many similarities (Berczik et al., 2012: 412). Nevertheless, research examining their etiological factors is relatively scarce. In the present study, it is aimed to understand how childhood emotional maltreatment causing dysfunctional schemas

about emotions has an impact on those addictive behaviors (i.e. gaming addiction and exercise addiction).

1.2. EMOTIONAL MALTREATMENT: EMOTIONAL ABUSE AND NEGLECT

In general, it is supposed that parents behave their child in a non-abusive or non-neglectful way even if the child has a difficult temperament (Glaser, 2002: 698). However, detrimental parenting behaviors including verbal hostility, denigration, threatening to abandon and reject are not infrequent (Iwaniec, 2003: 52). Those parents express less positive emotions whilst show more negative emotions (Young & Widom, 2014: 1370). They often alienate themselves from the child in both physical and emotional way, turning into emotional isolation and loneliness for the child. There are common features between poor (dysfunctional) parenting and emotional maltreatment, but two major factors matter to distinguish them. First, emotional maltreatment includes the persistent and severe pattern of emotionally abusive and neglectful parenting behaviors that are more extreme and dreadful toward the child. Second, those parenting methods are associated with a proportionate increase in the tendency of psychological and developmental shortcomings, since the child has to live with ongoing stress that interferes with his or her capacity to develop emotion regulation (Wolfe & McIsaac, 2011: 806). As a result of severe emotional maltreatment, these children's physical, social and psychological growth and functioning are deteriorated (Burns, Jackson, & Harding, 2010: 801; Iwaniec, 2003: 53).

Agreement is debatable on the precise defining characteristics of what can be termed as 'childhood maltreatment'; nevertheless, it broadly conveys the meaning of adverse experiences that are commonly parental abuse (physical, sexual and emotional) and neglect (emotional and physical) (Dutcher, Vujanovic, Paulus, & Bartlett, 2017: 42). In fact, the terms emotional abuse and neglect are problematic because there is no certain evidence or physical signs except existing toxic interaction. As children lack the ability to express their unhappiness, it usually goes unnoticed (Iwaniec, 2003: 53); however, the use of these terms is essential for professional recognition (Glaser, 2002: 700). More specifically, the American Professional Society

on the Abuse of Children (APSAC, 1995) listed a number of parental behaviors (i.e. spurning, terrorizing, exploiting, denying emotional responsiveness, isolating, and mental, health, medical and educational neglect) to define abusive parenting behaviors. World Health Organization (WHO, 2002) has defined neglect as a failure of parenting behavior in one or more areas of health, education, emotional development, nutrition, shelter, and safe living conditions. Moreover, emotional abuse has been defined as a failure of a caregiver to provide a supportive environment and behaving adversely (e.g., denigration, threats and intimidation, rejection) to the child. In the same year, Glaser moved one step further in studying the categorization of these behaviors within a theoretically driven conceptual framework considering a child's psychological wellbeing.

According to Glaser's alternative framework for the definition of emotional abuse and neglect (2002: 703), there are five categories: (1) emotional unavailability, unresponsiveness and neglect (i.e. *being insensitive to meet emotional needs of the child*), (2) negative attributions and misattributions to the child (i.e. *rejecting and being hostile toward the child*), (3) developmentally inappropriate or inconsistent interactions with the child (i.e. *expecting over the child's capabilities; being overprotective which prevents the child learning; exposing the child to traumatic events and interactions*), (4) failure to recognize or acknowledge the child's individuality and psychological boundary (i.e. *using the child for their own needs*), (5) failing to promote the child's social adaptation (i.e. *preventing the child's socialization; neglecting psychologically*). Emotional abuse and neglect can be experienced separately, but they usually coexist with each other (Glaser, 2002: 698; Hughes & Cossar, 2016: 32; Maguire et al., 2015: 641). Although emotional abuse and emotional neglect are related, it needs to be acknowledged that these two concepts are characterized differently. Emotional abuse refers to any kind of verbal and nonverbal assaults (e.g., inducing psychological pain, anxiety and fear in the child) whereas emotional neglect refers to emotional unresponsiveness or unsatisfied the developmental or emotional needs (e.g., ignoring the child's cries and signals of distress, depriving of help, comfort, warmth, and reassurance). Mostly a neglected child is confronted with passive or passive-aggressive parental behaviors (Iwaniec, 2003: 49; Jessar, Hamilton, Flynn, Abramson, & Alloy, 2017: 418).

Evidence has increasingly indicated that abusive and neglectful childhood experiences can cause devastating damage in emotional and cognitive processing, leading to the development of various forms of psychopathology in later childhood and adolescence (Hughes & Cossar, 2016: 31; Young & Widom, 2014: 1370). First, systematic reviews (Maguire et al., 2015: 644; Naughton et al., 2017: 351) of experiencing neglect or abuse have indicated that emotional neglect is a powerful risk factor for internalizing symptoms (e.g., depression, post-traumatic symptoms, anxiety, anger, dissociation and sleep problems) for adolescents. Similarly, a longitudinal study (Cohen, Menon, Shorey, Le, & Temple, 2017: 152) showed that early exposure to emotional neglect predicted high levels of depression and post-traumatic stress disorder. Besides, a study (O'Dougherty Wright, Crawford, & Del Castillo, 2009: 59) conducted with college students showed that those who reported emotional neglect were more likely to have maladaptive schemas of vulnerability to harm, shame, and self-sacrifice. A number of studies (e.g., Lynch & Cicchetti, 1998: 235; Kim & Cicchetti, 2006: 624) have reported that neglected children have lower self-esteem with little changes over time. As children experiencing neglect and/or emotional abuse have poor social skills and low self-esteem, they are more likely to suffer from peer rejection and lack of reciprocated playmates. However, the relationship between neglect and externalizing behavior (i.e. drug and alcohol use) has not consistently been manifested yet. Some research (e.g., Thornberry, Ireland, & Smith, 2011: 957; Tyler, Johnson, & Brownridge, 2008: 506) argued that there has not found any strong relationship between neglect and externalizing behaviors, except delinquency in adolescents. However, other findings indicated that early emotional neglect was found as a risk factor for alcohol-related problems (Naughton et al., 2017: 355) and drug use in adolescence (Alvarez-Alonso et al., 2016: 379; Mills, Alati, Strathearn, & Najman, 2013: 672; Rosenkranz, Muller, & Henderson, 2012: 438). Furthermore, neglected or emotionally maltreated children appear to have more impulsivity and hyperactivity problems in comparison to controls (Maguire et al., 2015: 645). It has been reported that neglected adolescents experienced more disciplinary problems (Maguire et al., 2015: 644), elevated levels of daily stress, and had lower expectations for their future achievements compared to controls (Naughton et al., 2017: 355).

Evidence consistent with the findings comes from follow up and longitudinal studies of children with early exposure to childhood maltreatment (Cohen et al, 2017: 152), which suggest that the negative effects of emotional abuse and neglect extend over adulthood (Burns et al., 2010: 801; Glasser, 2002: 698). For instance, it has been reported that adults with emotional abuse history showed more symptoms of anxiety disorders (Springer, Sheridan, & Carnes, 2007: 517) and increased level of depression (Cannon, Bonomi, Anderson, Rivera, & Thompson, 2010: 291). Research has reported that emotional abuse and neglect predicted adult psychopathology even when statistically partialling out the effects of other types of abuse (Spertus, Yehuda, Wong, Halligan, & Seremetis, 2003: 1255). Additionally, childhood abuse and neglect were associated with the development and severity of alcohol use (Dutcher et al., 2017: 42). Allison and her colleagues (2002: 2874) found that people having a history of emotional abuse and neglect had increased level of binge eating disorder and night eating syndrome, which points out emotional eating.

Besides, existing evidence (e.g., Schimmenti et al., 2017: 314) showed that childhood trauma is a risk factor for the development of behavioral addiction. Accordingly, long term emotional deprivation and a lack of mirroring in infancy cause great anguish penetrating into the mind and body, which results in the vulnerability to psychopathology. When the child experiences emotional neglect, he or she is likely to use dissociative defenses in order to protect his or her own self from unbearable internal conflicts. Therefore, emotional neglect is suggested to regard an invaluable concept to understand technological addiction. To avoid from the awareness of having uninterested parents, intrapsychic defenses may activate a dissociation process preserving a sense of integrity. This mechanism may facilitate addictive behaviors via withdrawal into sensory stimuli of technology, lessening the toxic emotions connected to childhood neglect through a dissociation. As the lack of emotional mirroring to harmony gratification and frustration, the false-self needs a kind of understanding and acceptance that video gaming misuse allows the opportunity for this dream in a desert full of people with brilliant colors and sounds. With the anonymity of online gaming world, individuals can withdraw inside weakly explored self-states with feelings of omnipotence to neutralize pain, fear of loss, aggression, and feelings of emptiness (Schimmenti & Caretti, 2010: 126).

Childhood maltreatment has also been found to be associated with severe deficits in emotional processing including difficulty recognizing and identifying emotions and regulating stressful affective states. As emotional abuse and neglect produce behavior-specific demands on the child, different facets of maltreatment have been found to be related to unique emotion regulation strategies. More specifically, it was found that behavioral avoidance (i.e. behavioral attempts to decrease environmental events that are emotionally punishing as an emotion regulation strategy) was related with emotional and physical neglect. It may be explained by the fact that the child eventually models behavioral withdrawal and avoidance to lessen emotional arousal in a neglectful home environment. This finding has also suggested that emotional neglect may lead to a generalized pattern of passive behavioral avoidance, which places the person at risk for different symptomology. As mentioned above, the painful memories of neglect and abuse may be removed from awareness through overinvolvement of online games (Schimmenti et al., 2012:192). On the other hand, emotional abuse was associated with rumination. When the child receives inconsistent and uncontrollable threats, it is probable to be hypervigilant to gain control over and to anticipate unpredictable outcomes (O'Mahen, Karl, Moberly, & Fedock, 2015: 292).

A healthy emotional environment provides a child with adequate skills for self-competence, a sense of trust and unconditional acceptance, in turn, he or she can feel safety and self-worth. Both neglect and abuse disrupt the child's early perceptions of relationships and regulation of inner responses necessary for cooperation. Moreover, speech, non-verbal communication and awareness of body signals that are gained through the mirror of relationships cannot be learned appropriately (Rees, 2008: 530). Inevitably, most of those have insufficient emotion regulation skills and coping strategies as well as lower levels of emotional understanding (Maguire et al., 2015: 646). Emotional abuse and neglect may be at the "core of emotional processing" and therefore a greater understanding of the emotional consequences of such maltreatment is needed.

1.2.1. The Effects of Emotional Maltreatment on How to Perceive and Experience Emotions

The early years of life are thought to be the most essential part of the emotional development so that the child can successfully respond to environmental demands. From infancy and early childhood to adulthood, caregivers directly influence a child's emotional reactions through calming, providing reassurance in unclear conditions, and assisting in overwhelming situations (Thompson & Goodman, 2010: 43). Thus, children are very sensitive to being affected by emotional neglect and abuse, especially in this period. An emotionally encouraging home environment contributes to the development of adaptive regulatory strategies. In contrast, primary caregivers do not provide the child with any information to identify and label his or her emotions and the emotions of others in emotionally neglectful environment. In addition, the child's affective responses are probably ignored by those parents. As a result, the child cannot be able to trust his/her internal experiences as valid interpretations (Jessar et al., 2017: 425). It means that these individuals may not have clear introspective insight into their emotions and differentiate their feelings such as anger vs. frustration. Furthermore, as a maltreated child receives inconsistent and harsh messages from primary caregivers, he or she is more likely to be unable to anticipate the consequences of his/her own behaviors reflecting deficits in emotional processes (Wilkowski & Robinson, 2008: 308).

How children process information from the environment may affect their perception of future social situations in a biased way (Young, Lennie, & Minnis, 2011: 889). As consistent with this premise, it has been suggested that children who are raised in an abusive environment are more likely to associate certain emotions like anger with threat of harm. They tend to show hypervigilance to these emotions so that they can be ready to notice more easily threatening situations and avoid from abuse (Masten et al., 2008: 151). Although their use of attention deployment is helpful in their home environment, their sensitivity to signs of anger and threat is dysfunctional in their social life. Evidence showed that those show more hostile behaviors toward their peers (Thompson & Goodman, 2010: 53). However, children who raise with neglecting parents are exposed to little emotion expression and exchange of affective

information. Within the poor emotional environment, those children have no chance to learn to understand their emotions. Not surprisingly, it has been found that the group of neglected children reported more difficulty in recognizing emotional expressions in a vignette and fewer distinctions between emotions compared to a control group and physically abused group (Pollak, Cicchetti, Hornug, & Reed, 2000: 679). Moreover, a prospective study (Young & Widom, 2014: 1377) demonstrated that those adults with a documented history of childhood abuse and/or neglect were less accurate in processing positive affective pictures. It may be interpreted as the result of their restricted interplay of positive emotions that prevent them from recognizing and distinguishing positive ones. Bolger and Patterson (2001: 913) found that neglected children reported higher levels of perceived external control and lower levels of perceived internal control. In other words, neglected children have difficulty in attributing their emotions.

It is noteworthy to highlight that maltreated child has not acquired the knowledge of how to give love due to the lack of parenting model. Thus, he or she is likely to become detached from emotions to protect own self from more emotional hurt. And then, the child tends to constrict his/her emotional world and becomes to use defenses even if he or she craves affection (Iwaniec, 2003: 54). Literature findings supporting this claim show that neglected children who are at age 7-9 have used high levels of dissociation and those of others who are at age 6-12 have used one or more of the following ego defenses: rejection, denial, projection, and introjections (Valentino, Cicchetti, Rogosch, & Toth, 2008: 213). Their self-regulating strategies help them in the short term but one's overall experience of negative emotion sustain or increase in the long term (Werner & Gross, 2010: 13). Recent findings showed that abused and/or neglected individuals may tend to develop alcohol or drug problems because they use them as a strategy to cope with their emotional states (Dutcher et al., 2017: 43).

Taken together, the experiences of emotional abuse and/or neglect can directly affect how we feel and think about our emotions as well as others' emotions, and how we experience them. In other words, mental representations to categorize various emotional experiences may be likely to be formed according to prototypical behaviors of caregivers. It is obvious that some individuals who suffered emotional abuse and

neglect do not experience all difficulties mentioned above, which means that those are not affected similarly with others and they remain resilient to the potentially harmful effects. It may be explained by two main factors: (1) the child's genetic endowment, temperament, and innate ability, (2) the existing protective factors in the child's environment such as the presence of a trusted person in the child's life (Glaser, 2011: 868). In addition, some children who experience maltreatment may adapt self-regulatory strategies that are useful in an unpredictable home environment, but not effective in other settings such as school or social interactions (Thompson & Goodman, 2010: 52). Indeed, many strategies can be adaptive in certain situations; however, some difficulties may occur when they are used poorly, rigidly, and context-insensitive ways that are divergent with a person's long-term goals. Accordingly, some strategies which are used to cope with emotions in childhood become dysfunctional in adulthood (Werner & Gross: 2010: 19). Thus, it may be useful to investigate various mediating factors that more fully reveal the association between emotional maltreatment and adult psychopathology.

1.3. LEAHY'S EMOTIONAL SCHEMA THEORY

Emotions serve as information tools for human beings about the environment and prepare them for appropriate responses (Young & Widom, 2014: 1369). The underlying mechanism of emotional system works as an alarm to properly evaluate opportunities and threats. Thus, human beings experience billions of affective and other sensory feedbacks. People attending to their current emotions as a source of information ask themselves "How do I feel about this?" (Schwarz, 2011: 296). Considerable recent attention has been directed toward understanding the differentiation of emotions' nature to facilitate or regulate an emotion. It is worth noting that what type of emotion one is experiencing may vary at any moment. Emotions can be primary (initial emotions) or secondary (emotional reactions about one's emotions). Mitmansgruber, Beck, Höfer, and Schüßler (2009: 448) defined secondary emotions as meta-emotions which imply that primary emotions become the *object* of secondary emotions. For instance, one may feel anger about being anxious. It can be accepted as an automatic response adjusting the experience and the

expression of that emotion as emotion regulation. In a similar way, the emotional schema theory posits that "an essential part of the process of emotion experience is the individual's interpretation and evaluation of emotions, and his or her strategies of emotion control. From this perspective, emotion is not only an experience, it is also an object of experience." (Leahy, 2016: 82).

According to Leahy's emotional schema model (Leahy, 2016: 82), people react differently towards their own emotions for the same events. For instance, two people may have a different evaluation for their emotions when they confront with the same heartbreaking event. One may think that other people would have these feelings, while the other person may be embarrassed about feeling so upset. This dissimilarity may stem from the formation of personal emotional schema which is a set of beliefs as well as strategies that one has about his or her own or other's emotion.

The emotional schema model which posits appraisals including cognitive biases about emotions (e.g., causes, legitimacy, duration, control, danger, and management of emotions) influence the way an individual conceptualizes emotions. The model suggests that emotions may evoke cognition, be evoked by cognition, and be the focus of cognition. For example, a person may have thoughts about his or her emotion like "Will it last for a long time?" or "Is my emotion meaningful?" Eventually, the negative personal theories of causation of emotion may lead to applying maladaptive coping strategies (e.g., avoiding, bingeing, ruminating). Therefore, the concept of emotional schema tells us not only emotion itself, but also appraisals and strategies resulted by personal theories about one's own emotion (Leahy, 2016: 83). Thus, Leahy (2016) defined his model as a meta-experiential model.

The emotional schema model stresses 14 dimensions of emotional schemas that represent how emotions are variously experienced and evaluated by individuals. These are validation, comprehensibility, guilt/shame, simplistic view, control, values, numbness, rationality, duration, consensus, rumination, acceptance, expression, and blame (Leahy, 2002: 180). Specifically, *validation* means that the individual believes there are some people who understand and accept his/her emotions. Validation is an important feature because it helps the person accept and give a meaning for his/her emotions. *Comprehensibility* means that the individual has some answers about the reasons of his/her emotions. This dimension is a significant element, especially for

depressive and/or anxious people who tend to say, “My emotions don't make sense to me.” The dimension *guilt/shame* represents the feelings of shame, guilt, and embarrassment about an emotion. Some people believe that they should not have those feelings that they have. *Simplistic view* means being not able to tolerate mixed emotions. The fact that contradictory emotions can exist at times is an indication of a higher level of ego functioning. *Control* means that some people believe that their negative emotions will run out of control and cause insanity; therefore, they do not allow themselves to have certain kinds of emotions. *Values* mean that intense emotions are connected to higher values. Although some people may believe that their emotions are a sign of deficit, in fact, emotions reflect things matter to them. *Numbness* means feeling emotionally disconnected from any situation. *Rationality* means giving a lot of importance to be reasonable rather than relying on emotions. *Duration* means that an individual believes that given emotion will last forever. *Consensus* means that “Other people also have emotions like mine.” *Rumination* means that individuals think about unpleasant emotions a lot or for quite a long time. *Acceptance* means allowing one’s own self to have all emotions and not trying to inhibit these emotions. *Expression* means being open to tell and understand the emotions as they are. Finally, *blame* means believing that other people are responsible to how oneself feel unpleasant emotions (Leahy, 2002: 180; Leahy, 2007: 42; Leahy, 2016: 82). The Leahy Emotional Schema Scale (LESS) which is a self-report questionnaire was developed to assess these 14 dimensions (Leahy, 2002: 180).

Childhood abuse and neglect are the representing examples for invalidation of emotional experiences which is an important emotional schema. In fact, abusive caregivers mostly punish emotional reactions of the child; therefore, the child is likely to believe that negative emotions are unacceptable. On the other hand, the child is likely to believe that emotions are unimportant while indifferent caregivers mostly ignore or minimize emotional reactions of the child. In a neglectful and/or abusive home environment, displays of negative affect would not be tolerated by caregivers. Consequently, the child may assume that all other people would not approve of or be indifferent to the child’s emotional experiences. A recent finding has confirmed this relationship between emotional invalidation and parental neglect although parental abuse was found to be related to emotional invalidation. Patients who reported more

parental neglect tended to have higher perceived emotional invalidation as adults (Westphal, Leahy, Pala, &, Wupperman, 2016: 189).

In recent years, research has shown the association between negative reactions or rejection of emotions and psychopathology. Previous studies revealed that emotional schemas have powerful predictive associations with the development of various psychological disorders. For example, research has shown the relation between certain dimensions of emotional schemas and depression or anxiety (Leahy, 2002: 177). It has been found that some emotional schemas lead to the increase or maintainance of depressive and anxious symptoms since those people have depressogenic or anxiety-provoking appraisals of their emotions. In addition, those schemas are likely to elicit maladaptive coping styles (e.g., avoidance or worry), resulting in pathological experiences. More specifically, depression was found to be related to higher levels of guilt, rumination and duration schemas; and lower levels of comprehensibility, controllability, and consensus schemas. Anxiety was found to be related to higher levels of guilt, rumination, and higher values schemas, and lower levels of comprehensibility, acceptance of emotions, controllability, and consensus schemas. Another study (Batmaz, Kaymak, Kocbiyik, & Turkcapar, 2014: 1551) has revealed that bipolar and unipolar depressed patients' scores were significantly higher than the healthy controls on the LESS dimensions of simplistic view of emotions, numbness, rationality, rumination, higher values, and control. Furthermore, unipolar depressed patients had higher scores on the LESS dimensions of guilt, duration, blame, validation, and acceptance of feelings than the bipolar depressed counterparts. Besides, a recent study conducted with alcohol dependent individuals has shown that they had higher scores on the guilt, rumination, blame, simplistic view of emotion and duration subschemas than the control group; however, they had lower scores on comprehensibility, consensus, uncontrollability and acceptance of feelings subschemas than those in the control group (Ekinci, Ekinci, Türkçapar, & Özbay, 2012: 286). However, there is no study to investigate the association between negative emotional schemas and behavioral addictions in the literature.

Notably, evidence demonstrated that unwillingness to have negative emotions lead to the maintenance of psychopathology (Hayes et al., 2006: 1). Since emotional schemas represent emotionally private events resulting in subsequent behaviors and

action strategies in response to emotion, more adaptive emotional schemas are linked to reactions to emotions that contribute to rewarding movement towards valued aims, in contact with the present moment, while maintaining emotional experience without needless defense. In regard, it has been found that emotional schema dimensions were related to psychological flexibility (Leahy, Tirch, & Melwani, 2012: 376). The findings from this study revealed that people who expect that their emotions will be invalidated, who blame themselves for having unpleasant emotions, who do not comprehend emotional experience and movement towards valued aims, and who experience their emotions as confusing and difficult to understand, tended to have a limited, inflexible behavioral repertoire in the presence of distressing emotions. Similarly, the findings of another study conducted with 107 cognitive-behavioral outpatient adult participants showed that those who have higher levels of dispositional mindfulness also had higher levels of psychological flexibility and were more likely to report more adaptive dimensions of emotional schemas. Inversely, participants who were less psychologically flexible or had lower levels of dispositional mindfulness were more likely to use maladaptive and rigid responses to emotional experience (Silberstein, Tirch, Leahy, & McGinn, 2012: 406). Besides, evidence demonstrated that negative emotional schemas predicted depressive symptoms, both directly and through the experiential avoidance (Rezaei & Ghazanfari, 2016: 407). It means that people with different appraisals of their emotional experience (i.e. emotional schemas) are likely to deal with their emotions by using experiential avoidance, and experiential avoidance leads to depression.

Since the emotional schemas have "meta-experiential" characteristic (Leahy, 2016: 82), it can be expected that those schemas play a regulatory role on managing adverse emotions in stressful situations. The studies mentioned above focus mainly on the relation between emotional schemas and experiential avoidance. However, the present study has argued that the concrete fragmentation (e.g., cognitive versus behavioral) of avoidance is needed to find out more specific factors leading to development of gaming and exercise addictions which are complex addictive behaviors. Therefore, avoidance is closely examined as a multidimensional construct in the next section.

1.4. AVOIDANCE AS A MULTIDIMENSIONAL CONSTRUCT

The term ‘avoidance’ is a broad concept which can be generally defined as refraining from doing something or escaping from someone, something or some situation (Ottenbreit, Dubson, & Quigley, 2014a: 82). Due to the heterogeneity across areas of research, the use of ‘avoidance’ construct differs in various studies. For instance, D’Zurilla and Nezu (2010: 201) described avoidance as a dysfunctional problem-solving pattern indicated by procrastination, passivity or inaction, and dependency within the social problem-solving framework. On the other hand, Lazarus and Folkman (1984: 141) defined avoidance as a coping strategy which refers to escaping from situations by using cognitive distancing or withdrawal. Moreover, Gratz and Roemer (2004: 43) suggested that emotion regulation is considered equal with emotional avoidance in Catanzaro and Mearns’ Generalized Expectancy for Negative Mood Regulation Scale (Catanzaro & Mearns, 1990). Another term ‘experiential avoidance’, which can be viewed as an emotion regulation strategy, was described by Hayes and his colleagues (1996) as “the phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioral predispositions) and takes steps to alter the form or frequency of these events and the contexts that occasion them.” Besides, Cloninger (1987: 573) introduced the term ‘harm avoidance’ (i.e. the inhibition of behavior in answer to signals of punishment and non-reward) referring a personality trait in the psychobiological model of personality. In Young’s Schema Model (Young, Klosko, & Weishaar, 2003), avoidance is referred as *schema avoidance* which includes cognitive, affective and behavioral strategies to avoid triggering the schema or the experience of emotion related with the schema. In regard, people may use behavioral avoidance (e.g. social isolation or withdrawal from social or career activities) that represents avoidance of triggering situations for the activation of schemas in everyday life. Secondly, people may use cognitive avoidance (e.g. distracting) includes keeping thoughts or images that trigger the schema away from one’s mind. Thirdly, people may use emotional avoidance that represents numbing their emotions (Ottenbreit & Dobson 2008: 452). As can easily be seen from these conceptualizations, avoidance is considered as a dimension among various coping

strategies or emotion regulation strategies or personality traits. In fact, avoidance has been operationalized as a response to stressful life events and/or life problems in particular measurements; therefore, these assessment tools are not enough to evaluate avoidance in everyday life situations with the absence of stressful events or problems (Ottenbreit et al., 2014a: 83). Hence, Ottenbreit and Dubson suggest (2004) that existing measurements are not able to cover genuine construct and dimensions of avoidance (as cited in Çakır, 2016: 26). They posited that the evaluation of different dimensions together may be important to form the concept of avoidance. Consequently, they proposed a multidimensional and comprehensive avoidance construct which is measured by Cognitive Behavioral Avoidance Scale (CBAS) (Ottenbreit & Dubson, 2004: 304). The results of the construction study of the CBAS showed that trait avoidance has four subdimensions: (1) behavioral social avoidance, (2) behavioral nonsocial avoidance, (3) cognitive social avoidance, and (4) cognitive nonsocial avoidance (Ottenbreit & Dubson, 2004: 301). In that model, it was proposed that avoidance indicated a trait measure rather than a situational coping based on the construct validity of the scale (Ottenbreit & Dubson, 2004: 304).

According to Ottenbreit and Dubson's avoidance model, avoidance includes not only behaviors of someone who consistently escape from situations or things but also cognitive attempts to not think about them (Ottenbreit & Dubson, 2004: 307). It consists of both modes of avoidance (i.e. cognitive vs. behavioral modes) and domains of avoidance (i.e. social vs. non-social domains) (Ottenbreit & Dobson 2008: 459). Similar to Young's Schema Model, Ottenbreit and Dubson's avoidance model defined behavioral avoidance as "escape from a problem and/or engagement in alternative/distracting activities, or avoidance of dealing directly with a problem". They defined cognitive avoidance as "avoidance of a problem through denial, minimization or cognitive distraction, or passive acceptance of and failure to address a problem" (Ottenbreit & Dubson, 2004: 297). However, researchers highlighted the differences between their model and Young's Schema Model. They proposed that cognitive avoidance is a part of intentional process whereas schema avoidance is a part of unintentional process (Ottenbreit & Dobson 2008: 459). Moreover, the CBAS does not give information about the avoidance of emotions or bodily sensations (Ottenbreit & Dobson 2008: 463). Besides, Ottenbreit and Dubson's avoidance model suggest that

distraction differs from cognitive avoidance. Accordingly, distraction includes paying attention to more neutral or pleasant activities to keep away of one's attention from negative emotions, whereas cognitive avoidance includes attempts to denial and minimization thoughts (Ottenbreit & Dobson 2008: 459).

Ottenbreit and Dubson's avoidance model also considers the importance of social versus nonsocial dimension to characterize avoidance since the social or nonsocial context of the situation gives essential information about the someone's way of dealing with situations and problems. In that respect, social avoidance involves the avoidance from a thing or situation which includes other individuals such as social contact and activities. On the other hand, nonsocial avoidance involves the avoidance from a thing or situation which does not include other individuals such as achievement-related and solitary activities (Ottenbreit & Dubson, 2004: 297).

The concept of avoidance has been widely investigated in the framework of anxiety disorders. More specifically, cognitive behavioral theories argue that when individuals with anxiety disorders avoid from feared situations or things, it is not possible to be disconfirmed such maladaptive beliefs which cause the maintenance of anxiety disorders (Ottenbreit et al., 2014a: 82). Wong and Moulds (2011: 171) found a significant and positive association between social phobia and cognitive and behavioral avoidance in the social domain. Moreover, it was found that all sub-dimensions of avoidance (i.e. cognitive social, cognitive nonsocial, behavioral social, behavioral nonsocial) were moderately associated with depression. Accordingly, it has been argued that avoidance can be a risk factor for depression in an undergraduate non-clinical sample (Ottenbreit & Dubson, 2004: 311) and in a clinical sample of depressed individuals (Ottenbreit, Dubson, & Quigley, 2014b: 591). Furthermore, the findings demonstrated that avoidance had significant positive associations with rumination and negative problem orientation, and a significant negative relationship with positive problem orientation within the overall sample of depressed women (Ottenbreit et al., 2014a: 82).

In terms of behavioral addictions, the relationship between gaming addiction and avoidance has been consistently investigated within the scope of coping style or emotion regulation as a response to stressful or negative life events, rather than a trait-like notion. For instance, it has been noted that maladaptive coping styles are positively

related to gaming addiction (Griffiths, 2010: 121). It was found that people with gaming addiction used more avoidance-oriented coping and less approach coping (Loton et al., 2016: 575). In regard, individuals with gaming addiction appear to use video games to escape from problems (Billieux et al., 2015: 248; Liu & Chang, 2016: 912). Video gaming may provide players a chance of escape from their real-life difficulties (Kuss et al., 2017: 104); therefore, they may be used as a coping strategy for intra- and interpersonal problems in players' life (Männikkö et al., 2015: 282). Accordingly, it can be said that those individuals play online games as a strategy for emotion regulation aiming to lessen their negative feelings. Consequently, addictive players are not able to develop healthy ways of coping with problematic life events, which result in impaired psychosocial development although this passive way of coping strategy may be useful in the short-term. Hence, they tend to maintain same coping mechanisms when new problems arise in their life (Kuss & Griffiths, 2012: 4). Furthermore, it was found that males were more likely to need video games to overcome unpleasant emotions and to feel emotional control than female counterparts (Hussain et al., 2015: 228). Besides, it was proven that experiential avoidance predicted gaming addiction (Garcia-Oliva, & Piqueras, 2016: 299) as well as binge eating (Kinsgton, Clarke & Remington, 2010: 145), reflecting its use as a kind of emotional self-regulation strategy. Similarly, existing research showed avoidance from negative mood states may be one promising factor to explain the maintenance of exercise dependence (Costa et al., 2013: 221). Correspondingly, it has been widely accepted that exercise addiction has been associated with the regulation of negative emotions (Bratland-Sanda et al., 2010: 88). For example, it has been found that anxiety and depression reduction were one of the primary running motivation for habitual runners (Johnsguard, 1985: 140). Another study (Anshel, 1991: 145) showed that stress reduction was a prominent motive for individuals with exercise addiction.

Although all these studies are essential to explain how gaming addiction or exercise addiction is maintained by avoidance from immediate negative states, they lack explaining the place of the conceptual scheme 'avoidance' as a risk factor for the development of those addictions. Hence, one of the present study's aims is to understand the role of avoidance construct in a broad context for the development of gaming addiction and exercise addiction.

In the light of all information mentioned above, childhood experiences would probably affect the formation of one's emotional schemas, in turn, those schemas would affect engaging in avoidance, which increase the likelihood of some addictive behaviors. To our best knowledge, there is no study investigating the mediator roles of emotional schemas and avoidance between childhood maltreatment and addictive behaviors (i.e. gaming addiction and exercise addiction). Therefore, the model of the antecedents of those addictions will be suggested in the current study. What the similarities or differences between gaming addiction and exercise addiction are will also be explored by comparing and interpreting those two separate models.

1.5. AIM AND HYPOTHESES OF THE CURRENT STUDY

Although our view of addictions as substance-related behaviors has considerably changed in the last decades, behavioral addictions are still considered to be a controversial group of mental health problems. As intimated in the above paragraphs, the factors which might influence the effects of emotional maltreatment (emotional abuse and neglect) on these addictions are largely unknown. Hence, more research is needed to investigate the effects that emotional maltreatment might have on the development of behavioral addictions such as gaming addiction and exercise addiction. The present study aims to extend the previous research by being the first to examine how emotional maltreatment might relate to negative emotional schemas and avoidance across different addiction groups (i.e. gaming addiction vs. exercise addiction). Based on the information mentioned in previous sections, this study proposes that the relationship among study variables will be similar for both gaming addiction and exercise addiction.

In an emotionally abusive home environment, the child is exposed to some verbal and nonverbal assaults such as inducing psychological pain, anxiety or fear. Mostly, those caregivers might have a tendency to show hostility towards and rejection of the child. In addition, they tend to fail to be aware of the child's individuality and psychological boundary. As a result, the child is likely to grow to believe in and act out the negative attributions placed upon him or her. When the child's emotions are criticized and unaccepted by parents, it is expected that the child develops

dysfunctional thoughts including the incorrectness of his or her emotions. Based on these, it might be hypothesized that emotionally abused individuals are likely to feel anger or shame about their emotions and to have negative appraisals about their emotions. Consequently, these negative feelings and appraisals about one's own emotions may make experiencing them more difficult.

In a neglectful home environment, the child lacks information about any affective stimulus to identify and label his or her emotions and the emotions of others; thus, the child is likely to distrust his/her internal experiences as valid interpretations. When these individuals' emotions are consistently ignored by primary caregivers, it is expected that neglected people develop dysfunctional emotional schemas such as low control or low acceptance for their emotions to prevent the pain of unmet emotional needs. Although dysfunctional emotional schemas of emotions serve as a means of emotion regulation strategy initially, it is inevitable that these strategies harm both the appropriate process and expression of emotions in later years.

Therefore, individuals who experience emotional maltreatment (i.e., emotional abuse and/or neglect) are likely to form negative emotional schemas, and those negative emotional schemas may contribute to the development of cognitive and/or behavioral avoidance to prevent themselves to process their true emotions. Consequently, it is expected that those individuals are more likely to become addicted to gaming or exercise behaviors, in order to compensate for these unsatisfied emotional needs. Building on these ideas, the present study proposed a model representing the indirect effect of emotional maltreatment on gaming addiction or exercise addiction through negative emotional schemas and avoidance. Two structural equation models (Proposed Model 1.a and Proposed Model 1.b) will be analyzed to test this model for gaming addiction and exercise addiction, separately.

Consequently, a number of hypotheses are proposed. First, direct relationships between the study variables are presented. And then, indirect relationships among them are stated. Since "negative emotional schemas" is a latent variable, specific emotional schemas are not mentioned in the hypotheses. The following hypotheses are:

Hypothesis 1 assumes that emotional maltreatment variables (emotional abuse and emotional neglect) will significantly and directly be associated with negative

emotional schemas. Under the first hypothesis, two sub-hypotheses are formulated. *Hypothesis 1.a* assumes that there will be a significant positive association between emotional abuse and negative emotional schemas. *Hypothesis 1.b* assumes that there will be a significant positive association between emotional neglect and negative emotional schemas (See Figure 1 and Figure 2).

Hypothesis 2 assumes that negative emotional schemas will significantly and directly be associated with avoidance variables. Under the second hypothesis, four sub-hypotheses are formulated. *Hypothesis 2.a* assumes that there will be a significant positive association between negative emotional schemas and behavioral social avoidance. *Hypothesis 2.b* assumes that there will be a significant positive association between negative emotional schemas and behavioral nonsocial avoidance. *Hypothesis 2.c* assumes that there will be a significant positive association between negative emotional schemas and cognitive social avoidance. *Hypothesis 2.d* assumes that there will be a significant positive association between negative emotional schemas and cognitive nonsocial avoidance (See Figure 1 and Figure 2).

Hypothesis 3 assumes that avoidance variables will significantly and directly be associated with gaming addiction or exercise addiction. Under the third hypothesis, four sub-hypotheses are formulated. *Hypothesis 3.a* assumes that there will be a significant positive association between behavioral social avoidance and gaming addiction/exercise addiction. *Hypothesis 3.b* assumes that there will be a significant positive association between behavioral nonsocial avoidance and gaming addiction/exercise addiction. *Hypothesis 3.c* assumes that there will be a significant positive association between cognitive social avoidance and gaming addiction/exercise addiction. *Hypothesis 3.d* assumes that there will be a significant positive association between cognitive nonsocial avoidance and gaming addiction/exercise addiction (See Figure 1 and Figure 2).

Hypothesis 4 assumes that emotional maltreatment variables (emotional abuse and emotional neglect) will significantly and indirectly be associated with avoidance variables through negative emotional schemas. Under the fourth hypothesis, eight sub-hypotheses are formulated. *Hypothesis 4.a* assumes that emotional abuse will significantly and indirectly be associated with behavioral social avoidance through negative emotional schemas. *Hypothesis 4.b* assumes that emotional abuse will

significantly and indirectly be associated with behavioral nonsocial avoidance through negative emotional schemas. *Hypothesis 4.c* assumes that emotional abuse will significantly and indirectly be associated with cognitive social avoidance through negative emotional schemas. *Hypothesis 4.d* assumes that emotional abuse will significantly and indirectly be associated with cognitive nonsocial avoidance through negative emotional schemas. *Hypothesis 4.e* assumes that emotional neglect will significantly and indirectly be associated with behavioral social avoidance through negative emotional schemas. *Hypothesis 4.f* assumes that emotional neglect will significantly and indirectly be associated with behavioral nonsocial avoidance through negative emotional schemas. *Hypothesis 4.g* assumes that emotional neglect will significantly and indirectly be associated with cognitive social avoidance through negative emotional schemas. Hypothesis 4.h assumes that emotional neglect will significantly and indirectly be associated with cognitive nonsocial avoidance through negative emotional schemas (See Figure 1 and Figure 2).

Hypothesis 5 assumes that negative emotional schemas will significantly and indirectly be associated with gaming addiction or exercise addiction through avoidance variables. Under the fifth hypothesis, four sub-hypotheses are formulated. *Hypothesis 5.a* assumes that negative emotional schemas will significantly and indirectly be associated with gaming addiction/ exercise addiction through behavioral social avoidance. *Hypothesis 5.b* assumes that negative emotional schemas will significantly and indirectly be associated with gaming addiction/exercise addiction through behavioral nonsocial avoidance. *Hypothesis 5.c* assumes that negative emotional schemas will significantly and indirectly be associated with gaming addiction/exercise addiction through cognitive social avoidance. *Hypothesis 5.d* assumes that negative emotional schemas will significantly and indirectly be associated with gaming addiction/exercise addiction through cognitive nonsocial avoidance (See Figure 1 and Figure 2).

Hypothesis 6 assumes that emotional maltreatment variables (emotional abuse and emotional neglect) will significantly and indirectly be associated with gaming addiction or exercise addiction through negative emotional schemas and avoidance variables. Under the sixth hypothesis, eight sub-hypotheses are formulated. *Hypothesis 6.a* assumes that emotional abuse will significantly and indirectly be associated with

gaming addiction/exercise addiction through negative emotional schemas and behavioral social avoidance. *Hypothesis 6.b* assumes that emotional abuse will significantly and indirectly be associated with gaming addiction/exercise addiction through negative emotional schemas and behavioral nonsocial avoidance. *Hypothesis 6.c* assumes that emotional abuse will significantly and indirectly be associated with gaming addiction/exercise addiction through negative emotional schemas and cognitive social avoidance. *Hypothesis 6.d* assumes that emotional abuse will significantly and indirectly be associated with gaming addiction/exercise addiction through negative emotional schemas and cognitive nonsocial avoidance. *Hypothesis 6.e* assumes that emotional neglect will significantly and indirectly be associated with gaming addiction/exercise addiction through negative emotional schemas and behavioral social avoidance. *Hypothesis 6.f* assumes that emotional neglect will significantly and indirectly be associated with gaming addiction/exercise addiction through negative emotional schemas and behavioral nonsocial avoidance. *Hypothesis 6.g* assumes that emotional neglect will significantly and indirectly be associated with gaming addiction/exercise addiction through negative emotional schemas and cognitive social avoidance. *Hypothesis 6.h* assumes that emotional neglect will significantly and indirectly be associated with gaming addiction/exercise addiction through negative emotional schemas and cognitive nonsocial avoidance (See Figure 1 and Figure 2).

Hypothesis 7 assumes that there will be no significant difference in the relationships among emotional maltreatment (i.e. emotional abuse and emotional neglect), negative beliefs about emotions, and avoidance (i.e. behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance) across two groups.

Figure 1: Model of the Predictors of Gaming Addiction (Proposed Model 1.a)

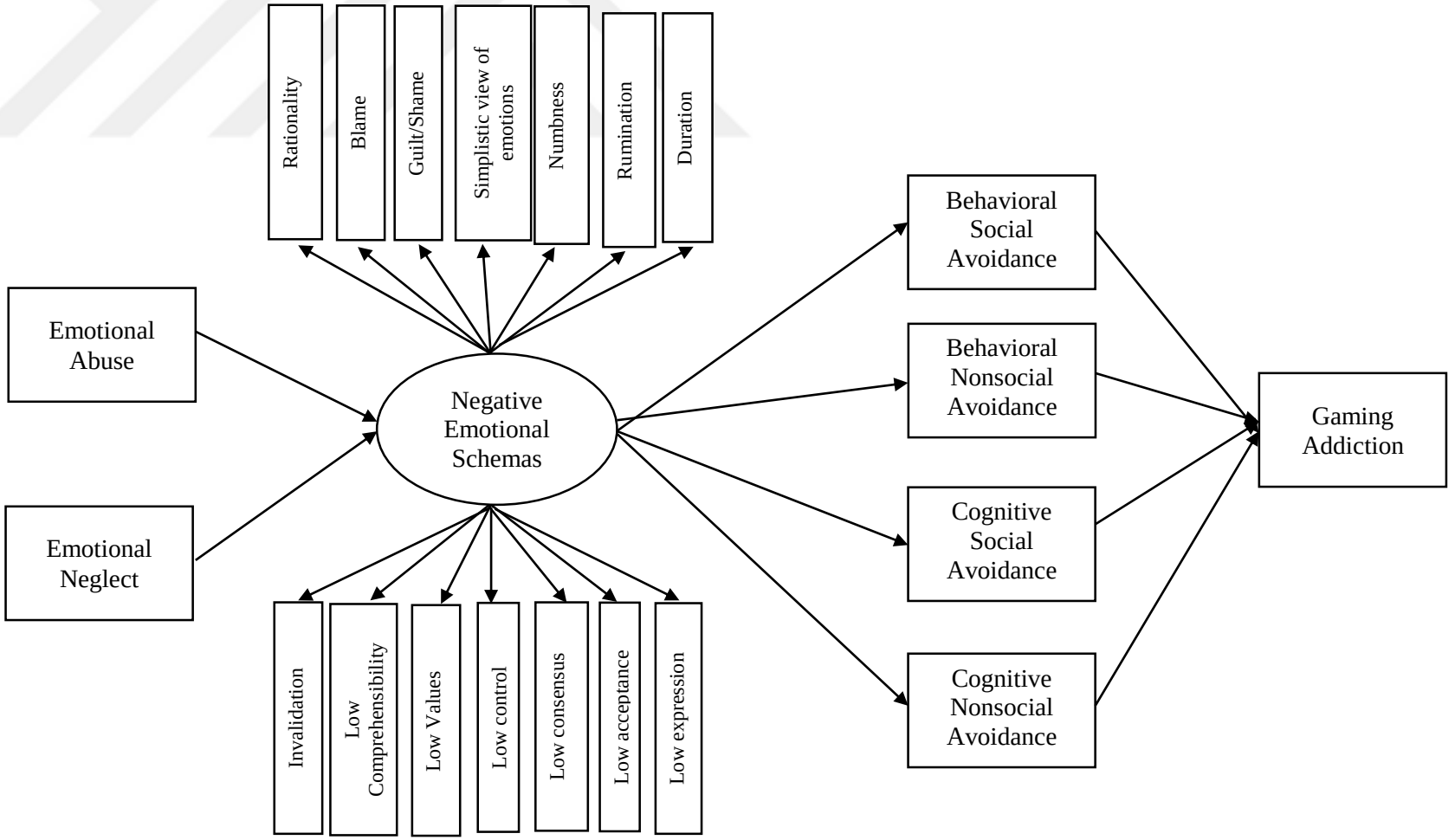
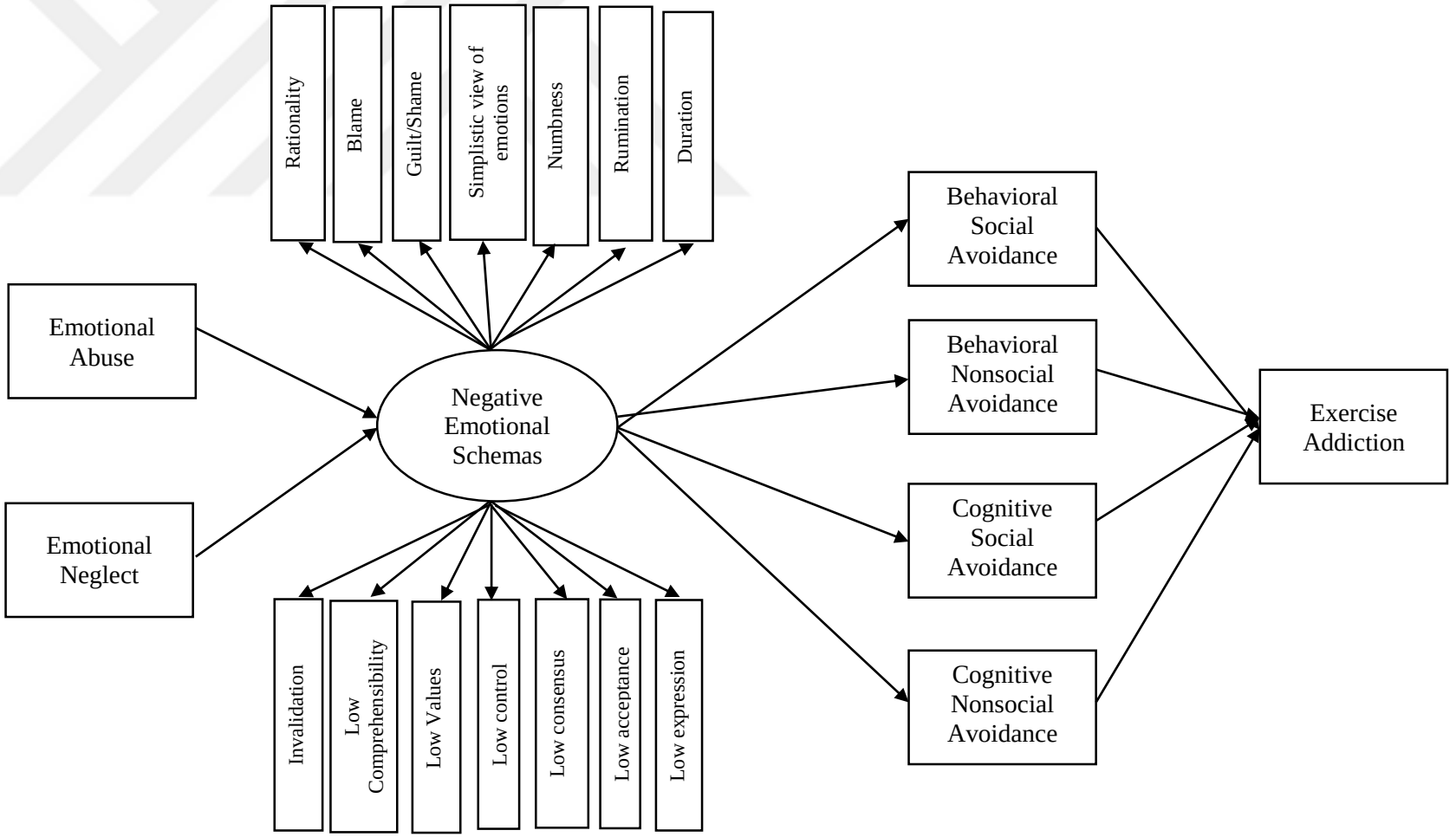


Figure 2: Model of the Predictors of Exercise Addiction (Proposed Model 1.b)



CHAPTER TWO
METHOD

2.1. PARTICIPANTS

The overall sample consisted of 731 individuals (for the gaming group, *N* = 431; for the exercise group, *N* = 300) in the present study. The exclusion criterion was determined as being under the age of eighteen years. For both samples, all participants filled the set of online questionnaire on the internet.

2.1.1. Characteristics of Participants in the Gaming Group

The mean age of players was 24.07 (*SD* = 5.64) and it was ranged between 18 and 58. In this group, 47 of them were women (10.9%) and 384 of them were men (89.1%). In terms of education level of players, 1.4% (*n* = 6) were graduates of middle school, 2.6% (*n* = 11) were high school students, 10.2% (*n* = 44) were graduates of high school, 52.9% (*n* = 228) were university students, 22% (*n* = 95) were graduates of university, 6% (*n* = 26) were postgraduate students, and 4.9% (*n* = 21) were postgraduates. Regarding employment status of players, more than half of the participants (*n* = 223) were students, 28.3% (*n* = 122) had full-time job, 8.6% (*n* = 37) had part-time job, 7.9% (*n* = 34) were seeking employment, and 14.2% (*n* = 61) were nonworking ones.

Regarding childhood information, 62.2% (*n* = 268) of players reported that they went to kindergarten or preschool whereas 37.8% (*n* = 163) reported that they did not. The mean age of 260 participants who were asked to report their age of starting kindergarten or preschool was 5.04 (*sd* = 1.24). Moreover, they asked to answer who was the primary caregiver until 3 years of age. The answers of players as follows: 75.4% (*n* = 325) were mothers, .7% (*n* = 7) were fathers, 16% (*n* = 69) were grandparents, 4.4% (*n* = 19) were babysitters, and 3.5% (*n* = 15) were others (e.g., father's or mother's sister).

For the gaming group, 12.5% of participants (*n* = 54) had taken psychological or psychiatric diagnosis at least once in a lifetime, while 87.5% (*n* = 377) had never

taken any psychological or psychiatric diagnosis. Fifty-five participants reported their single or multiple diagnosis including attention-deficit and hyperactivity disorder (10 cases), depression (10 cases), anxiety disorder (11 cases), obsessive-compulsive disorder (5 cases), social anxiety disorder (4 cases), panic disorder (4 cases), bipolar disorder (3 cases), borderline personality disorder (2 cases), dyslexia (2 cases), anger-related problems (2 cases), and insomnia (1 case). In addition, 94.4% (n = 407) of players reported nonuse of any psychiatric medicine, 5.6% (n = 24) reported the use of psychiatric medicine. In terms of the general demographic characteristics of the participants, the detailed information can be seen in Table 1.

In the gaming group, 27.1% (n = 117) reported that they played online games, 3.5% (n = 15) reported that they played offline games, and 69.4% (n = 299) reported that they played both. Regarding amount of playing hour per day in the last 6 months, 7.9% (n = 34) played less than an hour, 29.7% (n = 128) played more than an hour but less than 3 hours, 34.1% (n = 147) played more than 3 hours but less than 6 hours, 18.6% (n = 80) played more than 6 hours but less than 9 hours, and 9.7% (n = 42) played more than 9 hours. In terms of amount of playing day per week, 7.2% (n = 31) played 1-2 days, 10% (n = 43) played 2-3 days, 28.1% (n = 121) played 4-5 days, and 54.8% (n = 236) played every day. According to players' reports for hardware choices, 90.3% (n = 389) preferred to use their personal computers for gaming, 20.2% (n = 87) preferred PlayStation/Xbox, 3.5% (n = 15) preferred console, and 24.4% (n = 105) preferred tablet or mobile phone. More detailed gaming-related characteristics of the players can be seen in Table 2.

Table 1: General Demographic Characteristics of the Players

Variables	Frequency	Percent (%)
Gender		
Men	384	89.1
Women	47	10.9
Education level		
Middle school graduate	6	1.4
High school student	11	2.6
High school graduate	44	10.2
University student	228	52.9
University graduate	95	22
Postgraduate student	26	6.0
Postgraduate	21	4.9
Employment status		
Full-time working	122	28.3
Part-time working	37	8.6
Student	223	51.7
Seeking employment	34	7.9
Nonworking	61	14.2
Monthly income		
Below wage floor	170	39.4
Wage floor	54	12.5
2000-3000 TL	74	17.2
3001-4000 TL	50	11.6
4001-5000 TL	22	5.1
Above 5000 TL	61	14.2
Relationship Status		
Single	248	57.5
Having a relationship	140	32.5
Married	41	9.5
Divorced	2	.5
Living		
Alone	62	14.4
With friends	70	16.2
With partner	46	10.7
With relatives	5	1.2
With family	248	57.5
Father’s education		
Primary school	51	11.8
Middle school	57	13.2
High school	123	28.5
University	170	39.4
Postgraduate	30	7.0

Table 1: General Demographic Characteristics of the Players (Continued)

Variables	Frequency	Percent (%)
Mother's education		
Primary school	114	26.5
Middle school	58	13.5
High school	122	28.3
University	121	28.1
Postgraduate	16	3.7
Parent's relationship status		
Married and living together	323	74.9
Married but not living together	15	3.5
Divorced	52	12.1
Divorced but living together	2	.5
Mother died	2	.5
Father died	35	8.1
Both died	2	.5
Primary caregiver until 3 years of age		
Mother	325	75.4
Father	3	.7
Grandparents	69	16.0
Babysitter	19	4.4
Other	15	3.5
History of kindergarten or nursery school		
Yes	268	62.2
No	163	37.8
History of psychiatric/psychological diagnosis		
Yes	54	12.5
No	377	87.5
Using psychiatric medicine		
Yes	24	5.6
No	407	94.4
Age	M = 24.07	SD = 5.64

Table 2: Gaming-related Characteristics of the Players

Variables	Frequency	Percent (%)
Age to start playing games		
5 ages and below	94	21.8
6-10 ages	212	49.2
11-15 ages	103	23.9
16-20 ages	12	2.8
21-25 ages	5	1.2
25 ages and above	5	1.2
Interested in		
Online games	117	27.1
Offline games	15	3.5
Both	299	69.4
Types of player		
Professional e-sport player (monthly salary)	4	.9
Amateur e-sport player	37	8.6
Who plays for pleasure and follows e-sports	292	67.7
Who sometimes plays	67	15.5
Other	31	7.2
Amount of playing hour per day (in last 6 months)		
Less than an hour	34	7.2
More than an hour, less than 3 hours	128	29.7
More than 3 hours, less than 6 hours	147	34.1
More than 6 hours, less than 9 hours	80	18.6
More than 9 hours	42	9.7
Amount of playing day per week		
1-2 days	31	7.2
2-3 days	43	10.0
4-5 days	121	28.1
Every day	236	54.8
Playing choices		
Playing individual player games	69	16.0
Playing competitive multiplayer games with others in the same room	51	11.8
Playing collaborative multiplayer games with others in the same room	97	22.5
Online playing competitive multiplayer games	117	27.1
Online playing collaborative multiplayer games	97	22.5
Hardware choices to play		
Personal computer	389	90.3
PlayStation/Xbox	87	20.2
Console	15	3.5
Tablet or mobile phone	105	24.4

Table 2: Gaming-related Characteristics of the Players (Continued)

Variables	Frequency	Percent (%)
Kinds of game		
Action-Adventure (e.g., Resident Evil, Grand Theft Auto)	206	47.8
First Person Shooter (e.g., Halo, Call of Duty)	232	53.8
Multiplayer Online Battle Arena (e.g., League of Legends, Dota 2)	280	65
Massively Multiplayer Online Role-Playing Games (e.g., World of Warcraft, Final Fantasy)	162	37.6
Construction and City Simulations (e.g., SimCity, Megapolis)	71	16.5
Life Simulations (e.g., The Sims, Nintendo's)	57	13.2
Sport Games (e.g., Madden Series, NBA Live)	91	21.1
Strategy (e.g., Civilization, StarCraft)	172	39.9
Race (e.g., Need for Speed Most Wanted, Forza Horizon)	84	19.5
Fight (e.g., Tekken, Street Fighter)	63	14.6
Puzzle (e.g., Tetris, Bejeweled)	47	10.9
Other	81	18.8
Motivations to play		
Success/Development	216	50.1
Socializing	137	31.8
Enjoyment	379	87.9
Team sprit	189	43.9
Alienation from negative feelings	237	55.0
Exploring/Finding new things	190	44.1
Characters, structure or story of given game	240	55.7
Not thinking about stressful life events or problems	254	58.9
Holding support	27	6.3
Other	30	7

2.1.2. Characteristics of Participants in the Exercising Group

The mean age of exercisers was 32.93 (*SD* = 9.24) and it was ranged between 18 and 76. In this group, 123 of them were women (41%) and 177 of them were men (59%). In terms of education level of exercisers, 1.3% (*n* = 4) were graduates of middle school, 7% (*n* = 21) were graduates of high school, 45% (*n* = 15) were university students, 49.3% (*n* = 148) were graduates of university, 8% (*n* = 24) were postgraduate students, and 19.3% (*n* = 58) were postgraduates. Regarding employment status of exercisers, 67.7 (*n* = 203) of the participants (*n* = 203) had full-time job, 8.3% (*n* = 25) had part-time job, 11.3% (*n* = 34) were students, 4% (*n* = 12) were seeking employment, and 8.7% (*n* = 26) were nonworking ones. The participants were asked to report their weight and heights so their body mass index (BMI) scores could be calculated. The mean BMI of exercisers was 23.61 (*SD* = 3.26) and it was ranged between 16.49 and 36.99. In the present study, 4.3% (*n* = 13) were with BMI under 18.5 which is accepted as a threshold for being significantly underweight (Fairburn, Cooper, Shafran, & Wilson, 2008: 600). Besides, 27.3% (*n* = 82) of the participants had at least two or more scores (i.e. threshold for being at risk to have an eating disorder) on the SCOFF questionnaire which was used to assess eating habits and attitudes toward their weight and body shape.

Regarding childhood information, 51% (*n* = 153) of exercisers reported that they went to kindergarten or preschool whereas 49% (*n* = 147) reported that they did not. The mean age of 140 participants who were asked to report their age of starting kindergarten or preschool was 4,73 (*sd* = 1.30). When they asked to answer who was the primary caregiver until 3 years of age, they answered as follows: 78.7% (*n* = 236) were mothers, .7% (*n* = 2) were fathers, 13.7% (*n* = 41) were grandparents, 4% (*n* = 12) were babysitters, and 3% (*n* = 9) were others (e.g., father's or mother's sister).

For the exercising group, 9.3% of participants (*n* = 28) had taken psychological or psychiatric diagnoses at least once in a lifetime, while 90.7% (*n* = 272) had never taken any psychological or psychiatric diagnosis. 28 participants reported their single or multiple diagnosis including depression (10 cases), anxiety disorder (6 cases), bipolar disorder (5 cases), panic disorder (4 cases), attention-deficit and hyperactivity disorder (3 cases), obsessive-compulsive disorder (3 cases), and eating disorder (1

case). In addition, 95% (*n* = 285) of exercisers reported nonuse of any psychiatric medicine, 5% (*n* = 15) reported the use of psychiatric medicine. In terms of general demographic characteristics of the participants, the detailed information can be seen in Table 3.

In the exercising group, 15.7% (*n* = 47) reported that they exercised in nature, 27.3% (*n* = 82) reported that they exercised in gym clubs, and 57% (*n* = 171) reported that they exercised in both. Regarding amount of exercising hour per day in the last 6 months, 27.3% (*n* = 82) exercised less than an hour, 64% (*n* = 192) exercised more than an hour but less than 3 hours, 6% (*n* = 18) exercised more than 3 hours but less than 6 hours, 1% (*n* = 3) exercised more than 6 hours but less than 9 hours, and 1.7% (*n* = 5) exercised more than 9 hours. In terms of amount of exercise day per week, 6% (*n* = 18) exercised 1-2 days, 27.7% (*n* = 83) exercised 2-3 days, 53% (*n* = 159) exercised 4-5 days, and 13.3% (*n* = 40) exercised every day. More detailed exercising-related characteristics of the exercisers can be seen in Table 4.

Table 3: General Demographic Characteristics of the Exercisers

Variables	Frequency	Percent (%)
Gender		
Men	177	59
Women	123	41
Education level		
Middle school graduate	4	1.3
High school graduate	21	7
University student	45	15
University graduate	148	49.3
Postgraduate student	24	8
Postgraduate	58	19.3
Employment status		
Full-time working	203	67.7
Part-time working	25	8.3
Student	34	11.3
Seeking employment	12	4
Nonworking	26	8.7
Monthly income		
Below wage floor	37	12.3
Wage floor	20	6.7
2000-3000 TL	49	16.3
3001-4000 TL	44	14.7
4001-5000 TL	41	13.7
Above 5000 TL	109	36.3
Relationship status		
Single	100	33.3
Having a relationship	65	21.7
Married	125	41.7
Divorced	10	3.3
Living		
Alone	53	17.7
With friends	20	6.7
With partner	99	33
With relatives	2	.7
With family	126	42
Mother’s education		
Primary school	104	34.7
Middle school	38	12.7
High school	72	24
University	77	25.7
Postgraduate	9	3

Table 3: General Demographic Characteristics of the Exercisers (Continued)

Variables	Frequency	Percent (%)
Father's education		
Primary school	63	21
Middle school	32	10.7
High school	89	29.7
University	101	33.7
Postgraduate	15	5
Parent's relationship status		
Married and living together	198	66
Married but not living together	3	1
Divorced	39	13
Divorced but living together	2	.7
Mother died	9	3
Father died	38	12.7
Both died	11	3.7
Primary caregiver until 3 years of age		
Mother	236	78.7
Father	2	.7
Grandparents	41	13.7
Babysitter	12	4
Other	9	3
History of kindergarten or nursery school		
Yes	153	51
No	147	49
History of psychiatric/psychological diagnosis		
Yes	28	9.3
No	272	90.7
Using psychiatric medicine		
Yes	15	5
No	285	95
The SCOFF Questionnaire Score		
0-1	218	72.7
At least 2 and above	82	27.3
Age	M = 32.93	SD = 9.24
BMI	M = 23.61	SD = 3.26

Table 4: Exercising-related Characteristics of the Exercisers

Variables	Frequency	Percent (%)
Doing regular exercise since		
Less than 6 months	20	6.7
6 months – 1 year	31	10.3
1-3 years	43	14.3
3-5 years	59	19.7
More than 5 years	147	49
Exercising in		
Nature	47	15.7
Gym clubs	82	27.3
Both	171	57
Types of exercisers		
Professional sportsman (monthly salary)	53	17.7
Who exercise regularly for pleasure	189	63
Who sometimes exercise	57	19
Who exercise to control or lose weight	56	18.7
Other	24	8
Amount of exercising hours per day (in last 6 months)		
Less than an hour	82	27.3
More than an hour, less than 3 hours	192	64
More than 3 hours, less than 6 hours	18	6
More than 6 hours, less than 9 hours	3	1
More than 9 hours	5	7
Amount of exercising days per week		
1-2 days	18	6
2-3 days	83	27.7
4-5 days	159	53
Every day	40	13.3
Exercising choices		
Doing individual exercise	160	53.3
Doing competitive exercise with others in nature	47	15.7
Doing collaborative exercise with others in nature	28	9.3
Doing competitive exercise with others in gym club	23	7.7
Doing collaborative exercise with others in gym club	42	14

Table 4: Exercising-related Characteristics of the Exercisers (Continued)

Variables	Frequency	Percent (%)
Kinds of exercise		
Fitness/Body building	160	53.3
Running	176	58.7
Tennis	40	13.3
Basketball	24	8
Volleyball	8	2.7
Swimming	99	33
Far Eastern sports	12	4
Cycling	88	29.3
Step-aerobic, Zumba etc.	25	8.3
Pilates, yoga, stretching etc.	79	26.3
Rugby	1	.3
Other	48	16
Motivations to exercise		
Success/Development	198	66
Socializing	128	42.7
Enjoyment	174	58
Team sprit	43	14.3
Alienation from negative feelings	200	66.7
Exploring/Finding new things	83	27.7
Weight control or loss	176	58.7
Not thinking about stressful life events or problems	192	64
Holding support	10	3.3
Other	23	7.7

2.2. INSTRUMENTS

In the present study, measurement instruments included Demographic Information Form, the Childhood Trauma Questionnaire-SF, the Leahy Emotional Schemas Scale, the Cognitive Behavioral Avoidance Scale, the Game Addiction Scale, and the Exercise Dependence Scale-21. In addition, the SCOFF questionnaire was applied exercisers to control eating-related exercise behavior. Psychometric characteristics of these instruments including previous validity and reliability findings were reported; moreover, the reliability analyses of the present study were also reported in the results section.

2.2.1. Demographic Information Form. There were two versions of demographic information form structured by the researcher in order to receive group-specific information. The forms had general questions which included both same questions and group-specific questions. The general questions of the demographic information forms consisted of age, gender, education level, employment status, relationship status, monthly income, living condition, mother's education, father's education, parent's relationship status, primary caregiver until 3 years of age, history of kindergarten or nursery school, history of psychiatric/psychological diagnosis, and using psychiatric medicine. In addition, an open-ended question about important/traumatic childhood memories ("*Do you remember any life event that you think it might affect you in your childhood? If yes, please indicate it briefly.*") was asked to all participants. For the gaming group, age to start playing games, types of games (online vs. offline), types of player, amount of playing hour per day in last 6 months, amount of playing day per week, playing choices, hardware choices to play, kinds of game, and motivations to exercise were questioned. Totally 26 questions were used in this demographic form (See Appendix 1). For the exercising group, weight, height, how long they do regular exercise, where they do exercise (nature vs. gym club), types of sportspersons, amount of exercising hours per day in last 6 months, amount of exercising days per week, exercising choices, kinds of exercise, and motivations to exercise were examined. Totally 28 questions were used in that form (See Appendix 2).

2.2.2. Childhood Trauma Questionnaire-Short Form. To assess abuse and neglect experiences of childhood and adolescence, the Childhood Trauma Questionnaire (CTQ-SF) which is a 70-item self-report inventory was developed by Bernstein and colleagues (1994). In 2003, the original inventory was shortened by Bernstein and colleagues as a 28-item (25 clinical items and three validity items) questionnaire to be used as a screening tool for neglect and/or abuse histories in both clinical and non-clinical groups. The items are rated on a 5-point Likert scale with the options '*Never True'*, '*Rarely True*', '*Sometimes True*', '*Often True*' and '*Very Often True*'. In addition, it includes a three-item Minimization/Denial scale that identifies socially desirable responses or false-negative ones.

The questionnaire has five subscales: (1) emotional abuse, (2) physical abuse, (3) sexual abuse, (4) emotional neglect, and (5) physical neglect. Each type of abuse is examined by a subscale of five items. Emotional abuse subscale consists of Item 3, Item 8, Item 14, Item 18, and Item 25. Physical abuse subscale consists of Item 9, Item 11, Item 12, Item 15, and Item 17. Sexual abuse subscale consists of Item 20, Item 21, Item 23, Item 24, and Item 27. Emotional neglect consists of Item 5, Item 7, Item 13, Item 19, and Item 28. Physical neglect subscale consists of Item 1, Item 2, Item 4, Item 6, and Item 26 (Şar, Öztürk, & İkikardeş, 2012). In addition, there is a broad labeling statement about the types of abuse in each subscale. For instance, the Sexual Abuse subscale is represented by "*I believe that I was sexually abused*" statement. Other items correspond to behaviors as specific examples of the type of abuse such as "*Someone tried to make me do sexual things or watch sexual things*" (Bernstein & Fink, 1998). Item 2, Item 5, Item 7, Item 13, Item 19, Item 26, and Item 28 are reverse items in the CTQ-SF. The summed total of subscale scores indicates the total score of the CTQ-SF. The scores of subscales are ranged 5-25 and total score can be between 25-125. Although the minimization-related items (Item 10, Item 16, and Item 22) are positive expressions, there is no need to reverse them since they do not have an impact on total score. To assess minimization score, the minimization-related items rated as 5 (*very often true*) are coded as 1 and a summed total of minimization (0-3) are found (Şar, Öztürk, & İkikardeş, 2012). Reliability coefficients were found as .89 for Emotional Abuse, .86 for Physical Abuse, .95 for Sexual Abuse, .89 for Emotional Neglect, and .78 for Physical Neglect. The test-retest was examined after 3 ½ month and the coefficient was calculated at close to 0.80 (Bernstein et al., 2003).

The reliability and validity study of the Turkish version of the scale was conducted by Şar, Öztürk, and İkikardeş (2012). The reliability coefficient for overall scale was found to be .93 and over two weeks, test-retest reliability coefficient was found to be .90. Moreover, Guttman split-half test was found .97 (Şar, Öztürk, & İkikardeş, 2012). The factor structure of the scale was found the same as in the original scale, which includes five subscales. In regard, reliability coefficients were found to be .90 for Emotional Abuse, .90 for Physical Abuse, .73 for Sexual Abuse, .85 for Emotional Neglect, and .77 for Physical Neglect. Besides, the findings of the Turkish version of CTQ-SF showed high construct validity. Although any cutoff point for

Turkish version of the scale was not calculated, the researchers argued that some interpretations might be made based on the study findings. Accordingly, having at least 5 scores can be accepted as enough for sexual and physical abuse subscales, 7 for physical neglect and emotional abuse subscales, and 12 for emotional neglect subscale. The total cutoff score can be accepted as 35 (Şar, Öztürk, & İkikardeş, 2012).

In the current study, the Turkish version of CTQ-SF (See Appendix 3) was used to assess emotional abuse and emotional neglect of the participants. The internal reliability coefficients for total scale were found to be .90 for the gaming group and .86 for the exercising group. For the gaming group, the internal consistency coefficients were found to be .83 for emotional abuse, .84 for emotional neglect, .89 for physical abuse, .58 for physical neglect, and .93 for sexual abuse. For the exercising group, they were found to be .79 for emotional abuse, .82 for emotional neglect, .89 for physical abuse, .50 for physical neglect, and .87 for sexual abuse.

2.2.3. Leahy's Emotional Schemas Scale. The Leahy's Emotional Schemas Scale (LESS) is a self-report inventory developed to examine individuals' conceptualization of their emotions (Leahy, 2002). It is composed of 50 items measuring how participants deal with emotional experiences. Each item is on a six-point response format with the following anchor points: 1 (*very untrue of me*); 2 (*somewhat untrue of me*); 3 (*slightly untrue of me*); 4 (*slightly true of me*); 5 (*somewhat true of me*); 6 (*very true of me*) (Leahy, 2002).

It has 14 dimensions measuring different facets of beliefs and attributions about emotions: Validation (Items 8, Item 16, and Item 49), Comprehensibility (Item 5, Item 10, Item 33, and Item 45), Guilt/Shame (Item 4, Item 14, Item 26, and Item 31), Simplistic view (Item 18, Item 35, Item 38, and Item 47), Higher values (Item 21, Item 25, and Item 42), Control (Item 7, Item 27, and Item 44), Numbness (Item 15 and Item 32), Rationality (Item 17, Item 46, and Item 30), Duration (Item 13 and Item 29), Consensus (Item 3, Item 19, Item 39, and Item 41), Rumination (Item 1, Item 36, Item 37, Item 24 and Item 48), Acceptance (Item 2, Item 12, Item 20, Item 40, Item 50, Item 9, and Item 28), Expression (Item 6 and Item 23), and Blame (Item 11 and Item 34). "*Others understand and accept my feelings*", "*There are things about myself that I just don't understand*", and "*Some feelings are wrong to have*" are some examples for the

statements. Item 1, Item 2, Item 3, Item 5, Item 7, Item 9, Item 10, Item 12, Item 16, Item 19, Item 20, Item 25, Item 27, Item 28, Item 29, Item 33, Item 36, Item 44, Item 45, Item 49 and Item 50 are reverse items (Leahy, 2002). The reliability coefficient was found to be 0.81 for the overall scale. The validity of the LESS was studied with correlation analysis of items with each other and correlation of each subscale with some clinical inventories (e.g., Beck Anxiety Inventory and Beck Depression Inventory). The findings showed acceptable results for the reliability and validity of the scale (Leahy, 2002).

The reliability and validity of the Turkish version of the scale was studied by Yavuz, Türkçapar, Demirel and Karadere (2011) on non-clinical population. The reliability coefficient was found as .86 for the overall scale. The correlations between the total scores of each dimension and each items of the scale (except Item 33) were statistically significant (r = 0.48-0.87, p < 0.01). Split-half reliability test was calculated, and it was found to be .70. The Turkish version of the scale has shown good convergent and divergent validity results. However, the findings indicated that the factor structure was not identical with the original one. Accordingly, both have common emotional schemas which are validation (Item 4 and Item 8), comprehensibility (Item 5, Item 10, and Item 12), guilt/shame (Item 25, Item 26, and Item 43), acceptance (Item 23, Item 33, Item 38, Item 40, and Item 42), uncontrollability (Item 7, Item 27, Item 44, Item 13, Item 31, and Item 45), rumination (Item 22, Item 24, Item 37, and Item 48), consensus (Item 39 and 41), rationality (Item 32, Item 47, Item 17, and Item 46), and duration (Item 29 and Item 30). In Turkish version, numbness, values, simplistic view, blame, and expression subscales were not found, instead avoidance from emotions (Item 1, Item 2, Item 20, Item 21, and Item 36), dissimilarity (Item 3, Item 11, Item 14, Item 15, and Item 16), weakness against emotions (Item 6, Item 18, Item 19, Item 34 and Item 35), neglecting emotions (Item 49 and Item 50), and seeing emotions as dangerous (Items 9 and 28) were represented. In Turkish version, Item 5, Item 10, Item 12, Item 29, Item 33, and Item 50 are inversely scored (Yavuz et al., 2011). In addition, the Turkish adaptation of LESS-II, which is 28-item version of LESS, was studied by Batmaz and Özdel (2015). It was found that LESS-II is also a reliable and valid tool for the assessment of emotional schemas in a Turkish clinical population. For both LESS and LESS-II, a total score of

the scale can be used to assess negative beliefs about emotions (Batmaz & Özdel, 2015: 27; Leahy, Tirch, & Melwani, 2012: 367).

In the current study, the total score of 50-item LESS (See Appendix 4) was used to assess negative beliefs about emotions of the participants. The internal reliability coefficients for the total scale were found to be .89 for the gaming group and .89 for the exercising group.

2.2.4. Cognitive Behavioral Avoidance Scale. The Cognitive Behavioral Avoidance Scale (CBAS) is developed to measure a comprehensive and multidimensional model of avoidance (Ottenbreit & Dobson, 2004). It has 31 items taking the form of first-person statements which participants are asked to rate on a five-point Likert scale ranging from "*not at all true for me*" to "*moderately true for me*" to "*extremely true for me*" (Ottenbreit & Dobson, 2004).

The five dimensions of the CBAS have been labeled behavioral social avoidance (Item 1, Item 8, Item 14, Item 15, Item 17, Item 21, Item 23, and Item 24), behavioral nonsocial avoidance (Item 3, Item 6, Item 9, Item 11, Item 12, and Item 13), cognitive social avoidance (Item 10, Item 16, Item 20, Item 22, Item 25, Item 26, and Item 27), and cognitive nonsocial avoidance (Item 2, 4, 5, 7, 18, 19, 25, 29, 30 and 31). A total avoidance score can be used for the CBAS. Coefficient alphas for the subscales were found to be .86, .80, .78 and .75, respectively. In addition, the coefficient alpha for the total scale was found to be .91. Over three weeks, test–retest reliability coefficient for the total scale was found to be .92. The findings also indicated that the CBAS total scale and subscales had convergent and divergent validity (Ottenbreit & Dobson, 2004).

For the Turkish version, the adaptation study of the CBAS was carried out by Çakır (2016). In terms of construct validity of the CBAS, the results confirmed a four-factor solution as consistent with the original form. Cronbach's alpha for the total scale was found to be .93. In addition, Cronbach's alphas for subscales were found all adequate: behavioral social avoidance was .86, behavioral nonsocial avoidance was .72, cognitive social avoidance was .77, and cognitive nonsocial avoidance was .88. Test-retest reliability over a four-week period for these scales has been found to be

between .60 and .90. As a difference from the original form, two items (i.e. Items 28 and 30) were excluded from the Turkish version.

In the current study, the Turkish version of the CBAS (See Appendix 5) was used to assess the dimensions of participants' avoidance behaviors. The Cronbach's alphas of the CBAS were found to be .94 for the gaming group and .91 for the exercise group. For the gaming group, behavioral social avoidance subscale had an internal consistency of .89, behavioral nonsocial avoidance subscale had a reliability of .74, cognitive social avoidance subscale had a reliability of .80, and cognitive nonsocial avoidance subscale had a reliability of .88. For the exercising group, behavioral social avoidance subscale had an internal consistency of .84, behavioral nonsocial avoidance subscale had a reliability of .68, cognitive social avoidance subscale had a reliability of .78, and cognitive nonsocial avoidance subscale had a reliability of .83.

2.2.5. Game Addiction Scale. The Game Addiction Scale (GAS) was created by Lemmens and his colleagues (2009) to measure computer and videogame addiction. It is a 21-item self-report inventory based on seven DSM-related criteria for game addiction that have been examined in previous studies (Lemmens et al., 2009). Participants were asked to show how often each item applied to them in the last six months using a 5-point Likert scale ranging from one "*never*" to five "*very often*" (Lemmens et al., 2009).

The GAS is composed of second-order factors of gaming addiction including salience (Items 1, 2, and 3), tolerance (Items 4, 5, and 6), mood modification (Items 7, 8, and 9), relapse (Items 10, 11, and 12), withdrawal (Items 13, 14, and 15), conflict (Items 16, 17, and 18), and problems (Items 19, 20, and 21), which is explained by one higher-order factor (i.e. gaming addiction). "*(How often during the last six months…) Have you felt bad when you were unable to play?*" or "*Did you play longer than intended?*" are some examples from the questions on the scale. The scale was applied to two adolescent samples and both Cronbach's alphas were found excellent, α = .94 and α = .92. The scale also indicated good validity across samples. In addition, it had a strong correlation with time spent on games (Lemmens et al., 2009). Besides, Lemmens and colleagues (2009) suggested that the scale can be used to determine

addiction in two formats: (a) monothetic format (all items scoring above 3), (b) polythetic format (at least half of the items scoring 3 or above).

The Turkish adaptation study of the GAS was studied by Baysak, Kaya, Dalgar, and Candansayar (2016). The findings showed that Cronbach's alpha was found to be .96 indicating a good internal consistency. Internal consistency coefficients of seven criteria were also examined: (a) salience (α = .80); (b) tolerance (α = .86); (c) mood modification (α = .76); (d) relapse (α = .87); (e) withdrawal (α = .93); (f) conflict (α = .84); and (g) problems (α = .78). Besides, confirmatory factor analysis indicated that the Turkish version of the GAS is valid in a two-level structure (Baysak et al., 2016).

In the current study, the Turkish version of the GAS (See Appendix 6) was used to assess the level of gaming addiction behavior of the participants. Reliability analysis showed that the internal consistency of that scale was .91. The item-total correlations were ranged between .39 and .70, except item 21 (i.e. .26, Cronbach's alpha if item deleted was .92).

2.2.6. Exercise Dependence Scale-21. The 21-item Exercise Dependence Scale (EDS-21) was developed by Hausenblas and Symons Downs (2002b) to assess exercise dependence symptoms. The earlier version of the scale included 30 items; however, researchers modified the items of the scale and some items were omitted (Symons Downs, Hausenblas, & Nigg, 2004). It is a 6-point Likert type scale with higher scores indicating higher levels of exercise dependence (Hausenblas & Symons Downs, 2002b).

The EDS-21 was created based on the DSM-IV (APA, 1994) criteria for substance dependence. Accordingly, the scale has seven subscales including tolerance (Items 3, 10, and 17), withdrawal (Items 1, 8, and 15), continuance (Items 2, 9, and 16), lack of control (Items 4, 11, and 18), reductions in other activities (Items 5, 12, and 19), time (Items 6, 13, and 20), and intention (Items 7, 14, and 21). "*I continually increase my exercise intensity to achieve the desired effects/benefits*", "*I am unable to reduce how long I exercise*", and "*I exercise despite recurring physical problems*" are some examples for the items (Hausenblas & Symons Downs, 2002b). Regarding classification, the participants can be identified as (a) at risk for exercise dependence, (b) nondependent–symptomatic, or (c) nondependent–asymptomatic group based on

their scoring. The scale has a mean overall score of exercise dependence symptoms (Hausenblas & Symons Downs, 2002b).

The reliability of the EDS-21 was found to be good. Cronbach's alphas of the seven subscales ranged from .78 to .92, except alpha of the 'reduction in other activities' subscale (α = .67). In addition, the 7-day test–retest reliability was found perfect by using the intraclass reliability method (*ICC* = .95; subscale range *ICC* = .75 to .95). Besides, the convergent validity of the scale was supported. It was evidenced that the at-risk group reported more moderate and energetic exercise behavior than the nondependent group (Symons Downs et al., 2004).

The reliability and validity of the Turkish version of the EDS-21 was studied by Yeltepe and İkizler (2007). Reliability coefficient was found to be .96. Over two weeks, test–retest reliability coefficient for the total scale was found to be .97 (Yeltepe & İkizler, 2007).

In the present study, the Turkish version of the EDS-21 (See Appendix 7) was used to assess exercise addiction level of the participants. The internal reliability coefficient for total scale was found to be .92 for the exercising group. The item-total correlations were ranged between .43 and .71, except item 1 (i.e. .28, Cronbach's alpha if item deleted was .93).

2.2.7. SCOFF Questionnaire. The SCOFF questionnaire (Morgan, Reid, & Lacey, 1999) includes five questions which can be administered by both self and a health care professional. The questions are designed to examine eating habits and attitudes toward one's weight and body shape. The SCOFF questionnaire is scored with the sum of five "yes" or "no" answers (0 to 5). Giving positive responses to at least two of the five questions is accepted as a threshold for being at risk to have an eating disorder (Morgan et al., 1999). Turkish adaptation of the SCOFF questionnaire was studied by Aydemir, Köksal, Sapmaz, and Yüceyar (2015). The findings showed that Cronbach's alpha coefficient was .74 and confirmatory factor analysis confirmed one-dimension structure (Aydemir et al., 2015). In the present study, the Turkish version of the SCOFF questionnaire (See Appendix 8) was used to consider being at risk to have an eating disorder for those who were in the exercise group.

The descriptive and reliability analyses of the scales were summarized for the gaming group and exercising group in Table 6 and 7, respectively.

Table 6: Descriptive Characteristics of Study Measures for the Gaming Group

Measures	Mean	SD	Min-Max	Cronbach's α
CTQ-SF	37.83	12.56	25-110	.90
EA	7.57	3.54	5-23	.83
EN	10.92	4.61	5-25	.84
PA	6.26	3.05	5-25	.89
PN	7.08	2.58	5-19	.58
SA	6.00	2.79	5-25	.93
LESS	163.1	31.9	83-260	.89
CBAS	8.42	2.92	4-19.38	.94
BSA	2.10	.93	1-5	.89
BNSA	2.34	.82	1-5	.74
CSA	1.93	.80	1-4.71	.80
CNSA	2.06	.89	1-5	.88
GAS	56.89	16.00	23-104	.91

Note. N= 431. CTQ-SF: Childhood Trauma Questionnaire-Short Form; EA: Emotional Abuse; EN: Emotional Neglect; PA: Physical Abuse; PN: Physical Neglect, SA: Sexual Abuse; LESS: Leahy's Emotional Schemas Scale; CBAS: Cognitive Behavioral Avoidance Scale; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; GAS: Game Addiction Scale.

Table 7: Descriptive Characteristics of Study Measures for the Exercising Group

Measures	Mean	SD	Min-Max	Cronbach's α
CTQ-SF	36.36	9.58	25-83	.86
EA	6.86	2.82	5-21	.79
EN	10.49	4.31	5-23	.82
PA	5.81	2.35	5-25	.89
PN	6.93	2.33	5-18	.50
SA	5.65	1.78	5-18	.87
LESS	147.12	29.44	91-231	.89
CBAS	6.85	2.14	4-15.47	.91
BSA	1.65	.67	1-4.38	.84
BNSA	1.91	.66	1-4.33	.68
CSA	1.68	.63	1-4.86	.78
CNSA	1.61	.60	1-4.11	.83
EDS-21	53.29	17.31	21-115	.92

Note. N= 300. CTQ-SF: Childhood Trauma Questionnaire-Short Form; EA: Emotional Abuse; EN: Emotional Neglect; PA: Physical Abuse; PN: Physical Neglect, SA: Sexual Abuse; LESS: Leahy's Emotional Schemas Scale; CBAS: Cognitive Behavioral Avoidance Scale; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; EDS-21: Exercise Addiction Scale-21.

2.3. PROCEDURE

Prior to application, necessary approval was taken from Çankaya University Scientific Research and Publication Ethics Committee (See Appendix 9). Two questionnaire sets were prepared for either the gaming group or exercise group. The order of instruments was counterbalanced in order to eliminate ordering effect. For both group, administration of the instruments was carried out through an online survey tool on July -September 2018. Both online links of the questionnaire sets were announced in social network sites (i.e. Facebook, Instagram and Linkedin). For instance, "PUBG Türkiye DOTA2 Türkiye Yardımlaşma Platformu, Darks Souls Türkiye, Call of Duty Türkiye, and Resident Evil TR" are some examples of Facebook pages for reaching players. "Mudanya Koşu Grubu, Yüzme Bisiklet Koşu, Spor Zamanı, ODTÜ Spor Kulubü Tenis Branşı, and Egzersiz Enstitüsü" are some examples of Facebook pages for reaching exercisers. An informed consent was given to all participants that must confirm their voluntary participation to continue with the survey (See Appendix 10 and Appendix 11). The responses of each participant were completely collected anonymously. Completion of the survey package took 20 minutes on average.

2.4. DATA ANALYSIS

Prior to the analyses, two sets of data were examined in terms of assumptions testing (missing data, sample size, outliers, normality, linearity, homoscedasticity and multicollinearity). Statistical analyses were conducted with the Statistics Package for Social Sciences (SPSS) Program (Green, Salkind & Akey, 1997). To see the differences among the levels of the demographic variables, several *t*-test analyses and a series of one-way Analysis of Variance (ANOVA) were run. A number of confirmatory factor analyses and principal component analyses were run to examine the factor structure of the LESS on data derived from both samples. To test main models, structural equation modeling, specifically two path analyses, were performed using AMOS 24 (Arbuckle, 2009). Lastly, AMOS 24.0 estimands and plugins (Gaskin & Jim, 2018a; 2018b) were used to test the specific indirect effects and multigroup invariance.

CHAPTER THREE
RESULTS

Analyses were conducted in seven steps, therefore; the findings of the current study were presented under six corresponding headings. In the first step, the factor structure of the Leahy's Emotional Schemas Scale was reviewed. After that, reliability analyses of all study measures were run. In the third step, addiction criterion was examined for both groups. In the fourth and fifth steps, correlations and group comparisons were examined. And then, the open-ended question was evaluated for both samples. The final step involved testing of the hypotheses using structural equation modeling analyses.

3.1. REVIEW OF FACTOR STRUCTURE OF THE LEAHY'S EMOTIONAL SCHEMAS SCALE

In the Turkish adaptation of the Leahy's Emotional Schemas Scale (LESS), the authors (Yavuz et al., 2011: 276) reported that there were differences between the original factor structure and Turkish one. Indeed, it was reported that the content of the subscales and item loadings were different in the Turkish version, although they found 14 subscales as the original did. Negative emotional schemas variable was used as a latent variable in the present study; therefore, it was considered necessary to examine the factor structure of the scale. Thus, confirmatory factor analysis (CFA) was conducted to validate the structure of the LESS via AMOS 24 (Arbuckle, 2009). Particular fit indexes which are Root Mean Square of Error of Approximation (RMSEA), The Bentler Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Standardized Root Mean Square Residual (SRMR) were used with model chi-square ($\chi 2$) and chi-square/degrees of freedom ratio ($\chi 2$/df-ratio) values to interpret the results of CFA.

Firstly, predetermined cut points of the fit indexes were summarized to have a better comprehension of the results. Chi-square result is expected to be small and non-significant in the perfect fit (Kline, 2005). However, chi-square/df-ratio was suggested by Wheaton Muthen, Alwin, and Summers (1977) to be less than 5, when sample size

is small. Secondly, RMSEA value refers to the comparison of the sample statistics to the population. Hu and Bentler (1999) suggested that a good fit with a value of RMSEA should be less than .06, showing the fit of current data to the population. Browne and Cudeck (1993) suggested alternative cut-off which includes RMSEA < .05 referring good fit, and RMSEA < .08 referring reasonable fit. GFI, AGFI, CFI and TLI values range from 0 to 1 and .95 represents the perfect fit and .90 is acceptable fit for those indices (Kline, 2005).

Overall, four CFA were run to confirm the structure of the LESS for both addiction groups. First CFA was performed based on the Turkish subscale structure of LESS for the gaming group (N = 431). The findings showed that the fourteen factor solution had poor fit to the data (χ2(989) = 2420.787, χ2/df = 2.45, p < .001, RMSEA = .06, GFI = .80, AGFI = .76, CFI = .78, TLI = .75) for gaming group. After that, second CFA was performed based on the original subscale structure of LESS for the gaming group. The findings revealed that the original fourteen factor solution had also poor fit to the data (χ2(989) = 2875.165, χ2/df = 2.91, p < .001, RMSEA = .07, GFI = .76, AGFI = .72, CFI = .71, TLI = .67). Third CFA was performed based on the Turkish subscale structure of LESS for the exercising group (N = 300). The results showed that the fourteen factor solution had poor fit to the data (χ2(989) = 2251.650, χ2/df = 2.28, p < .001, RMSEA = .06, GFI = .77, AGFI = .72, CFI = .74, TLI = .70) for exercise addiction sample. Last CFA was performed based on the original subscale structure of LESS for the exercising group. The results showed that the fourteen factor solution had poor fit to the data (χ2(989) = 2480.622, χ2/df = 2.51, p < .001, RMSEA = .07, GFI = .74, AGFI = .69, CFI = .70, TLI = .66). The CFA fit statistics of the LESS for different samples was summarized in Table 5.

Table 5: Summary of the CFA Fit Statistics of the LESS for Different Samples

Study Sample	$\chi 2$	$\chi 2$/df	*p*	RMSEA	GFI	AGFI	CFI	TLI
Gaming Addiction								
Turkish	2420.787	2.45	.000	.06	.80	.76	.78	.75
Original	2875.165	2.91	.000	.07	.76	.72	.71	.67
Exercise Addiction								
Turkish	2251.650	2.28	.000	.06	.77	.72	.74	.70
Original	2480.622	2.51	.000	.07	.74	.69	.70	.66

Note. Turkish: Turkish factor structure adapted from the original study. Original: Original factor structure in English

Due to the poor results of confirmatory factor analyses, further exploratory factor analyses were needed to investigate if the current factor structure of the data derived from two different kinds of behavioral addiction samples shows similarity with the original study and Turkish adaptation study. To explore the factor structure of the LESS in the present study, two exploratory factor analyses were conducted on the data derived from participants with gaming addiction (n = 431) and exercise addiction (n = 300), separately. For both addiction groups, the findings of the principal component analysis (PCA) with direct oblimin rotation indicated that the distribution of items on factors showed poor fit with Turkish LESS as well as the original one. In addition, there were a number of cross-loadings and some items (e.g., Items 25, 27, 33) were not loaded in any factor. Consequently, further exploratory factor analysis was needed to investigate the factor structure of the LESS on data representing behavioral addictions. Thus, the data derived from the players and the data derived from the exercisers were combined as an extended behavioral addiction data (N = 731). However, the results of the PCA with extended behavioral addiction data also indicated inadequate item distributions in terms of both statistically and theoretically. Besides, many factors showed poor reliability outcomes when various factor solutions had been tried.

The problems with the structure of the Turkish version can be easily noticed in different studies. For example, the authors (Batmaz & Özdel, 2015: 24) mentioned that they used Turkish version of the LESS with the retained original scale's dimensions in their study. Moreover, it was reported that the original factor structure was retained in other Turkish studies on patients with alcohol dependence (Ekinci et al., 2012: 286) and bipolar disorder (Batmaz et al., 2014: 1548), rather than using the Turkish version's subscales.

In 2012, the shortened version of LESS (LESS-II) was developed by Leahy (Batmaz & Özdel, 2015: 23). The Turkish psychometric properties of LESS-II were examined with a sample consisting of clinically depressed outpatients and healthy controls (Batmaz & Özdel, 2015: 23). In that study, a composite score of the LESS (i.e. negative beliefs about emotions; NBAE) was also used because the high rates of cross-loadings pointed out the one-factor structure for the scale (Batmaz & Özdel, 2015: 27). That is, the findings showed that the NBAE composite score of the LESS-II can also be used to evaluate the individual's schemas about their emotions. In the study carried out with bipolar and unipolar patients (Batmaz et al., 2014: 1548), it was reported that a composite score for the total NBAE was used, too. Besides, Leahy and his colleague (2012: 367) used the NBAE score derived from the total sum of scores for each of the dimensions. In light of this information, as well as of the poor CFA and EFA results obtained from the present sample, it was decided to use the NBAE score to test the proposed model in the present study.

3.2. ADDICTION CRITERION

Both measurements, the Game Addiction Scale and the Exercise Dependence Scale-21, adapted particular formats to determine whether someone is addicted to games or exercise. For the Game Addiction Scale, the monothetic and polythetic formats were used as suggested (Lemmens et al., 2009: 87). Accordingly, 3 (sometimes) was used as the cut-off point on a 5-point Likert scale. All criteria for addiction (salience, tolerance, mood modification, relapse, withdrawal, conflict, and problems) must be met so that someone can be identified as a gaming addict in the monothetic format. In this format, someone who answered at least 3 (sometimes) for

7 criteria was considered as a gaming addict. In the polythetic format, meeting at least half of the criteria is needed. That is, someone who answered at least 3 (sometimes) for 4 criteria out of 7 was considered as a gaming addict (Lemmens et al., 2009: 87). For the Exercise Dependence Scale-21, the classification of three groups was used: (1) at risk for exercise dependence, (b) nondependent–symptomatic, or (c) nondependent–asymptomatic. Firstly, participants who score 5–6 on the Likert scale on at least three of the seven criteria represent at risk for exercise dependence group. Secondly, participants who score 3–4 on the Likert scale on a minimum of three criteria represent nondependent–symptomatic group. Moreover, participants who report a combination of at least three criteria in the dependent and nondependent–symptomatic range and unmeet the criteria of at risk for dependence are classified as nondependent–symptomatic. Thirdly, participants who score 1–2 on the Likert scale on at least three criteria represent nondependent–asymptomatic group (Hausenblas & Symons Downs, 2002b: 189).

According to the polythetic format, the findings of the present study showed that 45.3% (n = 195) of the players were classified as gaming addicted since they met at least four of the seven items. Moreover, 7% (n = 30) of the players had at least sometimes for all of the seven criteria. For exercise addiction, the current results showed that 4.7% (n = 14) of the participants were classified as at risk for exercise dependence, 64% (n = 192) as nondependent–symptomatic, and 31.3% (n = 94) as nondependent–asymptomatic.

3.3. CORRELATIONS

For both sample groups, the correlation matrices of the study measures were shown in Table 8 and Table 9, respectively. For gaming group, there is no significant correlation between age and other variables, except negative beliefs about emotions. Age is negatively correlated with negative beliefs about emotions. That is, when the players' age increase, their negative beliefs about emotions decrease. Moreover, almost all variables are positively correlated with each other. For exercising group, age is negatively correlated with negative beliefs about emotions, behavioral social avoidance, cognitive social avoidance, cognitive nonsocial avoidance, total avoidance,

and exercise addiction. That is, when exercisers' age decrease, their negative beliefs about emotions, behavioral social avoidance, cognitive social avoidance, cognitive nonsocial avoidance, total avoidance, and exercise addiction increase. In addition, most variables are positively correlated with each other.

Table 8: Correlations among Study Variables for the Gaming Group

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	1													
2. EA	-.02	1												
3. EN	.07	.63**	1											
4. PA	.05	.64**	.45**	1										
5. PN	.02	.51**	.55**	.47**	1									
6. SA	.07	.37**	.17**	.40**	.31**	1								
7. TCHT	.05	.86**	.81**	.77**	.73**	.55**	1							
8. NBAE	-.15**	.28**	.24**	.15**	.01*	.18**	.26**	1						
9. BSA	-.05	.22**	.27**	.12*	.18**	.10*	.25**	.43**	1					
10. BNSA	-.07	.19**	.17**	.11*	.10*	.08	.18**	.39**	.53**	1				
11. CSA	-.04	.22**	.22**	.14**	.20**	.14**	.25**	.37**	.63**	.63**	1			
12. CNSA	-.08	.21**	.23**	.12*	.15**	.11*	.23**	.40**	.60**	.64**	.78**	1		
13. TA	-.07	.25**	.26**	.14**	.18**	.13**	.27**	.47**	.83**	.81**	.89**	.89**	1	
14. GA	-.04	.20**	.17**	.15**	.18**	.12**	.22**	.36**	.39**	.30**	.35**	.43**	.44**	1

Note. For all correlations N =431, $*p < .05$, $**p < .01$. EA: Emotional Abuse; EN: Emotional Neglect; PA: Physical Abuse; PN: Physical Neglect, SA: Sexual Abuse; TCHT: Total Childhood Trauma; NBAE: Negative Beliefs about Emotions; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; TA: Total Avoidance; GA: Gaming Addiction.

Table 9: Correlations among Study Variables for the Exercising Group

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	1													
2. EA	-.01	1												
3. EN	.01	.58**	1											
4. PA	.03	.67**	.37**	1										
5. PN	.02	.31**	.46**	.30**	1									
6. SA	.01	.31**	.21**	.31**	.14*	1								
7. TCHT	.02	.82**	.83**	.72**	.62**	.46**	1							
8. NBAE	-.28**	.30**	.28**	.16**	.24**	.07	.32**	1						
9. BSA	-.16**	.18**	.10	.11	.13*	.04	.16**	.49**	1					
10. BNSA	-.09	.23**	.20**	.10	.13*	.10	.22**	.48**	.48**	1				
11. CSA	-.14*	.19**	.15**	.15**	.17**	.12*	.22**	.55**	.57**	.60**	1			
12. CNSA	-.19**	.20**	.17**	.08	.16**	.12*	.21**	.55**	.53**	.63**	.74**	1		
13. TA	-.18**	.24**	.19**	.14*	.18**	.11	.24**	.62**	.78**	.82**	.87**	.86**	1	
14. ExA	-.13*	.17**	.02	.17*	.16**	.01	.14*	.27**	.27**	.08	.21**	.17**	.27**	1

Note. For all correlations N =431, *p < .05, **p < .01. EA: Emotional Abuse; EN: Emotional Neglect; PA: Physical Abuse; PN: Physical Neglect, SA: Sexual Abuse; TCHT: Total Childhood Trauma; NBAE: Negative Beliefs about Emotions; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; TA: Total Avoidance; ExA: Exercise Addiction.

3.4. GROUP COMPARISONS

To understand whether participants belonging to different levels of demographic variables scored differently in terms of the dependent variables, a series of independent samples *t*-test and one-way Analysis of Variance (ANOVA) analyses were run. For gender, history of kindergarten or nursery school, history of psychiatric/psychological diagnosis, using psychiatric medicine, and having an important/traumatic childhood memory, independent samples *t*-test analyses were run for both study groups. For education level, relationship status, monthly income, living condition, parent's relationship status, primary caregiver until 3 years of age, one-way ANOVAs were performed for both study groups. Another one-way ANOVAs were run with age to start playing games, types of games (online vs. offline), types of player, amount of playing hour per day in last 6 months, and amount of playing day per week for players. Moreover, one-way ANOVAs were run with duration of doing regular exercise, types of exercise (nature vs. gym clubs), exercising choices, amount of exercising hour per day in last 6 months, and amount of exercising day per week for the exercising group. For analyses of the gaming group, the level of gaming addiction was entered as dependent variable. For analyses of the exercising group, the level of exercise addiction was entered as dependent variable.

3.4.1. t-test and One-Way ANOVA Results for the Gaming Group

There were no statistically significant differences for gender, history of kindergarten or nursery school, history of psychiatric/psychological diagnosis, and using psychiatric medicine in the gaming group. However, having an important/traumatic childhood memory or not having an important/traumatic childhood memory were significantly different from each other in terms of the level of gaming addiction ($t(189.67) = -2.49$, $p < .05$). The participants who have an important/traumatic childhood memory ($M = 60.18$, $SD = 17.71$) had significantly higher scores on gaming addiction than those do not ($M = 55.62$, $SD = 15.13$) (See Table 10).

Table 10: t-test Result for Having an Important/Traumatic Childhood Memory Difference in Gaming Addiction

				Gaming addiction			
	N	Mean	*SD*	*t*	*df*	Sig.	Mean Difference
				-2.49*	189.67	.01	-4.56
Having	120	60.18	17.71				
Not having	311	55.62	15.13				

Note. $*p < .05$

For each one-way ANOVA, assumption of homogeneity of variance was tested. Homogeneity of variance assumption was not violated except for amount of playing hour per day. According to one-way ANOVA results conducted to examine the differences among means of gaming addiction, there were no statistically significant differences in gaming addiction for education level ($F(6,424) = 1.19$, $p = .31$), relationship status ($F(3,427) = 1.15$, $p = .33$), monthly income ($F(5,425) = 1.49$, $p = .19$), living condition ($F(4,426) = .811$, $p = .52$), parent's relationship status ($F(6,424) = .900$, $p = .50$), primary caregiver until 3 years of age ($F(6,424) = 1.49$, $p = .21$), and age to start playing games ($F(5,425) = .68$, $p = .64$). However, there was a significant difference on gaming addiction level ($F(2,428) = 7.82$, $p < .01$) among participants who are online-game players, offline-game players, and both offline and online game players (See Table 11). A Bonferroni post hoc test revealed that the participants who play online games ($M = 60.07$, $SD = 16.28$) had significantly higher scores on gaming addiction than those play offline games ($M = 43.73$, $SD = 14.45$). Moreover, the participants who play both online and offline games ($M = 56.31$, $SD = 15.60$) had significantly higher scores on gaming addiction than those play offline games ($M = 43.73$, $SD = 14.45$) (See Table 12). Besides, there was a significant difference on gaming addiction ($F(4,426) = 4.37$, $p < .01$) among different types of players (See Table 11). According to Bonferroni post hoc test results, the participants who play for pleasure and follows e-sports ($M = 58.23$, $SD = 15.41$) had significantly

higher scores on gaming addiction than the participants those sometimes play (M = 51.09, SD = 16.64) (See Table 12). Besides, there was a statistically significant difference on gaming addiction between groups ($F(3,427) = 19.61$, $p < .01$) regarding amount of playing day per week (See Table 11). The participants who play every day (M = 61.56, SD = 15.58) had significantly higher scores on gaming addiction than the participants who play 1-2 days (M = 45.52, SD = 14.78), 2-3 days (M = 48.77, SD = 15.63), and 4-5 days (M = 53.58, SD = 13.81) per week (See Table 12).

Table 11: One-way ANOVA Results for Types of Game and Player, Amount of Playing Day per Week Differences in Gaming Addiction

	SS	*df*	Mean Square	*F*	Sig.
For Types of Game					
Between Groups	3879.80	2	1939.90	7.82**	.00
Within Groups	106218.08	428	248.17		
Total	110097.88	430			
For Types of Player					
Between Groups	4343.62	4	1085.90	4.37**	.00
Within Groups	105754.26	426	248.25		
Total	110097.88	430			
For Amount of Playing Day per week					
Between Groups	13328.91	3	4442.97	19.61**	.00
Within Groups	96768.97	427	226.63		
Total	110097.88	430			

Note. $^{**}p < .01$

Table 12: Bonferroni Comparisons for Types of Game, Types of Players, and Amount of Playing Day per Week

Comparisons	Mean Difference	Std. Error	95% CI Lower Bound	95% CI Upper Bound
Types of Game				
Online vs. Offline games	16.34*	4.32	5.95	26.72
Offline vs. Both games	-12.57*	4.17	-22.59	-2.56
For Types of Players				
Play for pleasure and follows e-sports vs. sometimes play	7.14*	2.13	1.11	13.16
For Amount of Playing Day per Week				
1-2 days vs. Everyday	-16.05*	2.88	-23.67	-8.42
2-3 days vs. Everyday	-12.80*	2.50	-19.41	-6.18
4-5 days vs. Everyday	-7.99*	1.68	-12.45	-3.53

Note. $*p < .05$

Since the rule of homogeneity of variances was not met the amount of playing hour per day, Welch and Brown-Forsythe F tests were performed. Accordingly, there was a statistically significant difference on gaming addiction among groups (Welch's $F(4,127.87) = 17.67$, $p < .01$; Brown-Forsythe's $F(4,218.49) = 18.29$, $p < .01$) regarding amount of playing hour per day (See Table 13). According to Games-Howell post hoc test results, the participants who play less than an hour ($M = 44.32$, $SD = 15.21$) had significantly lower scores on gaming addiction than the participants who play more than 3 hours but less than 6 hours ($M = 57.15$, $SD = 14.89$), more than 6 hours but less than 9 hours ($M = 63.09$, $SD = 15.20$), and more than 9 hours ($M = 68.98$, $SD = 18.09$) per day. Moreover, the participants who play more than an hour but less than 3 hours ($M = 52.09$, $SD = 12.82$) had significantly lower scores on gaming addiction than the participants who play more than 3 hours but less than 6 hours ($M = 57.15$, $SD = 14.89$), play more than 6 hours but less than 9 hours ($M = 63.09$, $SD = 15.20$), and more than 9 hours ($M = 68.98$, $SD = 18.09$) per day. In addition, the participants who play more than 3 hours but less than 6 hours ($M = 57.15$, $SD = 14.89$) had significantly lower scores on gaming addiction than the participants who play

more than 6 hours but less than 9 hours (*M* = 63.09, *SD* = 15.20), and more than 9 hours (*M* = 68.98, *SD* = 18.09) per day (See Table 14).

Table 13: One-way ANOVA with Welch and Brown-Forsythe F Tests Results for Amount of Playing Hour per Day

F Tests	*df*	*F*	Sig.
Welch	4,127.87	17.67**	.00
Brown-Forsythe	4, 218.49	18.29**	.00

Note. ***p* < .01

Table 14: Games-Howell Comparisons for Amount of Playing Hour per Day

Comparisons	Mean Difference	Std. Error	95% CI	
			Lower Bound	Upper Bound
Less than an hour vs. More than 3 hours but less than 6 hours	-12.83*	2.88	-20.99	-4.66
Less than an hour vs. More than 6 hours but less than 9 hours	-18.76*	3.11	-27.51	-10.02
Less than an hour vs. More than 9 hours	-24.65*	3.82	-35.33	-13.97
More than an hour but less than 3 hours vs. More than 3 hours but less than 6 hours	-5.06*	1.67	-9.65	-.47
More than an hour but less than 3 hours vs. More than 6 hours but less than 9 hours	-10.99*	2.04	-16.64	-5.35
More than an hour but less than 3 hours vs. More than 9 hours	-16.88*	3.01	-25.38	-8.39
More than 3 hours but less than 6 hours vs. More than 6 hours but less than 9 hours	-5.94*	2.10	-11.72	-.15
More than 3 hours but less than 6 hours vs. More than 9 hours	-11.83*	3.05	-20.42	-3.23

Note. **p* < .05

3.4.2. t-test and One-Way ANOVA Results for the Exercising Group

There were no statistically significant differences in exercise addiction for gender, history of kindergarten or nursery school, history of psychiatric/psychological diagnosis, using psychiatric medicine, and having an important/traumatic childhood memory or not having an important/traumatic childhood memory.

For each one-way ANOVA, assumption of homogeneity of variance was tested. Homogeneity of variance assumption was not violated except for amount of exercising hour per day and amount of exercising day per week. According to one-way ANOVA results conducted to examine the differences among means of exercise addiction, there were no statistically significant differences in exercise addiction for education level ($F(5,294) = .18$, $p = .97$), monthly income ($F(5,294) = 1.11$, $p = .36$), living condition ($F(4,295) = 2.07$, $p = .09$), parent's relationship status ($F(6,293) = .46$, $p = .84$), primary caregiver until 3 years of age ($F(4,295) = .63$, $p = .64$), duration of doing regular exercise ($F(4,295) = 2.45$, $p = .05$), type of exercise and exercising choices ($F(4,295) = 1.83$, $p = .12$). However, there was a significant difference on exercise addiction ($F(3,296) = 6.58$, $p < .01$) among participants in terms of relationship status (See Table 15). A Bonferroni post hoc test revealed that single participants ($M = 57.77$, $SD = 17.09$) had significantly higher scores on exercise addiction than married counterparts ($M = 48.64$, $SD = 16.14$) (See Table 16).

Table 15: One-way ANOVA Results for Relationship Status

	SS	*df*	Mean Square	*F*	Sig.
For Relationship Status					
Between Groups	5600.19	3	1866.73	6.58**	.00
Within Groups	83991.16	296	248.17		
Total	89591.35	299			

Note. $^{**}p < .01$

Table 16: Bonferroni Comparisons for Relationship Status

Comparisons	Mean Difference	Std. Error	95% CI	
			Lower Bound	Upper Bound
Single vs. Married	9.13*	2.26	3.13	15.13

Note. $*p < .05$

Since the rule of homogeneity of variances was not met the amount of exercise hour per day and amount of exercising day per week, Welch and Brown-Forsythe *F* tests were performed. Accordingly, there was a statistically significant difference on exercise addiction among groups (Welch's $F(4,10.01) = 4.10$, $p < .05$; Brown-Forsythe's $F(4,9.25) = 9.25$, $p < .05$) regarding amount of exercising hour per day (See Table 17). According to Games-Howell post hoc test results, the participants who exercise less than an hour ($M = 47.11$, $SD = 16.07$) had significantly lower scores on exercise addiction than the participants who exercise more than an hour but less than 3 hours ($M = 54.72$, $SD = 16.04$) per day (See Table 18). In addition, there was a statistically significant difference on exercise addiction among groups (Welch's $F(3,71.48) = 23.00$, $p < .01$; Brown-Forsythe's $F(3,136.56) = 15.34$, $p < .01$) regarding amount of exercising day per week (See Table 17). According to Games-Howell post hoc test results, the participants who exercise 1-2 days ($M = 36.89$, $SD = 9.15$) had significantly lower scores on exercise addiction than the participants who exercise 2-3 days ($M = 48.11$, $SD = 14.76$), 4-5 days ($M = 55.79$, $SD = 16.81$), and every day ($M = 61.48$, $SD = 19.55$) per week. Moreover, the participants who exercise 2-3 days ($M = 48.11$, $SD = 14.76$) had significantly lower scores on exercise addiction than the participants who exercise 4-5 days ($M = 55.79$, $SD = 16.81$) and every day ($M = 61.48$, $SD = 19.55$) per week (See Table 18).

Table 17: One-way ANOVA with Welch and Brown-Forsythe F Tests Results for Amount of Exercising Hour per Day

	df	*F*	Sig.
For exercising hour per day			
Welch	4,10.01	4.10*	.03
Brown-Forsythe	4, 9.25	4.06*	.04
For exercising day per week			
Welch	3,71.48	23.00**	.00
Brown-Forsythe	3,136.56	15.34**	.00

Note. $*p < .05$; $**p < .01$

Table 18: Games-Howell Comparisons for Amount of Exercising Hour per Day and Amount of Exercising Day per Week

Comparisons	Mean Difference	Std. Error	95% CI	
			Lower Bound	Upper Bound
For exercising hour per day				
Less than an hour vs. More than an hour but less than 3 hours	-7.61*	2.12	-13.47	-1.76
For exercising day per week				
1-2 days vs. 2-3 days	-11.22*	2.70	-18.45	-3.98
1-2 days vs. 4-5 days	-18.90*	2.53	-25.76	-12.03
1-2 days vs. Everyday	-24.59*	3.77	-34.57	-14.61
2-3 days vs. 4-5 days	-7.68*	2.10	-13.12	-2.24
2-3 days vs. Everyday	-13.37*	3.49	-22.58	-4.15

Note. $*p < .05$

3.5. ANALYSIS OF THE OPEN-ENDED QUESTION

All participants were asked whether they remember any life event that they think it might affect them in their childhood or not. If so, then they were asked to describe it briefly. In the gaming group, 120 participants (27.8%) reported that they had some important/traumatic childhood memories. In the exercising group, 92 participants (30.7%) reported that they had some important/traumatic childhood memories. The responses about the description of these memories were grouped based on their contents for both study samples. The detailed contents of reported important/traumatic childhood memories can be seen in Table 19 and Table 20, respectively.

Table 19: Contents of Reported Important/Traumatic Memories for the Gaming Group

Important/Traumatic Memory	Number of Case
Loss of a loved one	
Father	7
Sibling	2
Grandfather or grandmother	4
Aunt	2
Cousin	1
Friend	1
Pet	1
Other death-related issues	
Witnessing one's death	3
Suicide of sister	1
Witnessing mother's serious bleeding	1
Terrorist attacks	1
Earthquake	4
Family issues	
Physical abuse in family	8
Psychological abuse in family	2
Parents conflict	6
Family conflict	4
Divorce	5
Feeling lonely in family	3
Authoritarian parenting	1
Problems with sibling	1
Decreasing of family income	1
Leaving from home and staying with a relative	1
Learning being an adopted child	1

Table 19: Contents of Reported Important/Traumatic Memories for the Gaming Group (Continued)

Important/Traumatic Memory	Number of Case
Father-related issues	
Uninterested father	2
Alcohol problems of father	1
Conflicts with father	1
Father's traffic accident	1
Father's surgery	1
Father's suicide attempt	1
Father's leaving home for 3 months	1
Accidents/Injuries/Physical Integrity	
Car or bicycle accident	7
Surgery	3
Serious injury	1
Falling down and not able to breathing	1
Undiagnosed physical attack with control loss	1
Dog attacks	2
Sexual abuse	6
Interpersonal problems	
Fighting with other people and physically hurt	4
Negatively treated by a teacher	3
Having problems with people	3
Humiliated by friends	1
Ending a friendship	1
Loneliness	2
Rejection from loved one	1
Other life events	
Changing of school	2
Moving to another city	2
Unidentified general fears	2
Fear of abandonment	1
Fear of needles	1
Fear of snakes	1
Loss of an important personal stuff	1

Table 20: Contents of Reported Important/Traumatic Memories for the Exercising Group

Important/Traumatic Memory	Number of Case
Loss of a loved one	
Father and/or mother	2
Grandfather or grandmother	2
Cousin	1
Friend	2
Other death-related issues	
Family member's traffic accident	2
Threat of drowning	1
Family issues	
Physical abuse in family	7
Parents conflict	5
Family conflict	6
Divorce	5
Staying alone at home for a while	2
Uninterested and/or unsupportive parenting	3
Sibling's illness	1
Financial problems	3
Leaving from home and staying with a relative	1
Learning that aunt is real parent	1
Feeling discrimination in family	1
Father-related issues	
Father's suicide attempt	1
Alcohol problems of father	1
Father living abroad	3
Being acquainted with father at 8-year-old	1
Mother-related issues	
Mother's leaving home	1
Mother's leaving home for 2 months	1
Physically handicapped mother	1
Mother with psychological problems	1
Mother's surgery	1
Critical mother	1
Accidents/Injuries/Physical Integrity	
Traffic accident	3
Serious injury	2
Falling down from balcony	2
Falling down from wall	1
Dog attacks	2
Skin burn	2
Getting sick too often	1
Sexual abuse	4
Interpersonal problems	
Negatively treated by a teacher	1
Bullying at school	2
Other life events	
Living a small town	1
Paranormal experience	1
Feeling incompetence in some situations	1
Witnessing parental intercourse	1
Messing one's clothes	1

3.6. RESULTS OF THE MODEL TESTING

3.6.1. Path Analysis with Predictors of Gaming Addiction: Hypothesis Testing for Proposed Model 1.a

In this part, the direct and indirect associations among exogenous (emotional abuse and emotional neglect), mediator (negative beliefs about emotions and four dimensions of avoidance) and endogenous (gaming addiction) variables were widely investigated. As factor analytic investigation of the LESS suggested the utilization of the total scores of the scale (i.e. negative beliefs about emotions), the proposed model was slightly modified in a way that excluding the latent factor structure, rather using negative beliefs about emotions as an observed variable. Path analysis with maximum likelihood method was performed by IBM AMOS 24.0 (Arbuckle, 2009) to test the proposed model. Since four dimensions of avoidance were significantly and positively correlated with each other, those error terms were allowed to covary. Particular fit indexes which are Root Mean Square of Error of Approximation (RMSEA), The Bentler Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Standardized Root Mean Square Residual (SRMR) were used with model chi-square ($\chi 2$) and chi-square/degrees of freedom ratio ($\chi 2$/df-ratio) values to interpret the results of model testing.

In the light of the suggested cut points for the fit indices before, the proposed Model 1.a in which negative beliefs about emotions and four dimensions of avoidance mediated the relationship between emotional maltreatment and gaming addiction provided good fit to the data ($\chi 2(11) = 40.18$, $\chi 2/df = 3.65$, $p < .001$, RMSEA = .08, GFI = .98, AGFI = .93, CFI = .98, TLI = .95). Indeed, it was found that emotional neglect also directly predicted behavioral social avoidance. Moreover, gaming addiction was directly predicted by negative beliefs about emotions. After these corrections among variables based on modification indices, the findings revealed that the modified proposed Model 1.a perfectly fit to the data ($\chi 2(9) = 16.39$, $\chi 2/df = 1.82$, p = .06, RMSEA = .04, GFI = .99, AGFI = .96, CFI = .995, TLI = .98). In addition, the result of squared multiple correlation ($R^2 = .243$) showed that the predictors of gaming addiction explained the 24% of its variance.

Standardized regression estimates of the tested model were shown in Figure 3, lines indicating the significant paths and dashed lines indicating the non-significant paths. Firstly, *Hypothesis 1* assumed that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and directly be associated with negative emotional schemas. The hypothesis was supported to a certain extent. *Hypothesis 1.a* assumed that there would be a significant positive association between emotional abuse and negative emotional schemas. The hypothesis was supported. That is, emotional abuse had a positive significant direct effect on negative beliefs about emotions (β = .22, p < .001), which shows that when the emotional abuse was high, negative beliefs about emotions increased, too. *Hypothesis 1.b* assumed that there would be also a significant positive association between emotional neglect and negative emotional schemas. The hypothesis was rejected. The results showed that the direct effect of emotional neglect on negative beliefs about emotions was not significant, contrary to the suggested structural model. Rather, emotional neglect directly predicted behavioral social avoidance (β = .10, p < .01). That is, higher scores on emotional neglect result in increases of behavioral social avoidance.

Hypothesis 2 assumed that negative emotional schemas would significantly and directly be associated with avoidance variables. *Hypothesis 2.a* assumed that there would be a significant positive association between negative emotional schemas and behavioral social avoidance. *Hypothesis 2.b* assumed that there would be a significant positive association between negative emotional schemas and behavioral nonsocial avoidance. *Hypothesis 2.c* assumed that there would be a significant positive association between negative emotional schemas and cognitive social avoidance. *Hypothesis 2.d* assumed that there would be a significant positive association between negative emotional schemas and cognitive nonsocial avoidance. These hypotheses were supported. As expected, negative beliefs about emotions had positive significant effect on all dimensions of avoidance. The findings showed that negative belief about emotions directly predicted behavioral social avoidance (β = .41, p < .001), behavioral nonsocial avoidance (β = .39, p < .001), cognitive social avoidance (β = .37, p < .001) and cognitive nonsocial avoidance (β = .40, p < .001). These results revealed that higher scores on negative beliefs about emotions result in increases of all dimensions of avoidance. In addition, negative beliefs about emotions directly predicted the level

of gaming addiction (β = .20, p < .001), indicating that when negative beliefs about emotions increases, participants have higher levels of gaming addiction.

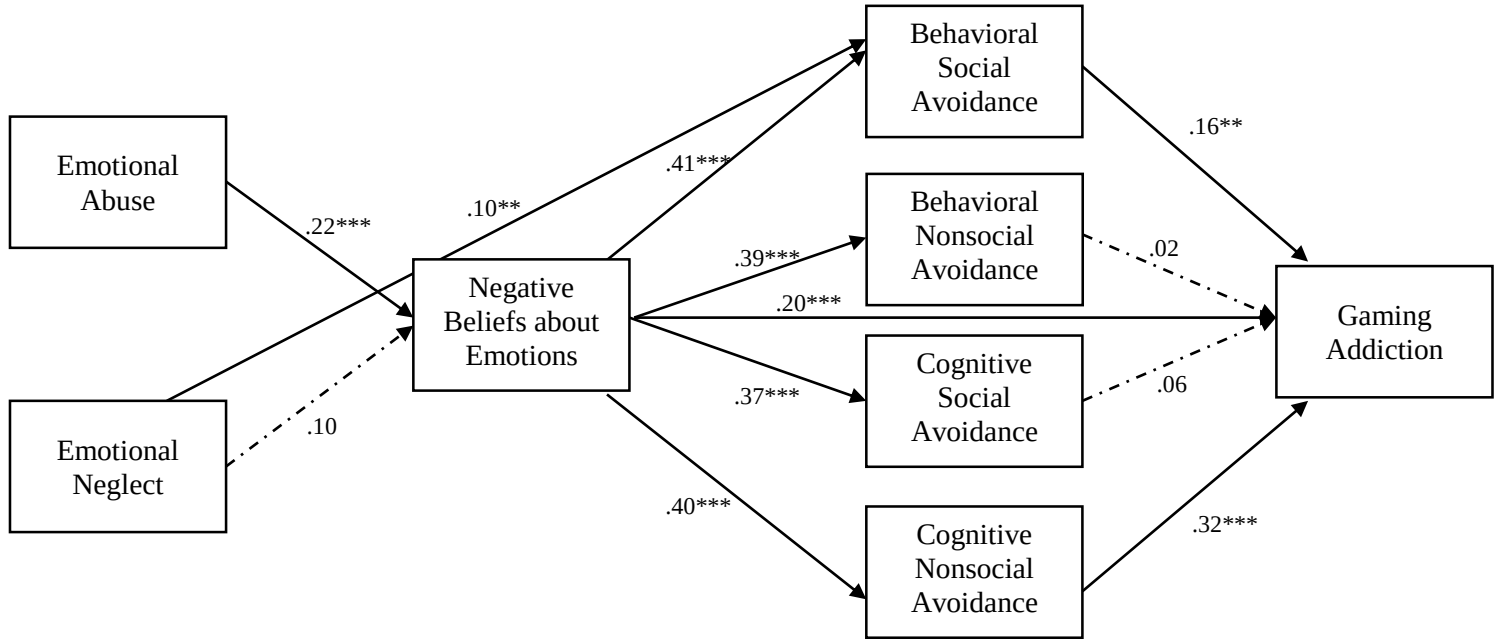
Hypothesis 3 assumed that avoidance variables would significantly and directly be associated with gaming addiction. Providing partial support to this hypothesis, *Hypothesis 3.a* and *Hypothesis 3.d* were confirmed. *Hypothesis 3.a* assumed that there would be a significant positive association between behavioral social avoidance and gaming addiction. *Hypothesis 3.d* assumed that there would be a significant positive association between cognitive nonsocial avoidance and gaming addiction. That is, behavioral social avoidance (β = .16, p < .01) and cognitive nonsocial avoidance (β = .32, p < .001) had significant positive direct effects of on gaming addiction. However, behavioral nonsocial avoidance and cognitive social avoidance had no significant direct effects on gaming addiction. That is, individuals who had more behavioral social avoidance or cognitive nonsocial avoidance had higher scores on gaming addiction. The direct effects for the modified proposed Model 1.a were summarized in Table 21.

Table 21: Summary of the Direct Effects for the Modified Proposed Model 1.a

Pathways	β	*SE*	Lower	Upper	p	
EA → NBAE	.22	.06	.102	.328	.001	Sign.
EN → NBAE	.10	.06	-.021	.227	.101	Insign.
EN → BSA	.10	.04	.023	.183	.007	Sign.
NBAE → BSA	.41	.04	.319	.494	.001	Sign.
NBAE → BNSA	.39	.04	.296	.471	.001	Sign.
NBAE → CSA	.37	.05	.276	.455	.001	Sign.
NBAE → CNSA	.40	.04	.309	.476	.001	Sign.
NBAE → GA	.20	.05	.105	.297	.001	Sign.
BSA → GA	.16	.06	.042	.273	.007	Sign.
BNSA → GA	-.02	.06	-.152	.097	.667	Insign.
CSA → GA	-.06	.07	-.202	.082	.394	Insign.
CNSA → GA	.32	.07	.173	.450	.001	Sign.

Note. EA: Emotional Abuse; EN: Emotional Neglect; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; NBAE: Negative Beliefs About Emotions; GA: Gaming Addiction.

Figure 3: Standardized Parameter Estimates for Modified Proposed Model 1.a: Mediating Roles of Negative Beliefs about Emotions and Avoidance (i.e. Behavioral Social Avoidance, Behavioral Nonsocial Avoidance, Cognitive Social Avoidance, Cognitive Nonsocial Avoidance) among the Relationship between Emotional Abuse or Emotional Neglect and Gaming Addiction



According to MacKinnon, Lockwood, and Williams (2004), bootstrapping method, which is a procedure that compose random subsamples of the same size as the major sample, is more powerful than other methods of mediation testing to examine indirect effects. In order to estimate indirect effects of mediational variables for proposed Model 1.a, bias-corrected bootstrapping method with 5000 resamples and 95% confidence interval was performed in the current study. In addition, each specific indirect effect was calculated by using AMOS 24.0 estimand and plugin (Gaskin & Jim, 2018a).

As expected, some of the indirect effects were found as significant in the proposed Model 1.a. *Hypothesis 4* assumed that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and indirectly be associated with avoidance variables through negative emotional schemas. The hypothesis was confirmed to a certain extent. *Hypothesis 4.a* assumed that emotional abuse would significantly and indirectly be associated with behavioral social avoidance through negative emotional schemas. *Hypothesis 4.b* assumed that emotional abuse would significantly and indirectly be associated with behavioral nonsocial avoidance through negative emotional schemas. *Hypothesis 4.c* assumed that emotional abuse would significantly and indirectly be related to cognitive social avoidance through negative emotional schemas. *Hypothesis 4.d* assumed that emotional abuse would significantly and indirectly be associated with cognitive nonsocial avoidance through negative emotional schemas. These hypotheses were confirmed. That is, emotional abuse had positive indirect effects on behavioral social avoidance (β = .09, p < .001), behavioral nonsocial avoidance (β = .08, p < .001), cognitive social avoidance (β = .08, p < .001), and cognitive nonsocial avoidance (β = .09, p < .001), but small in effect. Specifically, the significant indirect effects of emotional abuse on the dimensions of avoidance were observed through negative beliefs about emotions. That is, negative beliefs about emotions mediated the relationships between emotional abuse and behavioral social avoidance, between emotional abuse and behavioral nonsocial avoidance, between emotional abuse and cognitive social avoidance, and between emotional abuse and cognitive nonsocial avoidance. In other words, those with emotional abuse had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance,

behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance. However, *Hypothesis 4.e, Hypothesis 4.f, Hypothesis 4.g, and Hypothesis 4.h* were rejected. It means that the indirect effects of emotional neglect on behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance were not significant.

Hypothesis 5 assumed that negative emotional schemas would significantly and indirectly be associated with gaming addiction through avoidance variables. The hypothesis was supported to a certain extent. *Hypothesis 5.a* assumed that negative emotional schemas would significantly and indirectly be related to gaming addiction through behavioral social avoidance. *Hypothesis 5.d* assumed that negative emotional schemas would significantly and indirectly be associated with gaming addiction through cognitive nonsocial avoidance. These hypotheses were confirmed. The total indirect effect of negative beliefs about emotions on gaming addiction was significant ($\beta = .16$, $p < .01$). Specifically, negative beliefs about emotions had significant positive indirect effect on gaming addiction through behavioral social avoidance ($\beta = .07$, $p < .01$). That is, behavioral social avoidance mediated the relationship between negative beliefs about emotions and gaming addiction. Moreover, negative beliefs about emotions had also significant positive indirect effect on gaming addiction through cognitive nonsocial avoidance ($\beta = .13$, $p < .001$). That is, cognitive nonsocial avoidance emotions mediated the relationship between negative beliefs about emotions and gaming addiction. Individuals with more negative beliefs about emotions had more behavioral social avoidance and cognitive nonsocial avoidance, which in turn resulted in greater gaming addiction. However, *Hypothesis 5.b and Hypothesis 5.c* were rejected. That is, the specific indirect effects of negative beliefs about emotions on gaming addiction through behavioral nonsocial avoidance and cognitive social avoidance were not significant.

Considering the significant direct relationship between negative beliefs about emotions and gaming addiction, the results also revealed that emotional abuse had significant positive indirect effect on gaming addiction ($\beta = .08$, $p < .001$). More specifically, emotional abuse had significant positive indirect effect on gaming addiction through negative beliefs about emotions ($\beta = .04$, $p < .001$). It means that

individuals who were emotionally abused in their childhood had more negative beliefs about emotions, which in turn resulted in greater gaming addiction.

Hypothesis 6 assumed that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and indirectly be associated with gaming addiction through negative emotional schemas and avoidance variables. This hypothesis was supported to a certain extent. *Hypothesis 6.a* assumed that emotional abuse would significantly and indirectly be associated with gaming addiction through negative emotional schemas and behavioral social avoidance. *Hypothesis 6.d* assumed that emotional abuse would significantly and indirectly be associated with gaming addiction through negative emotional schemas and cognitive nonsocial avoidance. These hypotheses were supported. The significant indirect effect of emotional abuse on gaming addiction was observed through negative beliefs about emotions and behavioral social avoidance ($B = .07$, $p < .01$). That is, those with emotional abuse had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance, and this greater behavioral social avoidance translated into higher gaming addiction. Lastly, the significant indirect effect of emotional abuse on gaming addiction was also observed through negative beliefs about emotions and cognitive nonsocial avoidance ($B = .13$, $p < .01$). That is, those with emotional abuse had more negative beliefs about emotions, which in turn was associated with greater cognitive nonsocial avoidance, and this greater cognitive nonsocial avoidance translated into higher gaming addiction.

Besides, emotional neglect had significant positive total indirect effect on gaming addiction ($\beta = .05$, $p < .01$). However, the pathway of this indirect relationship was found different from the hypothesized pathways. *Hypotheses 6.e, 6.f, 6.g, and 6.h* which said that emotional neglect would significantly and indirectly be associated with gaming addiction through negative emotional schemas and avoidance variables were rejected. The results showed that emotional neglect had significant positive indirect effect on gaming addiction through behavioral social avoidance ($\beta = .02$, $p < .01$). In other words, behavioral social avoidance mediated the relationship between emotional neglect and gaming addiction. Individuals who were emotionally neglected in their childhood used more behavioral social avoidance, which in turn was associated with greater gaming addiction. On the other hand, the specific indirect effect of emotional

neglect on gaming addiction through negative beliefs about emotions was not significant. The specific indirect effects for the modified proposed Model 1.a were summarized in Table 22. Moreover, the findings of the bootstrap analysis including standardized direct, indirect, and total effects for the modified proposed Model 1.a were shown in Table 23.

Table 22: Summary of the Specific Indirect Effects for the Modified Proposed Model 1.a

Pathways	*β*	*B*	*SE*	Lower	Upper	*p*	
EA → NBAE → BSA	.09		.01	.013	.036	.001	Sign.
EA → NBAE → BNSA	.08		.01	.011	.030	.001	Sign.
EA → NBAE → CSA	.08		.00	.010	.028	.001	Sign.
EA → NBAE → CNSA	.09		.01	.012	.033	.001	Sign.
EA → NBAE → GA	.04		.07	.102	.341	.000	Sign.
EN → NBAE → BSA	.04		.01	.000	.019	.095	Insign.
EN → NBAE → BNSA	.04		.00	.000	.015	.090	Insign.
EN → NBAE → CSA	.04		.00	.000	.015	.094	Insign.
EN → NBAE → CNSA	.04		.00	.000	.017	.095	Insign.
EN → NBAE → GA	.02		.05	.005	.164	.081	Insign.
EN → BSA → GA	.02		.03	.013	.129	.009	Sign.
NBAE → BSA → GA	.07		.01	.014	.055	.006	Sign.
NBAE → BNSA → GA	-.01		.01	-.026	.015	.663	Insign.
NBAE → CSA → GA	-.02		.01	-.036	.011	.390	Insign.
NBAE → CNSA → GA	.13		.02	.041	.091	.001	Sign.
EA → NBAE → BSA → GA		.06	.03	.025	.136	.004	Sign.
EA → NBAE → CNSA → GA		.13	.05	.065	.215	.001	Sign.

Note. EA: Emotional Abuse; EN: Emotional Neglect; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; NBAE: Negative Beliefs About Emotions; GA: Gaming Addiction.
Note. Unstandardized β values (B) were used for "EA-NBAE-BSA-GA" pathway and "EA-NBAE CNSA-GA" pathway.

Table 23: Standardized Direct, Indirect, and Total Effects for the Modified Proposed Model 1.a

		NBAE	BSA	BNSA	CSA	CNSA	GA
EA	Direct	.22***	-	-	-	-	-
	Indirect	-	.09***	.08***	.08***	.09***	.08***
	Total	.22***	.09***	.08***	.08***	.09***	.08***
EN	Direct	.10	.10**	-	-	-	-
	Indirect	-	.04	.04	.04	.04	.05**
	Total	.10	.14**	.04	.04	.04	.05**
NBAE	Direct	-	.41***	.39***	.37***	.40***	.20***
	Indirect	-	-	-	-	-	.16***
	Total	-	.41***	.39***	.37***	.40***	.36***
BSA	Direct	-	-	-	-	-	.16**
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	.16**
BNSA	Direct	-	-	-	-	-	-.02
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	-.02
CSA	Direct	-	-	-	-	-	-.06
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	-.06
CNSA	Direct	-	-	-	-	-	.32***
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	.32***

Note. $N = 431$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. EA: Emotional Abuse; EN: Emotional Neglect; PA: Physical Abuse; PN: Physical Neglect, SA: Sexual Abuse; TCHT: Total Childhood Trauma; BSA: Behavioral Social Avoidance; CNSA: BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; Cognitive Nonsocial Avoidance; TA: Total Avoidance; NBAE: Negative Beliefs about Emotions; GA: Gaming Addiction.

3.6.2. Path Analysis with Predictors of Exercise Addiction: Hypothesis Testing for Proposed Model 1.b

As in proposed Model 1.a, path analysis with observed variables was performed in order to test the proposed Model 1.b of the study. In this analysis, the direct and indirect associations among exogenous (emotional abuse and emotional neglect), mediator (negative beliefs about emotions and four dimensions of avoidance) and endogenous (exercise addiction) variables were examined. The model in which negative beliefs about emotions and four dimensions of avoidance mediated the relationship between emotional abuse and exercise addiction or between emotional neglect and exercise addiction provided good fit to the data ($\chi 2(11) = 23.36$, $\chi 2/df = 2.12$, $p < .05$, RMSEA = .06, GFI = .99, AGFI = .94, CFI = .986, TLI = .96). However, it was found that negative beliefs about emotions predicted exercise addiction directly. After the corrections based on modification indices, the findings revealed that the modified proposed Model 1.b perfectly fit to the data ($\chi 2(10) = 14.59$, $\chi 2/df = 1.46$, p = .15, RMSEA = .04, GFI = .99, AGFI = .96, CFI = .995, TLI = .98). Additionally, the result of squared multiple correlation ($R^2 = .111$) showed that the predictors of exercise addiction explained 11% of its variance.

Standardized regression estimates of the tested model were shown in Figure 4, lines indicating the significant paths and dashed lines indicating the non-significant paths. *Hypothesis 1* assumed that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and directly be associated with negative emotional schemas. The hypothesis was supported. The findings showed that emotional abuse had positive significant direct effect on negative beliefs about emotions ($\beta = .20$, $p < .01$). That is, when the emotional abuse was high, negative beliefs about emotions increased, too. Similarly, emotional neglect had positive significant direct effect on negative beliefs about emotions ($\beta = .17$, $p < .05$). In other words, those who experienced higher emotional abuse had higher negative beliefs about emotions.

Hypothesis 2 assumed that negative emotional schemas would significantly and directly be associated with avoidance variables. *Hypothesis 2.a* assumed that there would be a significant positive association between negative emotional schemas and

behavioral social avoidance. *Hypothesis 2.b* assumed that there would be a significant positive association between negative emotional schemas and behavioral nonsocial avoidance. *Hypothesis 2.c* assumed that there would be a significant positive association between negative emotional schemas and cognitive social avoidance. *Hypothesis 2.d* assumed that there would be a significant positive association between negative emotional schemas and cognitive nonsocial avoidance. These hypotheses were supported. As expected, negative beliefs about emotions had positive significant effects on all dimensions of avoidance. Negative belief about emotions directly and positively predicted behavioral social avoidance (β = .49, p < .001), behavioral nonsocial avoidance (β = .48, p < .001), cognitive social avoidance (β = .55, p < .001) and cognitive nonsocial avoidance (β = .55, p < .001). In other words, higher scores on negative beliefs about emotions result in an increase in all dimensions of avoidance. In addition, negative beliefs about emotions directly predicted exercise addiction (β = .21, p < .05).

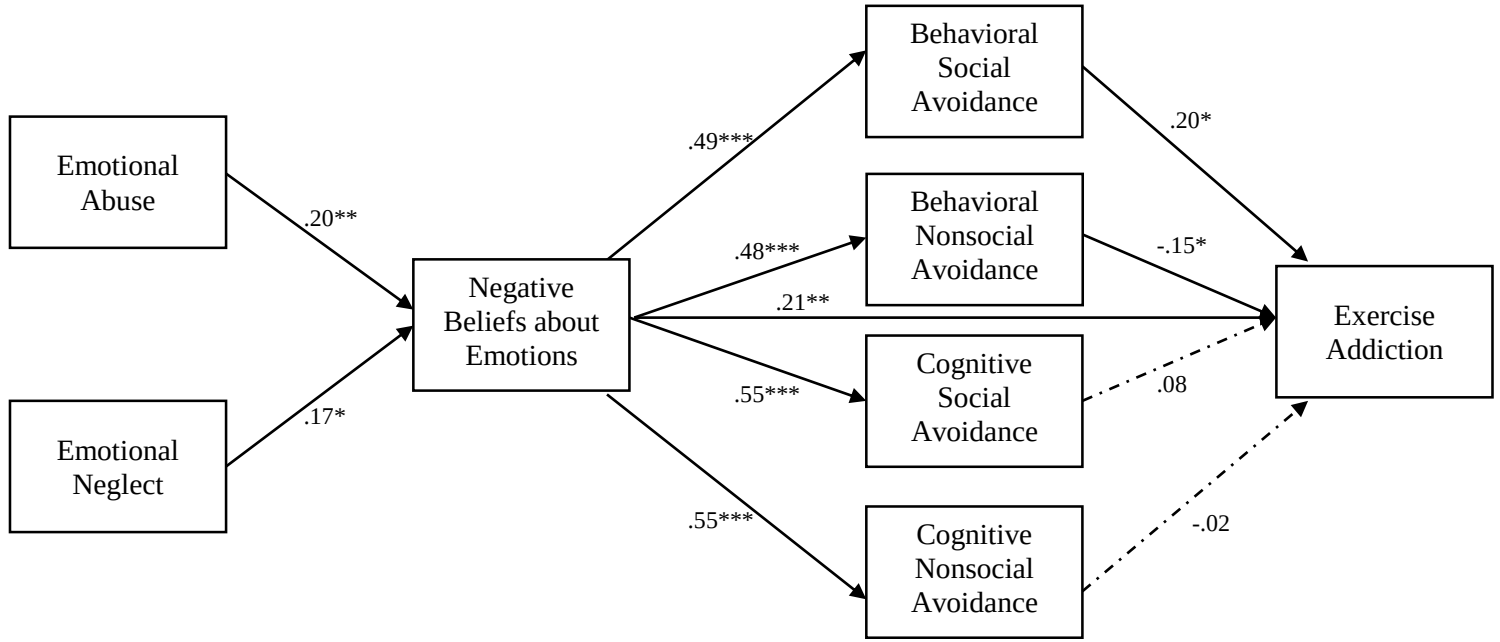
Hypothesis 3 assumes that avoidance variables would significantly and directly be associated with exercise addiction. The hypothesis was confirmed to a certain extent. *Hypothesis 3.a* assumed that there would be a significant positive association between behavioral social avoidance and exercise addiction. The hypothesis was confirmed. That is, behavioral social avoidance had significant positive direct effect on exercise addiction (β = .20, p < .05). *Hypothesis 3.b* assumed that there would be a significant positive association between behavioral nonsocial avoidance and exercise addiction. However, behavioral nonsocial avoidance had marginal negative direct effect on exercise addiction (β = -.15, p = .05). In other words, individuals who had more behavioral social avoidance had higher scores on exercise addiction, while individuals who had more behavioral nonsocial avoidance had lower scores on exercise addiction. On the other hand, *Hypothesis 3.c and Hypothesis 3.d* were rejected. That is, cognitive social avoidance and cognitive nonsocial avoidance had no significant direct effect on exercise addiction. The direct effects for the modified proposed Model 1.b were summarized in Table 24.

Table 24: Summary of the Direct Effects for the Modified Proposed Model 1.b

Pathways	*β*	*SE*	Lower	Upper	*p*	
EA → NBAE	.20	.08	.040	.351	.015	Sign.
EN → NBAE	.17	.07	.026	.314	.017	Sign.
NBAE → BSA	.49	.04	.397	.575	.001	Sign.
NBAE → BNSA	.48	.04	.390	.558	.001	Sign.
NBAE → CSA	.55	.04	.462	.630	.001	Sign.
NBAE → CNSA	.55	.04	.459	.626	.001	Sign.
NBAE → ExA	.21	.07	.069	.350	.006	Sign.
BSA → ExA	.20	.08	.033	.337	.013	Sign.
BNSA → ExA	-.15	.07	-.289	-.001	.048	Sign.
CSA → ExA	.08	.09	-.091	.251	.334	Insign.
CNSA → ExA	-.02	.08	-.179	.154	.865	Insign.

Note. EA: Emotional Abuse; EN: Emotional Neglect; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; NBAE: Negative Beliefs About Emotions; ExA: Exercise Addiction.

Figure 4: Standardized Parameter Estimates for Proposed Model 1.b: Mediating Roles of Negative Beliefs about Emotions and Avoidance (i.e. Behavioral Social Avoidance, Behavioral Nonsocial Avoidance, Cognitive Social Avoidance, Cognitive Nonsocial Avoidance) among the Relationship between Emotional Abuse or Emotional Neglect and Exercise Addiction



As mentioned in the previous sections, another bias-corrected bootstrapping method with 5000 resamples and 95% confidence interval was performed to estimate indirect effects of mediational variables for hypothesized Model 2. In addition, each specific indirect effect was calculated by using AMOS estimand and plugin (Gaskin & Jim, 2018a). The results of the study showed that there were significant indirect effects among some study variables.

As found in proposed Model 1.a, *Hypothesis 4* assumed that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and indirectly be related to avoidance variables through negative emotional schemas. The hypothesis was supported. *Hypothesis 4.a* assumed that emotional abuse would significantly and indirectly be associated with behavioral social avoidance through negative emotional schemas. *Hypothesis 4.b* assumed that emotional abuse would significantly and indirectly be associated with behavioral nonsocial avoidance through negative emotional schemas. *Hypothesis 4.c* assumed that emotional abuse would significantly and indirectly be associated with cognitive social avoidance through negative emotional schemas. *Hypothesis 4.d* assumed that emotional abuse would significantly and indirectly be associated with cognitive nonsocial avoidance through negative emotional schemas. These hypotheses were confirmed. The results showed that emotional abuse had significant positive indirect effects on behavioral social avoidance (β = .10, p < .05), behavioral nonsocial avoidance (β = .09, p < .05), cognitive social avoidance (β = .11, p < .05), and cognitive nonsocial avoidance (β = .11, p < .05). The specific indirect effects of emotional abuse on all dimensions of avoidance were observed through negative beliefs about emotions. That is, negative beliefs about emotions mediated the relationships between emotional abuse and behavioral social avoidance, between emotional abuse and cognitive social avoidance, between emotional abuse and cognitive nonsocial avoidance, and between emotional abuse and behavioral nonsocial avoidance. Individuals who were emotionally abused in their childhood had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance.

Similarly, *Hypothesis 4.e* assumed that emotional neglect would significantly and indirectly be associated with behavioral social avoidance through negative

emotional schemas. *Hypothesis 4.f* assumed that emotional neglect would significantly and indirectly be associated with behavioral nonsocial avoidance through negative emotional schemas. *Hypothesis 4.g* assumed that emotional neglect would significantly and indirectly be associated with cognitive social avoidance through negative emotional schemas. *Hypothesis 4.h* assumed that emotional neglect would significantly and indirectly be associated with cognitive nonsocial avoidance through negative emotional schemas. These hypotheses were also supported. The results revealed that emotional neglect had significant positive indirect effects on behavioral social avoidance (β = .08, p < .05), behavioral nonsocial avoidance (β = .08, p < .05), cognitive social avoidance (β = .09, p < .05), and cognitive nonsocial avoidance (β = .09, p < .05). The specific indirect effects of emotional neglect on the dimensions of avoidance were observed through negative beliefs about emotions. That is, negative beliefs about emotions mediated the relationships between emotional neglect and behavioral social avoidance, between emotional neglect and cognitive social avoidance, between emotional neglect and cognitive nonsocial avoidance, and between emotional neglect and behavioral nonsocial avoidance. Individuals who were emotionally neglected in their childhood had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance.

Hypothesis 5 assumed that negative emotional schemas would significantly and indirectly be associated with exercise addiction through avoidance variables. The hypothesis was rejected. Although negative beliefs about emotions had no significant total indirect effects on exercise addiction (β = .06, p = .19), some specific indirect effects were found. *Hypothesis 5.a* assumed that negative emotional schemas would significantly and indirectly be associated with exercise addiction through behavioral social avoidance. *Hypothesis 5.b* assumed that negative emotional schemas would significantly and indirectly be associated with exercise addiction through behavioral nonsocial avoidance. These hypotheses were confirmed. Accordingly, negative beliefs about emotions had significant positive indirect effect on exercise addiction through behavioral social avoidance (β = .10, p < .05) and negative indirect effect on exercise addiction through behavioral nonsocial avoidance (β = -.07, p < .05). That is, behavioral social avoidance and behavioral nonsocial avoidance mediated the

relationship between negative beliefs about emotions and exercise addiction. Individuals who had more negative beliefs about emotions used more behavioral social avoidance, which in turn resulted in greater exercise addiction. In addition, individuals who had more negative beliefs about emotions used more behavioral social avoidance, which in turn resulted in lower exercise addiction. However, the specific indirect effects of negative beliefs about emotions on exercise addiction through cognitive social avoidance and cognitive nonsocial avoidance were not significant, which means that *Hypothesis 5.c* and *Hypothesis 5.d* were rejected.

As mentioned before, the results showed that there was a significant direct relationship between negative beliefs about emotions and exercise addiction. Considering this relationship, the findings also showed that emotional abuse had significant positive indirect effect on exercise addiction (β = .05, p < .05). More specifically, emotional abuse had significant positive indirect effect on exercise addiction through negative beliefs about emotions (β = .04, p < .05). In other words, negative beliefs about emotions mediated the relationship between emotional abuse and exercise addiction. Individuals who were emotionally abused in their childhood had more negative beliefs about emotions, which in turn resulted in greater exercise addiction.

Hypothesis 6 assumed that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and indirectly be associated with exercise addiction through negative emotional schemas and avoidance variables. The hypothesis was supported to a certain extent. *Hypothesis 6.a* assumed that emotional abuse would significantly and indirectly be associated with exercise addiction through negative emotional schemas and behavioral social avoidance. The hypothesis was confirmed. The significant indirect effect of emotional abuse on exercise addiction was observed through negative beliefs about emotions and behavioral social avoidance (B = .12, p < .05). That is, those with emotional abuse had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance, and this greater behavioral social avoidance translated into higher exercise addiction. Besides, *Hypothesis 6.b* assumed that emotional abuse would significantly and indirectly be associated with exercise addiction through negative emotional schemas and behavioral nonsocial avoidance. The significant indirect effect of emotional abuse

on exercise addiction was also observed through negative beliefs about emotions and behavioral nonsocial avoidance (B = -.09, p < .05). That is, those with emotional abuse had more negative beliefs about emotions, which in turn was associated with greater behavioral nonsocial avoidance, and this greater behavioral nonsocial avoidance translated into lower exercise addiction. On the other hand, *Hypothesis 6.c* and *Hypothesis 6.d* were rejected. That is, the specific indirect effect of emotional abuse on exercise addiction through negative beliefs about emotion and cognitive social avoidance, or through negative beliefs about emotions and cognitive nonsocial avoidance were not significant.

Further, emotional neglect had significant positive total indirect effect on exercise addiction (β = .04, p < .05). *Hypothesis 6.e* assumed that emotional neglect would significantly and indirectly be associated with exercise addiction through negative emotional schemas and behavioral social avoidance. The hypothesis was supported. The significant indirect effect of emotional neglect on exercise addiction was also observed through negative beliefs about emotions and behavioral social avoidance (B = .07, p < .05). That is, those with emotional neglect had more negative beliefs about emotions, which in turn was associated with greater behavioral social avoidance, and this greater behavioral social avoidance translated into higher exercise addiction. Moreover, *Hypothesis 6.f* assumed that emotional neglect would significantly and indirectly be associated with exercise addiction through negative emotional schemas and behavioral nonsocial avoidance. This hypothesis was also confirmed. The significant indirect effect of emotional neglect on exercise addiction was observed through negative beliefs about emotions and behavioral nonsocial avoidance (B = -.05, p < .05). That is, those with emotional neglect had more negative beliefs about emotions, which in turn was associated with greater behavioral nonsocial avoidance, and this greater behavioral nonsocial avoidance translated into lower exercise addiction. On the other hand, the specific indirect effect of emotional neglect on exercise addiction through negative beliefs about emotions and cognitive social avoidance or through negative beliefs about emotions cognitive nonsocial avoidance were not significant. Thus, *Hypothesis 6.g* and *Hypothesis 6.h* were rejected. In addition, emotional neglect had significant positive indirect effect on exercise addiction through negative beliefs about emotions (β = .03, p < .05). In other words,

negative beliefs about emotions also mediated the relationship between emotional neglect and exercise addiction. Individuals whore emotionally neglected in their childhood had more negative beliefs about emotions, which in turn was associated with greater exercise addiction. The specific indirect effects for the modified proposed Model 1.b were summarized in Table 25. In addition, the findings of the bootstrap analysis including standardized direct, indirect, and total effects for the modified proposed Model 1.b were shown in Table 26.

Table 25: Summary of the Specific Indirect Effects for the Modified Proposed Model 1.b

Pathways	*β*	*B*	*SE*	Lower	Upper	*p*	
EA → NBAE → BSA	.10		.01	.007	.042	.013	Sign.
EA → NBAE → BNSA	.09		.01	.007	.040	.013	Sign.
EA → NBAE → CSA	.11		.01	.007	.042	.015	Sign.
EA → NBAE → CNSA	.11		.01	.007	.042	.014	Sign.
EA → NBAE → ExA	.04		.14	.072	.559	.011	Sign.
EN → NBAE → BSA	.08		.01	.004	.022	.014	Sign.
EN → NBAE → BNSA	.08		.01	.004	.022	.013	Sign.
EN → NBAE → CSA	.09		.01	.005	.024	.015	Sign.
EN → NBAE → CNSA	.09		.01	.004	.023	.014	Sign.
EN → NBAE → ExA	.08		.08	.047	.317	.009	Sign.
NBAE → BSA → ExA	.10		.02	.018	.095	.012	Sign.
NBAE → BNSA → ExA	-.07		.02	-.079	-.007	.042	Sign.
NBAE → CSA → ExA	.05		.03	-.018	.074	.313	Insign.
NBAE → CNSA → ExA	-.01		.03	-.051	.040	.867	Insign.
EA → NBAE → BSA → ExA		.12	.03	.014	.333	.014	Sign.
EA → NBAE → BNSA → ExA		-.09	.06	-.223	-.020	.025	Sign.
EN → NBAE → BSA → ExA		.07	.04	.018	.154	.013	Sign.
EN → NBAE → BNSA → ExA		-.05	.04	-.135	-.008	.028	Sign.

Note. EA: Emotional Abuse; EN: Emotional Neglect; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; NBAE: Negative Beliefs About Emotions; ExA: Exercise Addiction.

Note. Unstandardized β values (B) were used for "EA-NBAE-BSA-ExA" pathway, "EA-NBAE-BNSA-ExA" pathway, "EN-NBAE-BSA-ExA" pathway, and "EN-NBAE-BNSA-ExA" pathway.

Table 26: Standardized Direct, Indirect, and Total Effects for the Modified Proposed Model 1.b

		NBAE	BSA	BNSA	CSA	CNSA	ExA
EA	Direct	.20**	-	-	-	-	-
	Indirect	-	.10*	.09*	.11*	.11*	.05*
	Total	.20**	.10*	.09*	.11*	.11*	.05*
EN	Direct	.17*	-	-	-	-	-
	Indirect	-	.08*	.08*	.09*	.09*	.04*
	Total	.17*	.08*	.08*	.09*	.09*	.04*
NBAE	Direct	-	.49**	.48***	.55***	.55***	.21**
	Indirect	-	-	-	-	-	.06
	Total	-	.49**	.48***	.55***	.55***	.27**
BSA	Direct	-	-	-	-	-	.20*
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	.20*
BNSA	Direct	-	-	-	-	-	-.15*
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	-.15*
CSA	Direct	-	-	-	-	-	.08
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	.08
CNSA	Direct	-	-	-	-	-	-.02
	Indirect	-	-	-	-	-	-
	Total	-	-	-	-	-	-.02

Note. N = 300, *p < .05, **p < .01, ***p < .001. EA: Emotional Abuse; EN: Emotional Neglect; PA: Physical Abuse; PN: Physical Neglect, SA: Sexual Abuse; TCHT: Total Childhood Trauma; BSA: Behavioral Social Avoidance; CNSA: BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; Cognitive Nonsocial Avoidance; TA: Total Avoidance; NBAE: Negative Beliefs about Emotions; ExA: Exercise Addiction.

3.6.3. Multigroup Invariance Analysis

3.6.3.1. Comparing the Proposed Model between Groups

Horn and McArdle (1992: 117) defined measurement invariance as "whether or not, under different conditions of observing and studying phenomena (e.g. countries, cultures, products, industries), measurement operations yield measures of the same attribute". It means that measurement invariance explores if the psychometric properties of data from multiple groups show the same structure. Multigroup Confirmatory Factor Analysis (MGCFA) has been widely used to test measurement invariance (Milfont & Fischer, 2010: 113). In the present study, multigroup analysis was run for game players and exercisers by using an AMOS plugin developed to easily perform that analysis (Gaskin & Lim, 2018b).

As mentioned in the previous sections, the present results showed excellent model fit for the gaming group ($\chi 2(9) = 16.39$, $\chi 2/df = 1.82$, p = .06, RMSEA = .04, GFI = .99, AGFI = .96, CFI = .995, TLI = .98), as well as for the exercising group ($\chi 2(10) = 14.59$, $\chi 2/df = 1.46$, p = .15, RMSEA = .04, GFI = .99, AGFI = .96, CFI = .995, TLI = .98), indicating that the predictors of behavioral addictions (i.e. gaming addiction or exercise addiction) model was supported in both groups. Accordingly, emotional maltreatment (i.e. emotional abuse and/or emotional neglect) predicted negative beliefs about emotions, and those negative beliefs predicted all types of avoidance (i.e. behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance). In multigroup analysis, the types of behavioral addiction were used as a moderating variable in the model to test if the relationships among emotional maltreatment (i.e. emotional abuse and emotional neglect), negative beliefs about emotions, and avoidance (i.e. behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance) vary across two groups (See Figure 5). In that analysis, global test calculates the significance level of difference between chi squares of two groups, indicating the overall model difference. Moreover, local tests calculate standardized estimates for every path and the significance level of a path across different groups, indicating each path difference.

Hypothesis 7 assumed that there would be no significant difference in the relationships among emotional maltreatment (i.e. emotional abuse and emotional neglect), negative beliefs about emotions, and avoidance (i.e. behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance) across two addiction groups. The hypothesis was supported. The findings of multigroup invariance analysis showed that there was no significant level of difference between chi squares of two groups; which means that the model did not significantly differ across groups. In addition, there is no significant level of difference among standardized estimates calculated for very path across different groups. In other words, there was no type of addiction moderation on the direct or indirect relationships in the model (See Table 27).

Figure 5: Multigroup Moderation Model between Groups

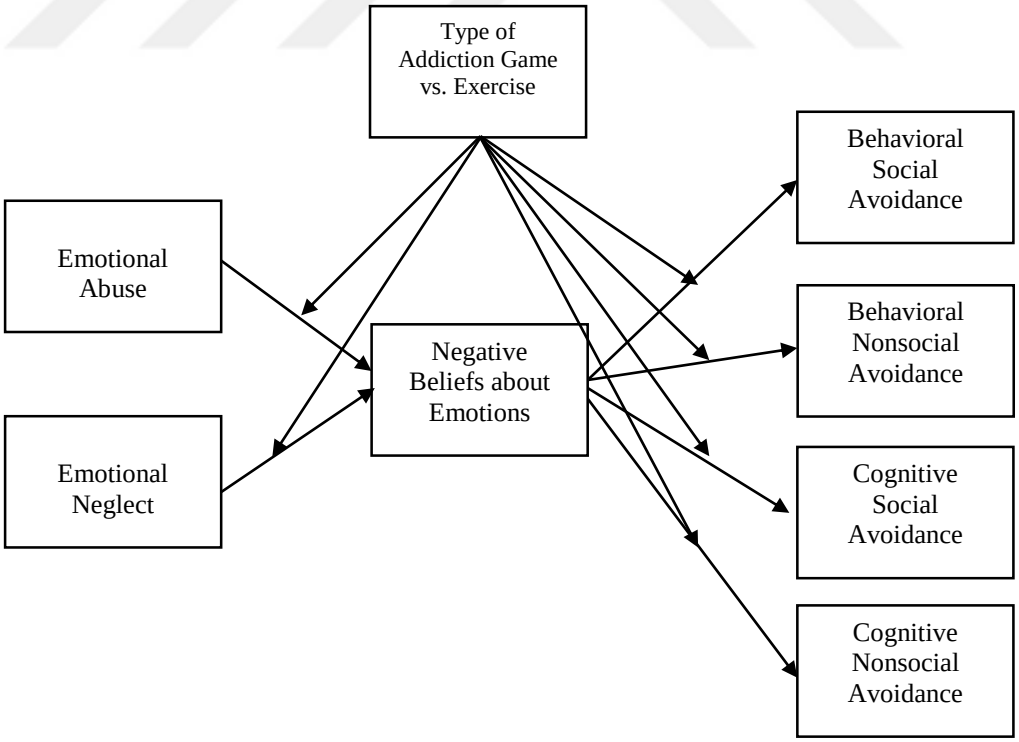


Table 27: Results of Global Test and Local Tests for the Multigroup Moderation Model

	$\chi 2$	*df*
Unsconstrained	36.00	168
Constrained	36.00	168
Difference	0.00	0
p	1.00	

Pathways	Game β	Exercise β	Difference in Betas	p for difference	
EA → NBAE	.22***	.20**	.02	1.00	No difference
EN → NBAE	.10	.17*	-.07	1.00	No difference
NBAE → BSA	.41***	.49***	-.06	1.00	No difference
NBAE → BNSA	.39***	.48***	-.09	1.00	No difference
NBAE → CSA	.37***	.55***	-.18	1.00	No difference
NBAE → CNSA	.40***	.55***	-.15	1.00	No difference

Note. N =731, **p* < .05, ***p* <.01, ****p* <.001. *Note.* EA: Emotional Abuse; EN: Emotional Neglect; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; NBAE: Negative Beliefs About Emotions.

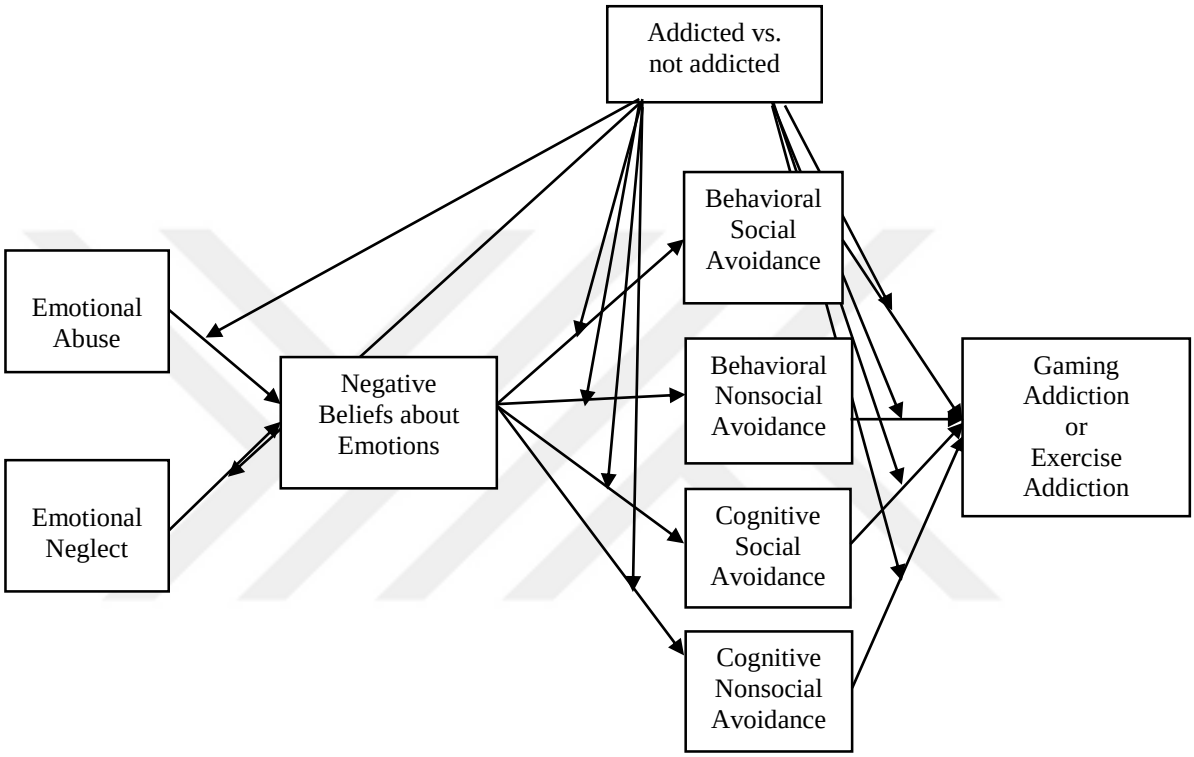
3.6.3.2. Comparing the Proposed Model within Groups

The sample of the present study was recruited from the individuals who had different levels of excessive gaming behavior or exercise behavior. When their addiction levels were analyzed in Section 3.2., the present results showed that some participants had higher addiction scores than other participants in their group. Therefore, it was needed to compare the proposed model withing groups according to their addiction levels.

In this analysis, having gaming addiction or exercise addiction were used as a moderating variable in the model to test if the relationships among emotional maltreatment (i.e. emotional abuse and emotional neglect), negative beliefs about emotions, avoidance (i.e. behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance), and addiction (i.e. gaming or exercise) vary across two groups (See Figure 6). Thus, two multigroup analyses were conducted separately. For gaming addiction, polythetic format was used to assign ‘addicted’ and ‘not addicted’ group. For exercise addiction, at risk and

nondependent–symptomatic groups were assigned as ‘addicted’ and nondependent–asymptomatic group was assigned as ‘not addicted’.

Figure 6: Multigroup Moderation Model within Groups



Since this kind of comparison was not aimed in the present study, there was no hypothesis, rather the results were explorative. The findings of multigroup invariance analysis for gaming group showed that there was no significant level of difference between chi squares of two groups; which means that the model did not significantly differ across groups (addicted vs. not addicted). Since the p-value of the chi-square difference test was not significant; local tests should be interpreted with caution (Gaskin & Lim, 2018b). Firstly, the positive relationship between emotional abuse and negative beliefs about emotions was only significant for not addicted group. Second, the positive relationship between cognitive nonsocial avoidance and gaming addiction

was only significant for not addicted group. Third, the positive relationship between behavioral social avoidance and gaming addiction was only significant for addicted group. However, there was no significant level of difference among standardized estimates calculated for every path across different groups. In other words, there was no addiction level moderation on the direct or indirect relationships in the model (See Table 28).

Table 28: Results of Global Test and Local Tests for the Multigroup Moderation Model for Gaming Addiction

	$\chi 2$	*df*			
Unsconstrained	21.00	595			
Constrained	50.00	669			
Difference	29.00	74			
p	1.00				
Pathways	Not addicted β	Addicted β	Difference in Betas	*p* for difference	
EA → NBAE	.31***	.08	.23	1.00	Only sign. for not addicted.
EN → NBAE	.08	.12	-.04	1.00	No difference
NBAE → BSA	.44***	.32***	.12	1.00	No difference
NBAE → BNSA	.36***	.35***	.01	1.00	No difference
NBAE → CSA	.46***	.21***	.25	1.00	No difference
NBAE → CNSA	.43***	.28***	.15	1.00	No difference
BSA → GA	-.09	.34***	-.43	1.00	Only sign. for addicted
BNSA → GA	-.01	-.11	.10	1.00	No difference
CSA → GA	.08	-.07	.15	1.00	No difference
CNSA → GA	.31***	.15	.17	1.00	Only sign. for not addicted
NBAE → GA	.20***	.16*	.05	1.00	No difference

Note. N =431, *p < .05, **p <.01, ***p <.001. *Note.* EA: Emotional Abuse; EN: Emotional Neglect; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; NBAE: Negative Beliefs About Emotions, GA: Gaming Addiction.

Similarly, the findings of multigroup invariance analysis for exercise group showed that there was no significant level of difference between chi squares of two groups; which means that the model did not significantly differ across groups (addicted vs. not addicted). Since the p-value of the chi-square difference test was not

significant; local tests should be interpreted with caution (Gaskin & Lim, 2018b). Firstly, the positive relationship between emotional abuse and negative beliefs about emotions was only significant for addicted group. Second, the positive relationship between behavioral social avoidance and exercise addiction was only significant for addicted group. However, there was no significant level of difference among standardized estimates calculated for every path across different groups. In other words, there was no addiction level moderation on the direct or indirect relationships in the model (See Table 29).

Table 29: Results of Global Test and Local Tests for the Multigroup Moderation Model for Exercise Addiction

	$\chi 2$	*df*			
Unsconstrained	25.00	543			
Constrained	55.00	603			
Difference	30.00	60			
p	1.00				
Pathways	Not addicted β	Addicted β	Difference in Betas	*p* for difference	
EA → NBAE	-.11	.28***	.39	1.00	Only sign. for addicted.
EN → NBAE	.30	.15	-.15	1.00	No difference
NBAE → BSA	.38***	.51***	.13	1.00	No difference
NBAE → BNSA	.48***	.50***	.02	1.00	No difference
NBAE → CSA	.58***	.52***	-.06	1.00	No difference
NBAE → CNSA	.45***	.58***	.13	.26	No difference
BSA → ExA	-.02	.28**	.30	1.00	Only sign. for addicted
BNSA → ExA	.13	-.07	-.20	1.00	No difference
CSA → ExA	.03	.09	.06	1.00	No difference
CNSA → ExA	-.00	.04	.04	1.00	No difference
NBAE → ExA	-.05	.04	.01	1.00	No difference

Note. N =300, **p* < .05, ***p* <.01, ****p* <.001. *Note.* EA: Emotional Abuse; EN: Emotional Neglect; BSA: Behavioral Social Avoidance; BNSA: Behavioral Nonsocial Avoidance; CSA: Cognitive Social Avoidance; CNSA: Cognitive Nonsocial Avoidance; NBAE: Negative Beliefs About Emotions, ExA: Exercise Addiction.

CHAPTER FOUR
DISCUSSION

This final chapter included a discussion of the results under seven main sections. In the first section, demographic findings were discussed and evaluated in the light of related literature. The second section contained a discussion about a review of the structure of Leahy's Emotional Schemas Scale. The third section involved discussion of addiction criterion. And then, the correlations, group comparisons, and the open-ended question were discussed. The model testing for both proposed model 1.a and proposed model 1.b was discussed separately in the fifth section. The implications of the results for research and practice were discussed in the sixth section. The final section comprised of recommendations for further studies and the limitations of the current study.

4.1. DISCUSSION OF THE DEMOGRAPHIC FINDINGS

The demographic findings of the present study showed some similarities with behavioral addiction literature. Firstly, it was found that the number of men was eighth times higher than the number of women for gaming sample although the data was collected by using a number of social media platforms which provides similar chance for the participation. This finding was consistent with the findings of other studies (e.g., Billieux et al., 2015: 244; Na et al., 2017: 250). Hyun et al. (2015: 711) suggested that gender differences for gaming addiction may be explained by higher levels of novelty seeking and impulsivity, higher comorbidity of attention-deficit hyperactivity disorder in men. On the other hand, the difference between the number of men and the number of women participants was not huge for exercising sample despite the same data collection process. Nonetheless, the number of men exerciser was found to be higher than the number of women exercisers. This finding is also consistent with the results of many studies (see for a review Hausenblas & Symons Downs, 2002a).

In the literature, participants mostly consist of adolescents (e.g., Kaess et al., 2017: 244; Van Rooij et al., 2014: 157) or young adults (e.g., Andreassen et al., 2013: 92; Loton et al., 2016: 568) for gaming addiction. Similarly, the mean age of players

represents young adulthood in the present study. This may be as a result of inclusion criterion (i.e. being above 18-year-old) of the study. For exercise addiction, being a young adult or adult is a risk factor (Costa et al., 2013: 216). In the present study, the participants' mean age was consistent with other studies (see Hausenblas & Symons Downs, 2002a).

There is a debate about how to play online or offline games influence the degree of being addicted. In the current study, although the players reported that they have preferred both online and offline games, most players have preferred to play online competitive multiplayer games. Findings confirmed that the participants who play offline games had fewer addiction scores than those play online games and, those play both online and offline games. For example, Van Rooij et al. (2014: 157) found that individuals playing online games were almost four times more likely to have high scores on problematic video gaming. Similarly, Multiplayer Online Battle Arena (e.g., League of Legends, Dota 2) was the most reported game genre among various genres in the present study. Moreover, first-person shooter games (e.g., Halo, Call of Duty) and action-adventure games (e.g., Resident Evil, Grand Theft Auto) were also highly reported. Unexpectedly, Massively Multiplayer Online Role-Playing Games (MMORPGs) (e.g. World of Warcraft, Final Fantasy) was not reported as high as those genres. Many studies suggested that MMORPGs have addictive characteristics due to their power of immersion and characteristic features (Beard & Wickham, 2016: 507; Billieux et al., 2015: 244; Hussain et al., 2015: 222). In the present study, the research link was shared in various Facebook groups without making any distinction. The pages of MMORPGs has generally a huge number of participants, therefore; our post about the study might be unnoticed in busy flows of the pages. Since our post was an invitation to help for a study, somewhat the players might be under the effect of social loafing in that group.

Several studies demonstrated that various social and behavioral motives may contribute to gaming behavior (Beard & Wickham, 2016: 509). Some of the gaming motives have been identified as achievement, socialization, and immersion (Yee, 2006: 772). In the present study, the most reported gaming motivation was *enjoyment*. Other highly rated motives were *not thinking about stressful life events or problems* and *alienation from negative feelings*. This result was consistent with the findings that

people with gaming addiction had higher use of avoidance-oriented coping and less use of approach coping (Loton et al., 2016: 575).

In the exercising group, most participants have preferred to exercise individually. Moreover, the participants reported they have mostly engaged in running and fitness/bodybuilding. Similarly, most studies in the literature were consisting of runners, athletes, and fitness club members or instructors (see Hausenblas & Symons Downs, 2002a). Nowadays, running groups and fitness clubs have been overemphasized in social media such as Instagram, LinkedIn or Facebook. Therefore, it might be more easy to reach those kinds of participants from social media for our study.

Although the exercisers reported that they have been exercising with *enjoyment* motivation as players, the most reported motivation for exercise was *alienation from negative feelings*. They also rated highly *not thinking about stressful life events or problems* as an important motivation. This result seems to be consistent with the exploratory models for exercise addiction. For instance, the "Four Phase Model" (Freimuth et al., 2011: 2070) suggests that addiction is most likely to happen if exercise becomes the major mean of coping with stress. Moreover, Costa and colleagues (2013: 220) found that negative mood states are related to exercise dependence.

Besides, some researchers have strongly advocated the differences between primary (behavior itself is a goal) and secondary exercise addiction (behavior is a co-occurring situation with eating disorders) (Berczik et al., 2012: 404). In the present study, BMI and the SCOFF Questionnaire (Morgan et al., 1999) were used to examine primary and secondary exercise addiction. In addition, *weight control or loss* was added as a motivation for doing exercise in the demographic information form. The findings showed that more than half of the participants have weight control or weight lose motivation for their exercising behavior. According to results, the mean BMI of the participants corresponded to the normal range (18.5-24.9) (Fairburn et al., 2008: 600). Thus, it can be inferred that there was no comorbidity with anorexia nervosa in the present study. However, more detailed examination for bulimia nervosa might be necessary to exclude it completely. Since the concerns about the body are closely related with exercise behaviors, it may be very hard to differentiate one from another in the real world.

4.2. DISCUSSION OF THE REVIEW OF THE LEAHY'S EMOTIONAL SCHEMAS SCALE

The Leahy's Emotional Schemas Scale (LESS) is a widely used measure across different cultures. The psychometric studies of the LESS in different languages were published such as Persian, Chinese, Arabic, Russian, Espanola, French and Portuguese. For instance, the Persian adaptation study showed that the number of factors was reduced to 13 by eliminating of two factors and replacing the new one for the LESS with 37-item (Khanzade, Edrisi, Mohamadkhani, & Saidian, 2012). In the study of Korean LESS-II (Suh et al., 2019: 38), the two-factor model with 10 items was found, instead of the original 14-factor structure model with 28 items. Besides, the Russian psychometric study of the LESS-II (Sirota, Moskovchenko, Yaltonsky, Kochetkov, & Yaltonskaya, 2016: 76) showed a one-factor structure indicating the presence of dysfunctional styles of interpreting emotions. In the Turkish adaptation study (Yavuz et al., 2011: 276), a 14-factor solution was confirmed but some item loadings and names of subscales showed differences from the original one.

In the literature, some studies (e.g. Batmaz et al., 2014; Rezaei & Ghazanfari, 2016) used higher-order categorizations for the dimensions of the LESS. Accordingly, two higher dimensions of the LESS were considered as rigid emotional schemas (guilt, simplistic views, numbness, rationality, duration, rumination, blame), and negative beliefs regarding emotions (reversing for validation, comprehensibility, higher values, controllability, expression, and acceptance). However, these studies did not mention the statistical and theoretical background behind those two higher-order factor structure.

The disagreements on the structure of the LESS can be understood from the paradigm of emotion. Izard (2007: 261) argued that the term emotion was mostly used both to basic emotions and emotion schemas; however, they differ from each other with regard to their emergence and development. For instance, basic emotions are described as natural kinds, whereas emotion schemas are defined by the reciprocal communication of emotion and cognition (Izard, 2007: 265). Izard (2007: 266) also pointed out that they may be activated by appraisals, memories, and changes in hormone levels. Moreover, they may be altered by new information as well as

individual and cultural differences in emotion-cognition relations. Therefore, it may be very hard to construct a uniform structure defining the emotional schemas.

In the present study, the reliability scores were very low for the subscales of the LESS at initial analyses. However, when the positive items were recoded, the reliability score was very good for the total scale. In regard, it can be said that the participants could successfully report negative beliefs about emotions, although their cognitive organizations for emotions did not provide a consistent picture. Leahy described emotional schemas as "cognitive perspectives on emotional experience and are defined as plans, concepts, and strategies that an individual utilizes 'in response to' an emotion." (Silberstein et al., 2012: 409). This definition also indicates *meta*-level of emotion processing. However, people may be not competent to assess what they actually think about their emotions in Likert-type measures. Thus, more reliable and valid data for emotional schemas can be obtained by experience sampling method including emotion induction. Moreover, applying psychoeducation about emotions, cognitions and their relationship may be important for a more accurate assessment of emotion processing before implementing self-report measures.

Notably, no study was found about the validity of the LESS among samples with behavioral addictions so far. In the original study (Leahy, 2002: 185), the participants consisted of 53 adult psychiatric patients with anxiety and/or depressive symptoms, whereas the participants were recruited from university students in Turkish adaptation study (Yavuz et al., 2011: 276). This congruency among study samples may be the reason for the different findings.

4.3. DISCUSSION OF ADDICTION CRITERION

In the present study addiction criterion for gaming addiction was examined based on the polythetic-monothetic format criteria which were adapted from the original study of development of the Game Addiction Scale (GAS; Lemmens et al., 2009: 87). In the original study, 9.4% of the participants were classified as gaming addicted in the polythetic format, and 9.3% of the participants were classified as gaming addicted in the monothetic format (Lemmens et al., 2009: 88). Charlton and Danforth (2007: 1531) found that 39% of the participants were classified as addicted

when they applied polythetic format; however, 1.8% of their respondents could be categorized as addicted when they applied monothetic format. Similarly, a remarkable difference between rates of polythetic and monothetic format was found in the Turkish adaptation study of the GAS (Baysak et al., 2016: 27). Accordingly, 47% of the participants were classified as addicted in the polythetic format, and 11.16% of the participants were classified as addicted in the monothetic format. Similar results were found in the present study. The current findings showed that 45.3% of the players were classified as gaming addicted in the polythetic format, while 7% of the players were classified as gaming addicted in the monothetic format. Applying a polythetic format or monothetic format is a debate in the literature. It is important to consider that using polythetic format may result in overestimation of the frequency of addicted players (Lemmens et al., 2009: 89). A failure at distinguishing high involvement from addiction may lead to increase in stigmatization in the society, and that stigmatization may prevent those people from getting help for their problems. Charlton and Danforth (2007: 1547) suggested to be careful about the meaning of items in different questionnaires since they mean different things in terms of conceptualization of addiction.

As adapted from the original study of the development of the Exercise Dependence Scale-21 (EDS-21; Hausenblas & Symons Downs, 2002b: 392), exercise addiction was classified under three groups: at-risk, nondependent-symptomatic, or nondependent-asymptomatic. The current results showed that 4.7% of the participants were classified as at risk for exercise dependence, 64% as nondependent–symptomatic, and 31.3% as nondependent–asymptomatic. This finding was consistent with the literature. For instance, Hausenblas and Symons Downs (2002b: 392) found that 5% of the participants were classified as at risk for exercise dependence, 62.5% as nondependent–symptomatic, and 30.6% as nondependent–asymptomatic. Similarly, 11.2% of the participants were classified as at risk for exercise dependence, 56% as nondependent–symptomatic, and 32.8% as nondependent–asymptomatic in the Turkish adaptation study of EDS-21 (Yeltepe & İkizler, 2007: 33). In this classification system, at-risk group corresponds to monothetic format and nondependent–symptomatic group corresponds to polythetic format. From this perspective, these results may also point out the importance of distinction between

high involvement in a particular activity and being addicted to it. Therefore, the use of multiple assessment systems may be important in the behavioral addiction-related research studies and clinical practice.

4.4. DISCUSSION OF THE CORRELATIONS, GROUP COMPARISONS, AND THE OPEN-ENDED QUESTION

The present work included a number of variables which were supposed to be correlated with each other. The findings of correlation analysis for gaming addiction were found different from the findings of exercise addiction. Firstly, the analysis revealed that age was not correlated with gaming addiction but it was negatively correlated with exercise addiction. The insignificant correlation between age and game addiction may be explained by the characteristic of our sample since it did not include adolescents. On the other hand, a negative correlation between exercise addiction and age says that when the age of participants decreased, their level of exercise addiction increased. As mentioned before, the behavior of excessive exercise is likely to be rewarded with secondary motivations such as achievement, socializing, and reaching perfection. Thus, people in older ages may not be able to devote their energy and time to do exercise with these motivations, instead, they may exercise as a part of regular health behavior. Moreover, it has been argued that excessive exercise is associated with the risk of overuse injuries such as knee abnormalities in older ages (Weinstein & Weinstein, 2014: 2064).

Secondly, total childhood trauma and all subscales of childhood trauma were positively and significantly correlated to gaming addiction. When the scores of childhood trauma increased, the scores of gaming addiction also increased. Previous research has consistently evidenced that there is a strong relationship between childhood traumatic experiences and various types of chemical addictions such as smoking, alcohol and other drug use (Anda et al., 2006: 180). Various studies about behavioral addictions supported similar findings for childhood trauma. For example, it has been reported that gambling addiction was associated with childhood maltreatment (Felsher, Derevensky, & Gupta, 2010: 545). Another study (Schimmenti et al., 2017: 314) examining the relationship between internet addiction and traumatic

experiences showed that emotional abuse and neglect were significantly correlated with internet addiction, but physical and sexual abuse were not. Similarly, emotional abuse, physical abuse, physical neglect, and total childhood trauma were positively correlated with exercise addiction in the present study; however, emotional neglect and sexual abuse were not. A study investigating the potential impact of abuse history on autonomic regulation showed that individuals with abuse history had less vagal regulation of the heart (i.e., a rhythmic increase and decrease in heart rate associated with frequencies of spontaneous breathing); moreover, they were not able to rapidly return normal vagal regulation after mild exercise to support a calm physiological state (Dale et al., 2009: 299). In other words, abused people may develop sensitivity for fight/flight behaviors in response to stress and have problems with switching from activation to calmness. Thus, those individuals may totally avoid from exercise.

Thirdly, total avoidance and all subscales of avoidance were positively and significantly correlated to gaming addiction. In other words, people with increased avoidance scores had also increased gaming addictions scores. This result might be explained by the fact that gaming behavior needs players' behavioral commitment as well as cognitive one. More specifically, behavioral commitment to a game may be considered as sitting for hours in front of a computer, tablet etc. and doing nothing else. Cognitive commitment may be considered as canalizing one's attention to game-related issues. Likewise, behavioral social avoidance, cognitive social avoidance, cognitive nonsocial avoidance, and total avoidance were positively correlated with exercise addiction, but behavioral nonsocial avoidance was not. It can be easily said that when people make exercise, they can get their mind away from the problem. Thus, when the participants' levels of exercise behavior increased, their levels of cognitive avoidance both in the form of social and nonsocial also increased. Further, doing exercise is an obvious behavior itself. Therefore, exercise itself may be considered as a good alternative to avoid from unpleasant behaviors. The reason of insignificant relationship between exercise addiction and behavioral nonsocial avoidance can be explained by the subject of this type avoidance. In the present study, behavioral nonsocial avoidance is the opposite of keep pushing oneself to the limits. However, exercising behavior involves trying better in its nature.

Lastly, there was a significant positive correlation between negative beliefs about emotions and behavioral addiction types of the present study (gaming addiction and exercise addiction). It means that the more negative beliefs about emotions the participants had, the more gaming addiction or exercise addiction they reported. Emotional schemas can serve as fuel for motivation for the aims of daily life and for coping with the everyday challenges and failures within a given culture (Izard, 2007: 265). When individuals have more negative emotional schemas, they may have deficits in adaptive functioning in daily life, which may result in gaming or exercise addiction as a way of escape from problems.

In the current study, gaming-related characteristics of the players were compared in terms of addiction scores. In a similar way, exercise-related characteristics of the exercisers were also analyzed. It is argued that the amount of activity for a particular addictive behavior cannot be a reliable criterion since the level of activity engagement may show differences from one individual to another (Starcevic, 2016: 723). For instance, the proposal of Sexual and Gender Identity Disorders Work Group about "hypersexuality" was rejected because of implicit normative emphasis on the "appropriate amount of sexuality" (Grant & Chamberlain, 2016: 301). However, the findings of the current study revealed that the amount of playing hour per day may be a risk factor for gaming addiction. Our results showed that the more hour participants play, the more addiction they have. The participants who play less than an hour had significantly lower scores on gaming addiction than the participants who play more than 3 hours but less than 6 hours, more than 6 hours but less than 9 hours, and more than 9 hours per day. Moreover, the participants who play more than an hour but less than 3 hours had significantly lower scores on gaming addiction than the participants who play more than 3 hours but less than 6 hours, play more than 6 hours but less than 9 hours, and more than 9 hours per day. In addition, the participants who play more than 3 hours but less than 6 hours had significantly lower scores on gaming addiction than the participants who play more than 6 hours but less than 9 hours, and more than 9 hours per day. However, there was no significant difference between playing more than 6 hours but less than 9 hours, and more than 9 hours. It is inferred that playing more than 6 hours may be a critical point to develop an addiction. In a similar vein, the participants who play every day had higher gaming

addiction scores than those playing 1-2 days, 2-3 days, and 4-5 days. Our findings demonstrated that the amount of playing day per week may be considered as a sign of addictive behavior. In other words, the more day participants play, the more addiction they have. These findings support other studies (Choo et al., 2010: 822; Gentile, 2009: 594; Lemmens et al., 2009: 77) which found that more time spent on games predicted gaming addiction. Similar results were found for exercise addiction. Accordingly, it was found that the participants who exercise less than an hour had significantly lower scores on exercise addiction than the participants who exercise more than an hour but less than 3 hours. Moreover, the findings showed that the more day participants exercise, the more addiction they have. Notably, there was no difference between exercising 4-5 days or exercising every day in a week regarding exercise addiction score. Accordingly, it can be said that exercising 4 days in a week may be a critical point for exercise addiction. This result is consistent with other studies showing that the frequency of problematic behavior is related to exercise addiction. For example, significant positive correlation was found between problematic physical exercise and total physical activity per day (Kotbagi, Morvan, Romo, & Kern, 2017:224). Similarly, another study (Costa et al., 2013: 220) revealed that high levels of exercise frequency significantly predicted higher exercise addiction scores.

In the current study, it was found that single participants had significantly higher scores on exercise addiction than married participants. Our findings also showed that many people have been motivated by socialization to do exercise. Therefore, single individuals might perceive exercise as a mean of socializing.

Besides, any life event that they think it might affect the participants in their childhood was asked in the present study. The responses about the description of these memories were categorized based on their contents for both study samples. Prominent themes which were common for both groups were named as loss of a loved one, other-death related issues, family issues, father-related issues, accidents/injuries/physical integrity, sexual abuse, interpersonal problems and other life events. Notably, the participants of the exercise addiction sample mentioned traumatic experiences about their mothers; therefore, the category of mother-related issues was added. These results may be considered as the validation of emotional childhood traumas which was measured by the Childhood Trauma Questionnaire-Short Form, although only 27.8%

of players and 30.7% of exercisers reported that they had some important/traumatic childhood memories.

4.5. DISCUSSION OF THE MODEL TESTING

4.5.1. Discussion of the Model Testing for Gaming Addiction

The present study examined the role of emotional maltreatment, emotional schemas, and avoidance to affect game addiction among Turkish video game players. Correspondingly, a mediational model was tested in which emotional abuse and emotional neglect were proposed to become primary tools to predict gaming addiction mediated with negative beliefs about emotions and individual dimensions of avoidance. Structural equation modeling was used to test the proposed Model 1.a depicted in the Figure 3 (p. 89).

The results of the structural equation modeling displayed that the proposed relationships among variables were well supported by the data. In other words, the findings gathered from the present study theoretically supported the significance of emotional, cognitive and behavioral factors in the level of gaming addiction. That is, emotional factors -emotional abuse and emotional neglect- indirectly contributed to gaming addiction via cognitive factors -negative beliefs about emotions and cognitive avoidance- and behavioral factor-behavioral avoidance- among young adults. In this part, the direct and indirect relationships among variables were discussed respectively.

It was assumed that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and directly be related to negative beliefs about emotions. The findings showed that emotional abuse significantly and positively predicted negative beliefs about emotions, whereas emotional neglect did not. The present findings align with previous literature. In the literature, it is supported that although emotional abuse and emotional neglect are related concepts, they are distinct forms of emotional maltreatment (Baker & Festinger, 2011: 2300). Emotionally abusive parents show verbal hostility and rejection, have unrealistic expectations and induce fear and anxiety in their children (Iwaniec, 2003: 53). As a consequence, the rejected child is expected to have a thought that his or her emotions are wrong.

Correspondingly, when the players reported higher levels of emotional abuse, their negative beliefs about emotions increased. Secondly, neglectful caregivers are less supportive, have a less emotional expression in the parent-child relationship and do not provide dual emotional information (Shipman, Edwards, Brown, Swisher, & Jennings, 2005: 1016). It is evidenced that neglected preschoolers experience confusion when others display their emotions and are less able to discriminate emotions than nonmaltreated and abused children (Pollak et al., 2000: 679). It can be said that video game players with emotional neglect are likely to have no consistent representative beliefs about emotions due to lack of emotional information. On the other hand, the findings of the present study showed that emotional neglect had a significant direct effect on behavioral social avoidance. This finding is consistent with the result of a study examining the relationship between different forms of emotional maltreatment and unique emotion regulation strategies (O'Mahen et al., 2005: 292). It is reported that behavioral avoidance is significantly associated with emotional neglect, but not with emotional abuse. Emotionally abused children may somewhat learn to have emotional interaction with others, although this interaction is negative, inconsistent and uncontrollable. However, emotionally neglected children are likely to feel invisible around others in the emotional arena. Therefore, they may take a low risk to get the response to their emotions by avoiding from social situations as they get older.

In the present study, it was assumed that negative beliefs about emotions would significantly and directly be related to the dimensions of avoidance. The findings supported that negative beliefs about emotions positively predicted behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance. When individuals believe that emotions are dangerous and overwhelming, they may be less likely to engage in difficult situations. Thus, the best way to ignore emotional data gathered from others and internal cues for those people may be using avoidance both behaviorally and cognitively. Furthermore, it was found that negative beliefs about emotions directly predicted gaming addiction. In the games' world, emotions can be more predictable and controllable. For instance, it would not be surprising that a player might feel disappointment or anger if he or she failed in the game. At best, he or she might have a sense of excitement, entertainment, or

achievement. Thus, games can be considered as a foreseeable zone for frightening emotions.

Besides, it was assumed that all dimensions of avoidance would significantly and directly be related to gaming addiction. However, the present findings revealed that behavioral social avoidance and cognitive nonsocial avoidance significantly predicted gaming addiction, but behavioral nonsocial avoidance and cognitive social avoidance did not. In other words, when the players had increased behavioral social avoidance and cognitive nonsocial avoidance, they reported higher levels of problematic gaming behavior. Most individuals gaming excessively are isolated from real friends, situations, problems, etc. In this respect, gaming addiction brings along behavioral social avoidance by its nature. But then, they are surrounded by a vivid but unreal environment including numerous friends. Though this kind of interpersonal interaction needs to be social to some degree. Obviously, these people meet their need of having social relationships in a more controllable way. Thus, cognitive social avoidance may not be a matter for those. On the one hand, cognitive nonsocial avoidance involves using denial, minimization, or cognitive distraction for achievement-related issues. Some items from the cognitive nonsocial avoidance included items such as "While I know that I have to make some important decisions about school/work, I just do not get down to it" and "I distract myself when I start to think about my work/school performance" (Ottenbreit & Dubson, 2004: 302). Accordingly, these players were more likely to escape thinking about some achievement-related situations or problems in their life and distract their attention from unpleasant issues by focusing on video games. Additionally, behavioral nonsocial avoidance is related to escape from an achievement-oriented problem; however, players may keep commit their achievement through their character. Thus, items from behavioral nonsocial avoidance such as "I quit activities that challenge me too much" may not represent them.

In the present study, a number of hypothesized indirect relationships were verified. Firstly, it was forecasted a significant indirect relationship would exist between emotional abuse and each dimension of avoidance through negative beliefs about emotions. Negative beliefs about emotions fully mediated the relationship between emotional abuse and each dimension of avoidance. It means that the players

who were emotionally abused in childhood used behavioral and cognitive avoidance only if they had increased negative beliefs about emotions. This finding can be explained by the emotional schema theory. Accordingly, if a person gives attention to particular emotions (e.g. anger, anxiety, sadness), and has negative interpretations about them (i.e. negative beliefs about emotions), he or she will decide that "emotion is problematic". After that, that person may use cognitive avoidance or lose control or avoid situations that elicit emotions in the model. However, if the person decides that "emotion is normal", he or she will accept, express and experience that emotion (Leahy, 2012: 179). Thus, the key point is how an individual process particular emotions. In regard, the emotional schema model is defined as a meta-experiential model of emotions (Leahy, 2012: 179). Notably, behavioral avoidance is not mentioned in the model. The present study may be important since it broadened avoidance concept including behavioral one. In the emotional schemas model, cognitive avoidance leads to situational coping strategies such as dissociation, binging, drinking, drugs, and numbness (Leahy, 2012: 179). Similarly, the present findings revealed that negative beliefs about emotions mediated the relationship between emotional abuse and gaming addiction. That is, video game players with higher emotional abuse were more inclined to have negative beliefs about emotions and then, engaged in more pathological gaming behaviors. To take into consideration that avoidance corresponds a trait but gaming addiction corresponds a situational coping in the present study, the findings provided evidence that emotionally abused individuals may develop a warning system saying them *emotional experiences are painful thus they need to be put aside*. Then, they may prevent the activation of their emotional schemas by using persistent behavior patterns (i.e. any kind of avoidance) or situational behaviors (i.e. excessive gaming behavior). Besides, metacognition is a common basis for the development and maintenance of some clinical problems such as anxiety and depression (Yılmaz, Gençöz, & Wells, 2011: 389). This study also revealed that metacognitive conceptualization of emotions may directly have an impact on the development and maintenance of gaming addiction.

In addition, the present study proposed that negative beliefs about emotions and each dimension of avoidance serially mediated the relationship between emotional abuse and gaming addiction. However, the hypothesis was supported for only two

dimensions of avoidance: behavioral social avoidance and cognitive nonsocial avoidance. That is, individuals with emotional abuse in childhood had increased negative beliefs about emotions and those beliefs lead to behavioral social avoidance and/or cognitive nonsocial avoidance, which results in gaming addiction. As aforementioned, negative beliefs about emotions of emotionally abused individuals may directly predict gaming addiction. However, they will have problematic gaming behaviors only if they use particular avoidance styles. For instance, behavioral nonsocial avoidance (e.g. "I quit activities that challenge me too much") or cognitive social avoidance (e.g. "I try not to think about problems in my personal relationships") did not predict gaming addiction. With the use of behavioral social avoidance and cognitive nonsocial avoidance, emotionally abused players having negative appraisals for emotions may keep away from self-disclosure which is a risk for their self-esteem. Many studies showed that gamers mostly tend to have fragile self-esteem characteristics (Beard & Wickham, 2016: 507). In a recent study, it was supported that individuals with low core self-evaluations such as low self-esteem, lack of self-efficacy, and increased neuroticism had more pathological gaming behavior (Throuvala, Janikian, Griffiths, Rennoldson, & Kuss, 2019). However, these kinds of avoidance may prevent them from changing negative beliefs about emotions shaped in the childhood since they will not engage in compensatory new activities and opportunities. This situation can be exampled with a metaphor of emotional garden. Regarding, we can imagine emotional maltreatment as a disaster, and emotional schemas as plants. Since the emotional disaster of the players' caregivers defoliates the players' emotional plants through their childhood, the players may insist on being in the garden of video games where there are some full-grown plants. In this garden, the players may choose their own trees to feel safe and cool down under their shadows, as opposed to the warmness of parents' the barren heath. However, the problem is that those trees are artificial plants although they seem to have bright green leaves. Thus, even if the players water their plants as well as their fellowships' in this garden, they will not grow properly and have limited emotional harvest.

The present study also proposed that negative beliefs about emotions and each dimension of avoidance serially mediated the relationship between emotional neglect and gaming addiction. The hypothesis was rejected, which means that the mediation

effect was non-significant. Rather, the results showed that behavioral social avoidance mediated the relationship between emotional neglect and gaming addiction. It may be inferred from the finding that when primary caregivers fail to give their children an emotional environment, neglected children are inclined to stand aloof from people in the real world without developing a consistent positive or negative thinking pattern for emotions. Rather, they seem to use games as a substitute for emotional stimulation.

4.5.2. Discussion of the Model Testing for Exercise Addiction

The present study also examined the role of emotional maltreatment, emotional schemas, and avoidance to affect exercise addiction among exercisers from Turkey. Correspondingly, a mediational model was tested in which emotional abuse and emotional neglect were proposed to become useful tools to predict exercise addiction mediated with negative beliefs about emotions and each dimension of avoidance. Structural equation modeling was used to test the proposed Model 1.b depicted in the Figure 3.2 (p. 98).

As parallel to proposed Model 1.a, the results of the structural equation modeling displayed that the hypothesized relationships were well supported by the data. The findings gathered from the present study theoretically supported the significance of emotional, cognitive and behavioral factors in having exercise addiction as well. That is, emotional factors -emotional abuse and emotional neglect- indirectly contributed to exercise addiction via cognitive factors -negative beliefs about emotions- and behavioral factor-behavioral avoidance- among young adults. In this part, the direct and indirect relationships which were different from gaming addiction were discussed.

For both addiction groups, it was hypothesized that emotional maltreatment variables (emotional abuse and emotional neglect) would significantly and directly be related to negative beliefs about emotions. The findings supported this assumption for both emotional abuse and emotional neglect in the exercising group. That is, exercisers who were emotionally abused and/or neglected in their childhood had greater negative beliefs about emotions. This result is not consistent with the results of model testing for gaming addiction. The relationship between emotional neglect and negative beliefs

about emotions was not significant for the gaming group. As mentioned above, due to neglected children's lack of emotional information (Shipman et al., 2005: 1016), they are more likely to have difficulty with making sense of emotions (Pollak et al., 2000: 679). Consequently, they are supposed to have no negative or positive reliable representative beliefs about emotions. However, some individuals may develop appraisals about emotions by observing their relationships with significant others (e.g. sibling, relative, or friends) in their life. In the present study, any information about significant others was not included. Further studies may control the potential effects of other relationships on the development of emotional schemas. Besides, the mean age of exercise group was higher than the mean age of gaming group. These individuals may form more consistent schemas for their emotional experiences as they get older.

As proposed Model 1.a, it was assumed that negative beliefs about emotions would significantly and directly be related to dimensions of avoidance for exercisers. For the second time, the findings supported that negative beliefs about emotions significantly and positively predicted behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance. In addition, the results showed that negative beliefs about emotions directly predicted exercise addiction. It may be explained by the fact that exercise enhances the positive affect. Individuals who have a low expectation that their emotions will be understood by others, who blame themselves and feel ashamed of their own emotions, who do not believe that their emotions make sense and other people would have similar feelings may be more likely to invest their energy and time for sport activities providing positive emotions. Although the kind of addiction is not the same for proposed Model 1.a and proposed Model 1.b, it can be said that having negative evaluations of emotions leads to the rigid behavioral repertoire.

It was hypothesized that all dimensions of avoidance would significantly and directly be related to exercise addiction. However, the findings of the current study showed that behavioral social avoidance and behavioral nonsocial avoidance significantly predicted exercise addiction, but cognitive social avoidance and cognitive nonsocial avoidance did not. Firstly, behavioral social avoidance had a significant positive direct effect on exercise addiction. In other words, individuals who had more

behavioral social avoidance (e.g. “I avoid attending social activities”) had higher scores on exercise addiction. Doing exercise can be considered as a social environment with rich interpersonal interaction. However, more than half of the participants (53.3%) reported that they have been exercising individually in the present study. This information may support that these exercisers avoid from social situations even if they engaged in exercising behaviors. In the literature, it has been found that individuals with a high degree of social physique anxiety -anxiety related to the public presentation of one’s body- is positively correlated with exercise dependence (Cook et al., 2015: 197). Our results revealed that 58.7% of the participants were motivated to exercise for weight control or loss. Although the mean BMI (23.61) of the participants were in a normal range and 72.7% of the participants got 0-1 score from the SCOFF questionnaire indicating lack of eating disorder, making a differentiation between primary exercise addiction and secondary exercise addiction may be quite hard. Therefore, the participants’ anxieties about their physical appearance may be a factor to explain behavioral social avoidance. Secondly, behavioral nonsocial avoidance had a marginal negative direct effect on exercise addiction. That is, individuals who had less behavioral nonsocial avoidance had higher scores on exercise addiction. Representative items from the behavioral nonsocial avoidance factor consisted of items “I would like to achieve things at work/school, but I have to accept my limits”, “I avoid trying new activities that hold the potential for failure”, “I quit activities that challenge me too much”, and “I think to myself that I will not be able to complete really challenging tasks” (Ottenbreit & Dubson, 2004: 302). It can be inferred from this information that the participants who exercise excessively were less likely to accept their limits and more likely to use their potential to achieve challenging tasks. This result may be explained by perfectionism exercisers have. In the literature, there are a number of studies showing that general perfectionism is associated with maladaptive exercise patterns. For instance, Hagan and Hausenblas (2003: 133) found that the high exercise-dependent group had more perfectionism scores than the low exercise-dependent group. Another study supported the positive association among achievement goals, perfectionistic striving and obligatory exercise behavior in a sample of club runners (Hall, Kerr, Kozub, & Finnie, 2007: 297). Consequently, exercisers who have a tendency for perfectionism may strive for achievement in

challenging sports activities. In contrast to our expectation, cognitive social or nonsocial avoidance did not directly predict to exercise addiction. Some items from the cognitive social and nonsocial avoidance factors involved items “I fail to do what is needed to follow through with achievement goals I have set for myself”, “I choose to turn down opportunities to further my education/career”, “While I know I should make decisions about my personal relationships, I just let things go on as they are”, and “There is nothing I can do to improve problems in my relationships” (Ottenbreit & Dubson, 2004: 302). Obviously, these items are contradictory statements with regard to perfectionism. Cognitive avoidance may be considered as letting things go and may threaten exercisers’ high standards; thus those do not prefer to use this kind of avoidance.

For exercise addiction, most of the hypothesized indirect relationships were verified. In parallel with proposed Model 1.a, it was assumed that a significant indirect relationship would exist between emotional abuse and each dimension of avoidance through negative beliefs about emotions. In addition, it was assumed a significant indirect relationship would exist between emotional neglect and each dimension of avoidance through negative beliefs about emotions. Negative beliefs about emotions fully mediated the relationship among emotional abuse, emotional neglect and each dimension of avoidance. It means that the exercisers who were emotionally abused and/or emotionally neglected in childhood used behavioral and cognitive avoidance only if they had increased negative beliefs about emotions. Further, the findings showed that negative beliefs about emotions mediated the relationship between emotional abuse and/or emotional neglect and exercise addiction. That is, exercisers with higher emotional abuse and/or emotional neglect had greater negative beliefs about emotions and then, engaged in more excessive exercise behavior. These results were consistent with the findings of proposed Model 1.a. Thus, the same explanation may be true for exercise addiction as well. Cognitive evaluations of emotions may have a crucial role in determining whether individuals are willing to have persistent behavior patterns (i.e. any kind of avoidance) or situational behaviors (i.e. excessive exercise behavior), when their emotions were rejected or ignored by their primary caregivers in the childhood.

The present study proposed that negative beliefs about emotions and each dimension of avoidance serially mediated the relationship between emotional abuse and exercise addiction. That pathway was proposed for the indirect relationship between emotional neglect and exercise addiction, too. For both emotional abuse and emotional neglect, the hypothesis was supported for only two dimensions of avoidance: behavioral social avoidance and behavioral nonsocial avoidance. That is, individuals with emotional abuse in childhood had increased negative beliefs about emotions and those beliefs lead to behavioral social avoidance or behavioral nonsocial avoidance, which results in exercise addiction. In a similar way, individuals with emotional neglect in childhood had increased negative beliefs about emotions and those beliefs lead to behavioral social avoidance or behavioral nonsocial avoidance, which results in exercise addiction. These findings were different from the findings of gaming addiction. As mentioned earlier, particular avoidance styles seem to be associated with certain behaviors. For example, behavioral social avoidance and cognitive nonsocial avoidance were associated with gaming addiction, whereas behavioral social avoidance and behavioral nonsocial avoidance were associated with exercise addiction. The current findings may be important to understand the distinctive predictors of different kinds of behavioral addictions. Accordingly, it can be said that the type of avoidance used by an individual may be important to determine which behavior is enacted. Indeed, such a finding may shed light on understanding why people chose to stay at home to play video games for hours and why others chose to be unusually active.

4.5.3. Discussion of the Multigroup Invariance Analyses

In the first multigroup analysis, the types of behavioral addiction were used as a moderating variable in the model to test if the relationships among emotional maltreatment (i.e. emotional abuse and emotional neglect), negative beliefs about emotions and avoidance (i.e. behavioral social avoidance, behavioral nonsocial avoidance, cognitive social avoidance, and cognitive nonsocial avoidance) vary across two groups. The findings of multigroup invariance analysis revealed that the model did not differ across groups. In other words, there were no types of addiction

moderation on the direct or indirect relationships in the model. Notably, the direct relationship between emotional neglect and negative beliefs about emotions was not significant for gaming addiction but was significant for exercise addiction. However, multigroup invariance analysis showed that there was no statistical difference across two groups. It means that there was no significant difference between the insignificant path (between emotional neglect and negative beliefs about emotions) in gaming group and the significant path (between emotional neglect and negative beliefs about emotions) in exercise group. This finding may point out that emotional abuse can be considered more salient than emotional neglect as a risk factor for both groups. Moreover, negative beliefs about emotions directly predicted to all types of avoidance for both groups. That is to say, the associations between negative beliefs about emotions and each dimension were significant for both gaming group and exercise group and these significant associations did not differ across two groups. Consequently, it can be inferred that the associations among the common study variables in the Proposed Model 1.a and Proposed Model 1.b had equal importance to explain gaming addiction and exercise addiction. Further studies may focus on more specific mechanisms such as rewarding systems, motivations or personality to understand different tendencies to various behavioral addictions.

In the second and third multigroup analyses, the level of behavioral addiction was used as a moderating variable in the model to test if the relationships among study variables are common for those who have either higher or lower levels of gaming and exercise behaviours. The findings of multigroup invariance analysis for both gaming group and exercise group revealed that the model did not significantly differ across groups (addicted vs. not addicted). These results may indicate the importance of dimensional approach to psychological problems. While a categorical approach corresponds to labeling individuals as either having or not having a disorder, a dimensional approach corresponds to labeling individuals with higher scores as a stronger indicator of the presence of it (Kraemer, Noda, O'Hara, 2004: 18). The present study was aimed to look into detailed picture of these excessive behaviors to understand hidden factors, rather than categorizing them. It can be concluded that behavioral addictions are needed to be perceived as multifaceted problems; therefore, labeling people as having or not having it may lead to overlook other problematic

issues such as emotional maturity, coping abilities etc. Besides, this study is important to understand for not only individuals in addicted group but also individuals engaging in these behaviors at different levels.

4.6. CLINICAL IMPLICATIONS OF THE STUDY

As Nancy Petry (2015: 1) said "addiction is a loaded term", it includes controversial meanings like medical or nonmedical dependence. It has been suggested that the issue of behavioral addictions has a threat of overpathologization of common behaviors (Thege, 2017: 1716). However, composing nomenclature and a set of criteria for behavioral addictions lead to expand their recognition (Yau & Potenza, 2015: 134). Starcevic (2016: 723) argued that trying to understand the reasons for behavioral addictions and establishing accurate treatments based on those reasons might be more appropriate, rather than describing them solely as a behavioral addiction. In that sense, the studies investigating the underlying mechanisms of behavioral addictions seem to have a crucial importance to establish an accurate understanding of those addictions. Instead of diagnostic approach, revealing process-based explanations may contribute to the development of individualized transdiagnostic treatment including cognitive, affective, motivational or behavioral components (Spada, 2015: 124). In this regard, the current study investigating differences and similarities in the development of gaming addiction and exercise addiction may contribute to the field.

Regarding gaming addiction, the current study included valuable information to understand the characteristics of players and their life. As stated in other sections of the present study, various studies have evidenced that gaming addiction is associated with different psychological components such as motivations, cognitions, personality, or self-related concepts. However, many issues remain debatable. For instance, although the DSM-5 suggests that Internet gaming addiction refers to problems associated with playing any type of electronic games, to what extent the offline or online games are included has been undefined yet.

Since it is a complicated issue, being familiar with the players' world and approaching from the broad angle with accurate information about this world may be

crucial to build a good rapport with those individuals in clinical settings, especially for youth clients. When it comes to games, the world of player has unique language and rules that offer numerous options to create the subjective realities of those players again and again. This study provided a piece of detailed information about game-related characteristics of participants, which can be useful to acknowledge their immense territory. Then, this information may facilitate to create a common language between therapist and game-addicted client in clinical settings.

In terms of exercise addiction, the current study may be useful to make its features more salient for mental health professionals. Inevitably, the meaning of exercise may begin to change as popular culture constantly creates new concepts in the era of social media. For instance, a recent study examining Olympic athletes' self-presentation on Instagram suggested that posting variety of photos including personal life and sport life promoted greater follower engagement for athletes (Geurin-Eagleman & Burch, 2016: 133). Furthermore, a recent social media trend called fitspiration includes motivating people to eat healthily and to exercise (Holland & Tiggemann, 2017: 76). The findings of a new study (Holland & Tiggemann, 2017: 76) revealed that women who post fitspiration images reported significantly higher compulsive exercise scores. It can be inferred that exercise is likely to be used as a social media material to achieve the socially prescribed self-visualization for those women. Excessive exercise may become a maintaining factor for problems about the fragile self of an individual; however, it can be easily overlooked by mental health professionals because of the well-known advantages of doing exercise. Moreover, those people are more likely to apply clinical settings with eating or body-related problems, instead of problematic behavior itself. Hence, excessive exercising behavior may be a more complicated issue rather than a health-behavior in one's life.

The present work showed the importance of family relations in the etiology of gaming addiction and exercise addiction. On the other hand, behavioral addictions are required pure commitment in time and energy, which may lead to arise conflicts among family members. Instead of being a catalyst for problematic behaviors, family members may be a part of the solution if they are involved in the treatment process. For all behavioral addictions, losing control over a particular behavior is where many problems arise. Thus, behavioral interventions about teaching self-regulation for those

individuals may be crucial to gain their self-control. Especially, family therapies can be important to support addictive member of the family to establish new self-regulated behaviors.

The findings of the present study showed that individuals with gaming addiction or exercise addiction had negative beliefs about emotions that were formed as a result of emotional maltreatment and they develop avoidance to protect themselves. Therefore, emotional schema therapy can be quite useful for those people. In emotional schema therapy, feeling good is not a matter, rather repertoire of feeling various emotions –without making any distinction as good or bad- are increased (Leahy, 2018: 8). The emotional schema therapist begins to collect information about emotional schemas and their roots and then, he or she may socialize the client to the nature of emotions. The emotional schema therapist works on the patient's specific beliefs about emotions (Leahy, 2018: 79). Further, the therapist may teach the client to engage in adaptive emotion regulation strategies instead of the problematic ones. If the client learns to accept and evaluate his or her emotions as they are, avoidance may not be needed to cope with stressful situations. Consequently, one may choose to play the game or to do exercise in a healthy way, rather than being urged to numb distressful feelings.

4.7. LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FURTHER STUDIES

The current study has some limitations which can be ameliorated in further studies. Firstly, the participants were recruited from social media platforms. Thus, the level of addictive behavior may vary among participants from nonproblematic behavior to highly problematic behavior. If participants of further studies are recruited from homogeneous in-group members, more powerful results can be acquired statistically. Secondly, addiction was measured via self-report questionnaires which are based on substance-related addiction criteria. Mostly, three major approaches, which are Statistical or Normative Approach, Subjective Interpretation (Psychological Pain), and Judgments of Maladaptive Functioning, are used in research and clinical work to define psychological problems (Linden & Hewitt, 2015). In *Statistical/Normative Approach*, abnormality is defined by a judgement considering

the standards or norms of a particular social group. In the second approach, individuals themselves make judgments as to whether their own behaviors abnormal, maladjusted, or otherwise in need of changing rather than using standards or norms from a particular society or culture (Linden & Hewitt, 2015). For instance, the present study can be an example for this kind of approach because the addiction was evaluated according to the participants' scores that were derived from standardized tests. *In Subjective Interpretation (Psychological Pain) Approach*, abnormality is defined by individuals themselves considering their own behaviors as abnormal, instead of checking particular social standards or norms (Linden & Hewitt, 2015). As an example, although the scores of some participants did not indicate addiction, they might define themselves as a game-addicted or exercise-addicted person. However, the present study did not include this information. In *Judgments of Maladaptive Functioning Approach*, abnormality is defined by an expert considering an individual's dysfunctions in work and interpersonal relationship area (Linden & Hewitt, 2015). For example, if the present study would include interviews with players or exercisers, some participants might be included in the study according to their level of functioning in their life even though they did not report abnormality or did not get high scores from the measurements. In sum, using subjective interpretation approach and judgments of maladaptive functioning approach may prevent potential Type I and Type II errors in further studies. Thirdly, although the definition of internet gaming disorder has been included in the DSM-5, there are no diagnostic criteria for exercise addiction. Therefore, these scales may not be sensitive to the unique nature of given addiction. More studies are warranted to develop new assessment tools revealing idiosyncratic dimensions of particular addictions. Furthermore, this study relied on cross-sectional design, therefore longitudinal or experimental studies may give information about causal relationships among study variables in the future. For instance, mood induction techniques can be useful to understand the relations between emotions and particular avoiding behaviors. Finally, substance-related addiction or other behavioral addiction comorbidities were not controlled in the current study. However, it is evidenced that addicted individuals are likely to have multiple addictions (Hausenblas & Symons Downs, 2002: 171). For instance, Yen et al. (2009: 218) found that internet addiction was associated with harmful alcohol use among college students. Future studies

including overlapping addictions may give more comprehensive information about initiating and maintaining factors of those addictions.

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APPENDICES

APPENDIX 1: Demographic Form for the Players

Genel:

- Yaşınız : _____
- Cinsiyetiniz : ☐ Kadın ☐ Erkek
- Eğitim durumunuz : ☐ Ortaokul mezunuyum.
  ☐ Lise mezunuyum.
  ☐ Lise öğrencisiyim.
  ☐ Üniversite öğrencisiyim.
  ☐ Üniversite mezunuyum.
  ☐ Lisansüstü öğrencisiyim.
  ☐ Lisansüstü mezunuyum.
  ☐ Diğer (Lütfen belirtiniz):_____
- Çalışıyor musunuz? : ☐ Tam zamanlı çalışıyorum.
  ☐ Yarı zamanlı çalışıyorum.
  ☐ Öğrenciyim.
  ☐ İşsizim ve iş arıyorum.
  ☐ Çalışmıyorum.
- Mesleğiniz : _____
- İlişki durumunuz : ☐ Bekarım ve romantik ilişkim var.
  ☐ Bekarım ve romantik ilişkim yok.
  ☐ Evliyim.
  ☐ Boşandım.
- Aylık geliriniz : ☐ Asgari ücret
  ☐ 2000-3000
  ☐ 3000-4000
  ☐ 4000-5000
  ☐ 5000 ve üzeri

- Lütfen size uygun olan seçeneği işaretleyiniz:
  - ☐ Ailem ile birlikte yaşıyorum.
  - ☐ Yalnız yaşıyorum.
  - ☐ Partnerim/eşim ile birlikte yaşıyorum.
  - ☐ Arkadaşlarım ile birlikte yaşıyorum.
- Herhangi bir psikolojik/psikiyatrik bir tanı aldınız mı?

  ☐ Evet ☐ Hayır
- Cevabınız Evet ise aldığınız tanı ya da tanıları lütfen belirtiniz.
  _____
- Cevabınız Evet ise aldığınız tanı ya da tanıların tarihini belirtiniz (Örneğin; 2011). _____
- Herhangi bir psikiyatrik ilaç kullanıyor musunuz?

  ☐ Evet ☐ Hayır
- Cevabınız Evet ise ilacın ismini belirtiniz.
  _____

Çocukluk/Aile:

- Lütfen anne ve babanızın medeni ve sağlık durumunu belirtiniz:
  - ☐ Evliler ve beraberler
  - ☐ Evliler fakat ayrı yaşıyorlar
  - ☐ Boşandılar
  - ☐ Annemi kaybettim
  - ☐ Babamı kaybettim
  - ☐ Hem annemi hem babamı kaybettim
- Annenizin en son mezun olduğu okul:
  - ☐ İlkokul
  - ☐ Ortaokul
  - ☐ Lise
  - ☐ Üniversite
  - ☐ Lisansüstü
- Babanızın en son mezun olduğu okul:
  - ☐ İlkokul
  - ☐ Ortaokul

☐ Lise
☐ Üniversite
☐ Lisansüstü

- 3 yaşınıza kadar ÇOĞUNLUKLA sizin bakımınızla ilgilenen kişiyi işaretleyini

  ☐ Annem
  ☐ Babam
  ☐ Anneannem/Babaannem
  ☐ Bakıcı
  ☐ Diğer: _____

- Çocukluk döneminde sizi etkilediğini düşündüğünüz ve hatırladığınız önemli bir yaşam olayı var mı? Lütfen kısaca belirtiniz.
- _____
  _____.

  Anaokuluna gittiniz mi? ☐ Evet ☐ Hayır
- Cevabınız evet ise lütfen anaokuluna başlama yaşınızı yazınız: _____

Oyun:

- İlk defa bilgisayar oyun oynamaya başladığınız yaşın hangi aralıkta olduğunu belirtiniz:

  ☐ 5 yaş ve altı
  ☐ 6-10 yaş arasında
  ☐ 11-15 yaş arasında
  ☐ 16-20 yaş arasında
  ☐ 21-25 yaş arasında
  ☐ 26 yaş ve üstü
- 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 ve e-sporu takip edenler

  ☐ Çeşitli aralıklarla oyun oynayan

  ☐ Diğer (Belirtiniz): _____

- Lütfen haftada kaç gün oyun oynadığınızı belirtiniz:

  ☐ 1-2 gün

  ☐ 2-3 gün

  ☐ 4-5 gün

  ☐ Her gün

- Son 6 ayı göz önünde bulundurarak, günde ortalama kaç saat oyun oynadığınızı belirtiniz.

  ☐ 1 saatten az

  ☐ 1 saatten fazla, 3 saatte az

  ☐ 3 saaaten fazla, 6 saatten az

  ☐ 6 saatten fazla, 9 saatten az

  ☐ 9 saatten fazla

- Aşağıdaki seçeneklerden size en uygun oyun oynama biçimini seçiniz.

  ☐ Yalnız ve tek oyunculu

  ☐ Başka birisi/birileri ile aynı odada rekabetçi çok oyunculu

  ☐ Başka birisi/birileri ile aynı odada işbirliği ile çok oyunculu

  ☐ İnternette rekabetçi çok oyunculu

  ☐ İnternette işbirliği ile çok oyunculu

- SIKLIKLA oynadığınız oyunların hangi türde olduğunu belirtiniz:

  ☐ Aksiyon-Macera (Resident Evil, Grand Theft Auto vb.)
  ☐ Birinci Şahıs Atışçı/First Person Shooter (Halo, Call of Duty vb.)
  ☐ Çevrimiçi Çok Oyunculu Savaş Arenası/Multiplayer Online Battle Arena (League of Legends, Dota 2 vb.)
  ☐ Çevrimiçi Çok Oyunculu Rol Yapma/Massively Multiplayer Online Role-Playing Games (World of Warcraft, Final Fantasy vb.)
  ☐ İnşaat ve Şehircilik Simülasyonları (SimCity, Megapolis vb.)
  ☐ Yaşam Simülasyonları (The Sims, Nintendogs vb.)
  ☐ Sportif Oyunlar (Madden Series, NBA Live vb.)
  ☐ Strateji (Civilization, Starcraft vb.)
  ☐ Yarış (Need for Speed Most Wanted, Forza Horizon 3 vb.)
  ☐ Dövüş (Tekken, Street Fighter vb.)
  ☐ Puzzle Oyunları (Tetris, Bejeweled vb.)
  ☐ Diğer (Belirtiniz): _____

- Oyunu oynarken sıklıkla kullandığınız donanımı belirtiniz:

  ☐ Kişisel bilgisayar
  ☐ Playstation/Xbox
  ☐ Konsol (PlayStation Portable, DS vb.)
  ☐ Tablet/Telefon

- Lütfen oyun oynamanıza etki ettiğini düşündüğünüz ve sizin için önemli olan faktörleri işaretleyiniz (Birden fazla seçeneği işaretleyebilirsiniz).

  ☐ Başarı /İlerleme gösterme
  ☐ Sosyalleşme
  ☐ Eğlence
  ☐ Takım ruhu
  ☐ Olumsuz duygulardan uzaklaşma
  ☐ Keşfetme/Yeni şeyler bulma
  ☐ Oyunun karakterleri, yapısı ve hikayesi
  ☐ Stres verici olayları ya da yaşam problemlerini düşünmeme

☐ Destek alma

☐ Diğer (Belirtiniz): _____

APPENDIX 2: Demographic Form for the Exercisers

Genel:

- Yaşınız : _____
- Cinsiyetiniz : ☐ Kadın ☐ Erkek
- Eğitim durumunuz : ☐ Ortaokul mezunuyum.
  ☐ Lise mezunuyum.
  ☐ Lise öğrencisiyim.
  ☐ Üniversite öğrencisiyim.
  ☐ Üniversite mezunuyum.
  ☐ Lisansüstü öğrencisiyim.
  ☐ Lisansüstü mezunuyum.
  ☐ Diğer (Lütfen belirtiniz):_____
- Çalışıyor musunuz? : ☐ Tam zamanlı çalışıyorum.
  ☐ Yarı zamanlı çalışıyorum.
  ☐ Öğrenciyim.
  ☐ İşsizim ve iş arıyorum.
  ☐ Çalışmıyorum.
- Mesleğiniz : _____
- İlişki durumunuz : ☐ Bekarım ve romantik ilişkim var.
  ☐ Bekarım ve romantik ilişkim yok.
  ☐ Evliyim.
  ☐ Boşandım.
- Aylık geliriniz : ☐ Asgari ücret
  ☐ 2000-3000
  ☐ 3000-4000
  ☐ 4000-5000
  ☐ 5000 ve üzeri

- Lütfen size uygun olan seçeneği işaretleyiniz:
  - ☐ Ailem ile birlikte yaşıyorum.
  - ☐ Yalnız yaşıyorum.
  - ☐ Partnerim/eşim ile birlikte yaşıyorum.
  - ☐ Arkadaşlarım ile birlikte yaşıyorum.
- Herhangi bir psikolojik/psikiyatrik bir tanı aldınız mı?

  ☐ Evet ☐ Hayır
- Cevabınız Evet ise aldığınız tanı ya da tanıları lütfen belirtiniz.
  _____
- Cevabınız Evet ise aldığınız tanı ya da tanıların tarihini belirtiniz (Örneğin; 2011). _____
- Herhangi bir psikiyatrik ilaç kullanıyor musunuz?

  ☐ Evet ☐ Hayır
- Cevabınız Evet ise ilacın ismini belirtiniz.
  _____

Çocukluk/Aile:

- Lütfen anne ve babanızın medeni ve sağlık durumunu belirtiniz:
  - ☐ Evliler ve beraberler
  - ☐ Evliler fakat ayrı yaşıyorlar
  - ☐ Boşandılar
  - ☐ Annemi kaybettim
  - ☐ Babamı kaybettim
  - ☐ Hem annemi hem babamı kaybettim
- Annenizin en son mezun olduğu okul:
  - ☐ İlkokul
  - ☐ Ortaokul
  - ☐ Lise
  - ☐ Üniversite
  - ☐ Lisansüstü
- Babanızın en son mezun olduğu okul:
  - ☐ İlkokul
  - ☐ Ortaokul

☐ Lise
☐ Üniversite
☐ Lisansüstü

- 3 yaşınıza kadar ÇOĞUNLUKLA sizin bakımınızla ilgilenen kişiyi işaretleyini

  ☐ Annem
  ☐ Babam
  ☐ Anneannem/Babaannem
  ☐ Bakıcı
  ☐ Diğer: _____

- Çocukluk döneminde sizi etkilediğini düşündüğünüz ve hatırladığınız önemli bir yaşam olayı var mı? Lütfen kısaca belirtiniz.

  _____
_____.

  Anaokuluna gittiniz mi? ☐ Evet ☐ Hayır

- Cevabınız evet ise lütfen anaokuluna başlama yaşınızı yazınız: _____

Egzersiz:

- Lütfen ne zamandan beri spor/egzersiz yaptığınızı belirtiniz:
  ☐ 6 aydan az
  ☐ 6 ay- 1 yıl arası
  ☐ 1 - 3 yıl arası
  ☐ 3 - 5 yıl arası
  ☐ 5 yıldan fazla
- Lütfen size uygun olan seçeneği işaretleyiniz:

  ☐ Doğa sporları ile ilgileniyorum.

  ☐ Salon sporları ile ilgileniyorum.

  ☐ Hem doğa hem salon sporları ile ilgileniyorum.

- Lütfen size uygun grubu işaretleyiniz.

  ☐ Profesyonel sporcuyum (Düzenli olarak aylık maaş alan)

  ☐ Kendi zevklerim için spor/egzersiz yapıyorum

  ☐ Çeşitli aralıklarla spor/egzersiz yapıyorum

  ☐ Kilomu sabit tutmak ya da zayıflamak için spor/egzersiz yapıyorum.

  ☐ Diğer (Belirtiniz): _____

- Lütfen haftada kaç gün spor/egzersiz yaptığınızı belirtiniz: _____ gün

- Son 6 ayı göz önünde bulundurarak, günde ortalama kaç saat egzersiz yaptığınızı belirtiniz.

  ☐ 1 saatten az

  ☐ 1 saatten fazla, 3 saatte az

  ☐ 3 saatten fazla, 6 saatten az

  ☐ 6 saatten fazla, 9 saatten az

  ☐ 9 saatten fazla

- Aşağıdaki seçeneklerden size en uygun spor/egzersiz yapma biçimini seçiniz.

  ☐ Bireysel yapılan sporlar/egzersiz

  ☐ Başka birisi/birileri ile doğada yapılan rekabetçi sporlar

  ☐ Başka birisi/birileri ile doğada işbirliği ile yapılan sporlar

  ☐ Başka birisi/birileri ile salonda yapılan rekabetçi sporlar

  ☐ Başka birisi/birileri ile salonda işbirliği ile yapılan sporlar

- SIKLIKLA yaptığınız sporların/egzersizlerin hangi türde olduğunu belirtiniz:

  ☐ Fitness/Vücut geliştirme

  ☐ Koşu

  ☐ Tenis

  ☐ Basketbol

  ☐ Voleybol

  ☐ Yüzme

- ☐ Uzak Doğu Sporları
- ☐ Bisiklet
- ☐ Step-Aerobik
- ☐ Pilates vb.
- ☐ Yoga
- ☐ Rugby
- ☐ Diğer (Belirtiniz): _____

- Lütfen spor/egzersiz yapmanıza etki ettiğini düşündüğünüz ve sizin için önemli olan faktörleri işaretleyiniz (Birden fazla seçeneği işaretleyebilirsiniz).
  - ☐ Başarı /İlerleme gösterme
  - ☐ Kilo kontrolümü sağlama
  - ☐ Sosyalleşme
  - ☐ Eğlence
  - ☐ Zayıflama
  - ☐ Takım ruhu
  - ☐ Olumsuz duygulardan uzaklaşma
  - ☐ Keşfetme/Yeni şeyler bulma
  - ☐ Stres verici olayları ya da yaşam problemlerini düşünmeme
  - ☐ Destek alma
  - ☐ Diğer (Belirtiniz): _____

Yeme Bozukluğu Kontrolü

- Kilonuz: _____
- Boyunuz: _____

APPENDIX 3: Çocukluk Çağı Travmaları Ölçeği

Bu sorular çocukluğunuzda ve ilk gençliğinizde (20 yaşından önce) başınıza gelmiş olabilecek bazı olaylar hakkındadır. Her bir soru için sizin durumunuza uyan rakamı işaretleyiniz. Sorulardan bazıları özel yaşamınızla ilgilidir; lütfen elinizden geldiğince gerçeğe uygun yanıt veriniz. Yanıtlarınız gizli tutulacaktır.

Çocukluğumda ya da ilk gençliğimde…	Hiçbir zaman	Nadiren	Kimi zaman	Sık olarak	Çok sık
1. Evde yeterli yemek olmadığından aç kalırdım.					
2. Benim bakımımı ve güvenliğimi üstlenen birinin olduğunu biliyordum.					
3. Ailemdekiler bana "salak", "beceriksiz" ya da "tipsiz" gibi sıfatlarla seslenirlerdi.					
4. Anne ve babam ailelerine bakamayacak kadar sıklıkla sarhoş olur ya da uyuşturucu alırlardı.					
5. Ailemde önemli ve özel biri olduğum duygusunu hissetmeme yardımcı olan biri vardı.					
6. Yırtık, sökük ya da kirli giysiler içerisinde dolaşmak zorunda kalırdım.					
7. Sevildiğimi hissediyordum.					
8. Anne ve babamın benim doğmuş olmamı istemediklerini düşünüyordum.					
9. Ailemden birisi bana öyle kötü vurmuştu ki doktora ya da hastaneye gitmem gerekmişti.					
10. Ailemde başka türlü olmasını istediğim bir şey yoktu.					
11. Ailemdekiler bana o kadar şiddetle vuruyorlardı ki vücudumda morartı ya da sıyrıklar oluyordu.					
12. Kayış, sopa, kordon ya da başka sert bir cisimle vurularak cezalandırılıyordum.					
13. Ailemdekiler birbirlerine ilgi gösterirlerdi.					
14. Ailemdekiler bana kırıcı ya da saldırganca sözler söylerlerdi.					

15. Vücutça kötüye kullanılmış olduğuma (dövülme, itilip kakılma vb.) inanıyorum.					
16. Çocukluğum mükemmeldi.					
17. Bana o kadar kötü vuruluyor ya da dövülüyordum ki öğretmen, komşu ya da bir doktorun bunu fark ettiği oluyordu.					
18. Ailemde birisi benden nefret ederdi.					
19. Ailemdekiler kendilerini birbirlerine yakın hissederlerdi.					
20. Birisi bana cinsel amaçla dokundu ya da kendisine dokunmamı istedi.					
21. Kendisi ile cinsel temas kurmadığım takdirde beni yaralamakla ya da benim hakkımda yalanlar söylemekle tehdit eden birisi vardı.					
22. Benim ailem dünyanın en iyisiydi.					
23. Birisi beni cinsel şeyler yapmaya ya da cinsel şeylere bakmaya zorladı.					
24. Birisi bana cinsel tacizde bulundu.					
25. Duygusal bakımdan kötüye kullanılmış olduğuma (hakaret, aşağılama vb.) inanıyorum.					
26. İhtiyacım olduğunda beni doktora götürecek birisi vardı.					
27. Cinsel bakımdan kötüye kullanılmış olduğuma inanıyorum.					
28. Ailem benim için bir güç ve destek kaynağı idi.					

APPENDIX 4: Leahy Duygusal Şema Öçeği

Bu ankette duygularınızla, örneğin öfke, üzüntü, endişe veya cinsel duygularınızla, nasıl başa çıktığınız incelenmektedir. Hepimizin bu duygularla başa çıkma şekli farklıdır ve bu nedenle doğru veya yanlış cevap yoktur. Lütfen her cümleyi dikkatle okuyun ve aşağıdaki ölçeği kullanarak geçen ay içinde duygularınızla nasıl başa çıktığınızı belirtecek şekilde puanlayınız.

	Benim için hiç geçerli değil	Benim için pek geçerli değil	Benim için geçerli değil gibi	Benim için geçerli gibi	Benim için biraz geçerli	Benim için çok geçerli
1. Kendimi keyifsiz hissettiğim zaman, olaylara nasıl farklı bir şekilde bakabileceğimi düşünmeye çalışırım.						
2. Beni rahatsız eden bir duygum olduğunda, bunun önemli olmadığına dair sebepler düşünmeye çalışırım.						
3. Sıklıkla diğer insanlarda bulunmayan duygularla hareket ettiğimi düşünüyorum.						
4. Bazı duyguları hissetmek yanlıştır.						
5. Kendim hakkında bir türlü anlayamadığım şeyler var.						
6. Duygularımı dışa vurmak için ağlamama izin vermemin önemli olduğunu düşünüyorum.						
7. Kendimi bırakıp bu duygulardan bazılarını hissedersem kontrolü kaybetmekten korkuyorum.						
8. Başkaları duygularımı anlıyor ve kabulleniyor.						
9. Cinsellik ve şiddet ile alakalı duygular gibi belirli bazı duyguları hissetmeye izin vermemeniz gerekir.						
10. Duygularımı anlayamıyorum.						
11. Diğer insanlar değişseydi, kendimi çok daha iyi hissederdim.						

12. Hissettiğim ama tam farkında olmadığım duygular olduğunu düşünüyorum.						
13. Bazen güçlü bir duygu hissetmeme izin verirsem, onun hiç geçmeyeceğinden korkuyorum.						
14. Duygularımdan utanıyorum.						
15. Diğer insanları rahatsız eden şeyler beni rahatsız etmez.						
16. Kimse duygularıma gerçekten önem vermiyor.						
17. Benim için hassas ve duygularıma karşı açık olmak yerine mantıklı ve pratik olmak önemlidir.						
18. Aynı kişiyi hem beğenmek hem beğenmemek gibi birbirinin tersi duygularımın olmasına dayanamıyorum.						
19. Diğer insanlardan çok daha hassasım.						
20. Hoş olmayan bir duygudan hemen kurtulmaya çalışırım.						
21. Kendimi keyifsiz hissettiğimde, hayatta değer verdiğim daha önemli şeyleri düşünmeye çalışırım.						
22. Kendimi kötü veya üzgün hissettiğim zaman değerlerimi sorgularım.						
23. Duygularımı açıkça ifade edebildiğimi düşünüyorum.						
24. Kendime sıklıkla “Benim neyim var?” diye sorarım.						
25. Kendimi sığ bir insan olarak görüyorum.						
26. İnsanların gerçekten hissettiğimden farklı biri olduğuma inanmalarını isterim.						
27. Duygularımı kontrol edemeyeceğimden korkuyorum.						
28. Kendinizi bazı duyguları hissetmekten korumalısınız.						
29. Kuvvetli duygular sadece kısa bir süre devam eder.						
30. Kendiniz için neyin iyi olduğunu söyleme konusunda duygularınıza güvenemezsiniz.						
31. Hissettiklerimin bazılarını hissetmemem gerekir.						
32. Duygusal olarak kendimi “uyuşmuş” hissediyorum, sanki hiç duygum yokmuş gibi.						
33. Duygularımın tuhaf veya saçma olduğunu düşünüyorum.						

34. Diğer insanlar kötü şeyler hissetmeme neden oluyor.						
35. Birisi hakkında birbirinin tersi duygularım olduğunda kendimi kötü hissediyorum veya kafam karışıyor.						
36. Beni rahatsız hissettiren bir duygum olduğunda düşünecek veya yapacak başka bir şey bulmaya çalışıyorum.						
37. Kendimi kötü hissettiğim zaman tek başıma oturup ne kadar kötü hissettiğim hakkında uzun süre düşünüyorum.						
38. *Bir başkası* hakkındaki duygularımın çok kesin olmasından hoşlanıyorum.						
39. Herkesin duyguları benimki gibidir.						
40. Duygularımı kabul ediyorum.						
41. Diğer insanlarla aynı duygulara sahip olduğunu düşünüyorum.						
42. Ulaşmak istediğim daha yüksek değerler var.						
43. Şu andaki duygularımın büyütülme şeklimle hiç ilgisi *olmadığını* düşünüyorum.						
44. Belli bazı duyguları hissedersem delirebileceğimden korkuyorum.						
45. Duygularım sanki nedensiz yere ortaya çıkıyor.						
46. Hemen hemen her şeyde akılcı ve mantıklı olmanın önemli olduğunu düşünüyorum.						
47. *Kendimle* ilgili hissettiklerim konusunda çok kesin olmayı seviyorum.						
48. Duygularım veya fiziksel hislerim üzerine çok odaklanıyorum.						
49. Duygularımın bazılarını kimsenin bilmesini istemiyorum.						
50. Bazı duygularımın olduğunu kabullenmek istemiyorum ama bu duygularımın olduğunu biliyorum.						

APPENDIX 5: Bilişsel-Davranışsal Kaçınma Ölçeği

Hayatlarındaki problemleri ve durumları çözmek için farklı insanlar farklı stratejilerden yararlanırlar. Aşağıda bu sorunlarla baş etmek için kişilerin kullanabileceği birkaç strateji bulunmaktadır. Aşağıdaki birkaç madde iş ve okulla ilgili durumlarla baş etme ile alakalıdır. Şu anda bir işte çalışmıyor ya da bir okula devam etmiyorsanız, bu maddeleri günlük görev ve aktivitelerinizi düşünerek cevaplayın. Lütfen her bir maddeyi dikkatle okuyun ve her bir ifadenin sizin için, genelde, ne kadar doğru olduğunu belirleyin.

	Benim için **hiç** doğru değil	Benim için **biraz** doğru	Benim için **orta derecede** doğru	Benim için **oldukça** doğru	Benim için **son derece** doğru
1. Sosyal etkinliklere katılmaktan kaçınırım.					
2. Geleceğimle ilgili kuşkularım olduğunda, gerçekten ne istediğimi oturup düşünmeyi beceremem.					
3. İşte/okulda bir şeyleri başarmayı isterim, ama sınırlarımı kabullenmem lazım.					
4. Kendim için belirlediğim başarı hedeflerinde ilerlemek için yapılması gerekenleri yapmada başarısızım.					
5. Hayal kırıklığı yaşamamak için işi/okulu çok ciddiye almam.					
6. Yeni faaliyetler denemektense bildiğim şeyleri yapmaya devam ederim.					
7. Eğitimimi/kariyerimi ilerletmek için önüme çıkan fırsatları geri çeviririm.					
8. Sosyal davetler için aranma olasılığıma karşı telefona bakmam.					
9. Beni çok fazla zorlayan aktiviteleri bırakırım.					
10. Kişisel ilişkilerimdeki sorunları düşünmemeye çalışırım.					
11. Gerçekten zorlayıcı işleri tamamlayamayacağımı düşünüyorum.					
12. Kişisel ilişkilerim hakkında karar almam gerektiğini bilsem de işleri oluruna bırakırım.					

13. Başarısızlıkla sonuçlanabilecek yeni faaliyetleri denemekten kaçınırım.					
14. Tanımadığım pek çok insanın olacağını bildiğim etkinliklere katılmam.					
15. Sosyal yaşamımdaki problemleri düşünmek yerine, kendime yalnızlığı tercih ettiğimi söylerim.					
16. Arkadaşlık ilişkilerimde ortaya çıkan gerilimleri tartışmakta/dile getirmekte başarısızım.					
17. Sosyal ortamlardan sıklıkla ayrılmak istediğimi görüyorum.					
18. İşteki/okuldaki performansımı geliştirmenin yollarını düşünmek için bir çabam yok.					
19. Geleceğim ve hayatımda ne yapacağım hakkında düşünmemeye çalışıyorum.					
20. İlişkilerimdeki gerginliğin kendiliğinden geçip gitmesini umarak oluruna bırakıyorum.					
21. Sosyal faaliyetlere katılmamak için bahaneler uydururum.					
22. İlişkilerimdeki sorunları düzeltmek için yapabileceğim hiçbir şey yok.					
23. Karşı cinsle sosyalleşebileceğim fırsatları geri çeviririm.					
24. Sosyal toplantılarda veya etkinliklerde kendi kendime kalma eğilimindeyim.					
25. Geleceğimle ilgili kararlar vermekten kaçınırım.					
26. İlişkilerimde karışıklık yaşadığımda olayları çözümlemeye çalışmam.					
27. İş/okul konusunda bazı önemli kararlar vermem gerektiğini bilmeme rağmen buna yönelik bir şey yapmıyorum.					
28. İşimdeki/okuldaki performansımı düşünmeye başladığımda dikkatimi başka yöne çeviririm.					
29. Kendimi, gerçekten önemli olan işlerden/görevlerden kaçarken buluyorum.					

APPENDIX 6: Oyun Bağımlılığı Ölçeği

Bu ölçek çevrimiçi ya da çevrim dışı olarak oynadığınız video, bilgisayar, mobil, konsol oyunları ile ilgili alışkanlıklarınıza dair sorulardan oluşmaktadır. Aşağıdaki sorulara son 6 aylık döneminizi düşünerek, ilgili rakamı işaretleyerek yanıt veriniz.

Son 6 ay boyunca ne sıklıkta ……..	**Hiç**	**Nadiren**	**Bazen**	**Sık**	**Çok sık**
1- Bütün gün boyunca oyun oynamayı düşündünüz?	1	2	3	4	5
2- Çok fazla boş zamanınızı oyunda harcadınız?	1	2	3	4	5
3- Oyuna bağımlı hissettiniz?	1	2	3	4	5
4- Planladığınızdan daha uzun oynadınız?	1	2	3	4	5
5- Oyunlara giderek artan miktarda zaman harcadınız?	1	2	3	4	5
6- Oyuna başladıktan sonra bırakamadınız?	1	2	3	4	5
7- Gerçek yaşamı unutmak için oyun oynadınız?	1	2	3	4	5
8- Stres atmak için oyun oynadınız?	1	2	3	4	5
9- Daha iyi hissetmek için oyun oynadınız?	1	2	3	4	5
10- Oyundaki zamanınızı azaltmada başarısız oldunuz?	1	2	3	4	5
11- Başkaları oyun oynamanızı azaltmaya çabalayıp da başarısız oldu?	1	2	3	4	5
12- Oyundaki zamanı azaltmaya çalıştığınızda başarısız oldunuz?	1	2	3	4	5
13- Oynayamadığınızda kötü hissettiniz?	1	2	3	4	5
14- Oynayamadığınızda öfkelendiniz?	1	2	3	4	5
15- Oynayamadığınızda strese girdiniz?	1	2	3	4	5
16- Başkalarıyla (aile, arkadaş, vb.) oyunda geçirdiğiniz zaman yüzünden kavga ettiniz?	1	2	3	4	5
17- Oyun oynamak yüzünden başkalarını (aile, arkadaş, vb.) ihmal ettiniz?	1	2	3	4	5
18- Oyunda geçirdiğiniz zaman hakkında yalan söylediniz?	1	2	3	4	5
19- Oyuna harcadığınız zaman yüzünden uykunuzdan yoksun kaldınız?	1	2	3	4	5
20- Oyun oynamak için diğer önemli aktiviteleri (okul, iş, spor, vb.) ihmal ettiniz?	1	2	3	4	5
21- Uzun süre oynadıktan sonra kötü hissettiniz?	1	2	3	4	5

APPENDIX 7: Egzersiz Bağımlılığı Ölçeği

Aşağıdaki ölçeği kullanırken, lütfen soruları mümkün olduğunca dürüst olarak cevaplayınız. Sorular, şu andaki egzersiz inançlarınız ve son 3 ay içinde davranışlarınız ile ilişkilidir.

	Asla	**Nadiren**	**Bazen**	**Genellikle**	**Sık sık**	**Daima**
1. Huzursuzluktan sakınmak için egzersiz yaparım.	1	2	3	4	5	6
2. Tekrarlayan fiziksel problemlere rağmen egzersiz yaparım.	1	2	3	4	5	6
3. İstediğim etkiye/yararlara ulaşmak için sürekli olarak egzersiz şiddetimi artırırım.	1	2	3	4	5	6
4. Egzersiz yapma süremi azaltamıyorum.	1	2	3	4	5	6
5. Aile ya da arkadaşlarımla zaman geçirmek yerine egzersiz yaparım.	1	2	3	4	5	6
6. Egzersiz yapmak için çok fazla zaman harcarım.	1	2	3	4	5	6
7. Yapmayı düşündüğümden çok daha uzun süre egzersiz yaparım.	1	2	3	4	5	6
8. Endişeli hissetmekten sakınmak için egzersiz yaparım.	1	2	3	4	5	6
9. Yaralandığımda bile egzersiz yaparım.	1	2	3	4	5	6
10. İstediğim etkiye/yararlara ulaşmak için sürekli olarak egzersiz sıklığımı artırırım.	1	2	3	4	5	6
11. Egzersiz yapma sıklığımı azaltamıyorum.	1	2	3	4	5	6
12. Okul ya da işime konsantre olmam gerektiğinde bile egzersiz yapmayı düşünürüm.	1	2	3	4	5	6
13. Serbest zamanlarımın çoğunu egzersiz yaparak geçiriyorum.	1	2	3	4	5	6
14. Umduğumdan daha uzun süre egzersiz yaparım.	1	2	3	4	5	6
15. Gergin hissetmekten sakınmak için egzersiz yaparım.	1	2	3	4	5	6
16. Devam eden fiziksel problemlere rağmen egzersiz yaparım.	1	2	3	4	5	6

17. İstediğim etkiye/yararlara ulaşmak için sürekli olarak egzersiz süremi artırırım	1	2	3	4	5	6
18. Egzersiz şiddetimi azaltamıyorum.	1	2	3	4	5	6
19. Egzersiz yapmayı seçiyorum böylelikle aile/arkadaşlarımla zaman geçirmekten kurtuluyorum.	1	2	3	4	5	6
20. Zamanımın büyük bir çoğunluğu egzersiz için harcanıyor.	1	2	3	4	5	6
21. Planladığımdan daha uzun egzersiz yaparım.	1	2	3	4	5	6

APPENDIX 8: REZZY Yeme Bozuklukları Ölçeği

1. Rahatsız edici şekilde tok hissettiğiniz için kendinizi kusturuyor musunuz?

Evet ☐ Hayır ☐

2. Ne kadar yediğiniz konusunda kontrolü kaybettiğiniz için endişeleniyor musunuz?

Evet ☐ Hayır ☐

3. Son zamanlarda üç ayda altı kilogramdan fazla zayıfladınız mı?

Evet ☐ Hayır ☐

4. Başkaları çok zayıf olduğunuzu söylediği halde şişman olduğunuza inanıyor muydunuz?

Evet ☐ Hayır ☐

5. Yemeğin hayatınıza hükmettiğini düşünüyor musunuz?

Evet ☐ Hayır ☐

APPENDIX 9: Ethical Approval of the Study

ÇANKAYA ÜNİVERSİTESİ
REKTÖRLÜK

Sayı : 80281877-050.99
Konu : Etik Kurul Raporu

FEN EDEBİYAT FAKÜLTESİ DEKANLIĞINA

İlgi : 29.06.2018 tarihli ve 76373453-605.01/00000014867 sayılı yazınız.

Fakülteniz Psikoloji Bölümü Araştırma Görevlisi Merve DENİZCİ NAZLIGÜL'ün "Olumsuz Duygusal Şemaların ve Kaçınmanın Duygusal İstismar ile Davranışsal Bağımlılıklar Arasındaki İlişkide Aracı Rolleri" adlı doktora tezi çalışmasının etik ilkelere olan uygunluğunun değerlendirilmesi talebiniz, Üniversitemiz Bilimsel Araştırma ve Yayın Etiği Kurulu tarafından değerlendirilmiş ve uygun görülmüştür.

Bilgilerinizi ve ilgiliye bilgi verilmesini rica ederim.

e-imzalıdır
Prof. Dr. Hamdi MOLLAMAHMUTOĞLU
Rektör

Ek: 18.06.2018 tarih ve 140 sayılı Araştırma ve Yayın Etiği Kurulu Proje Onay Formu

Merkez Kampüs: Yukarıyurtçu Mah. Mimar Sinan Cad. No:4 06790, Etimesgut-ANKARA / Balgat Kampüsü : Çukurambar Mah. Öğretmenler Cad. No: 14, 06530 - ANKARA Tel:0 (312) 233 10 00/1134 / 0 (312) 284 45 00 / 134 Faks:0 (312) 233 11 49 / 0 (312) 286 96 31 E-Posta:genelsekreterlik@cankaya.edu.tr

APPENDIX 10: Informed Consent for the Players

Sayın Katılımcı;

Bu çalışma Çankaya Üniversitesi Psikoloji Bölümü'nde görev yapmakta olan **Arş. Gör. Merve DENİZCİ NAZLIGÜL** ve Dokuz Eylül Üniversitesi Psikoloji Bölümü Öğretim Üyesi **Doç. Dr. Adviye Esin YILMAZ SAMANCI** tarafından, sıklıkla bilgisayar oyunları oynayan bireylerin kurdukları ilişkilerin ve sosyal deneyimlerinin daha yakından incelenmesi amacıyla doktora tezi kapsamında yürütülmektedir.

Bu çalışma kapsamında vereceğiniz tüm bilgiler tamamen gizli kalacaktır. Çalışmaya katılımınızın anonim olması beklenmekte ve sizden isim-soyisim bilgileri istenmemektedir. Çalışmanın objektif olması ve elde edilecek sonuçların güvenirliği bakımından anket sorularına duygu ve düşüncelerinizi yansıtacak şekilde içtenlikle yanıtlamanız önemlidir. Çalışmaya katılım tamamıyla gönüllülük esasına dayanmaktadır. Katılım sırasında herhangi bir nedenden ötürü kendinizi rahatsız hissederseniz çalışmayı istediğiniz anda bırakmakta serbestsiniz. Ancak yarım bırakılan anketler değerlendirmeye alınamamaktadır. Bu sebeple, anketin tamamını doldurmanız araştırma için büyük önem taşımaktadır. Verdiğiniz bilgiler gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir; elde edilecek bilgiler bilimsel yayınlarda kullanılacaktır. Katılımınız için şimdiden teşekkür ederiz.

Çalışma hakkında daha fazla bilgi almak için Çankaya Üniversitesi Psikoloji Bölümü Arş. Gör. Merve DENİZCİ NAZLIGÜL (mervenazligul@cankaya.edu.tr) ile iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğin bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum. ☐

(*Cümle sonundaki kutucuk işaretlendikten sonra anket formu sayfası açılacaktır*)

APPENDIX 11: Informed Consent for the Exercisers

Sayın Katılımcı;

Bu çalışma Çankaya Üniversitesi Psikoloji Bölümü'nde görev yapmakta olan **Arş. Gör. Merve DENİZCİ NAZLIGÜL** ve Dokuz Eylül Üniversitesi Psikoloji Bölümü Öğretim Üyesi **Doç. Dr. Adviye Esin YILMAZ SAMANCI** tarafından, sıklıkla egzersiz yapan bireylerin kurdukları ilişkilerin ve sosyal deneyimlerinin daha yakından incelenmesi amacıyla doktora tezi kapsamında yürütülmektedir.

Bu çalışma kapsamında vereceğiniz tüm bilgiler tamamen gizli kalacaktır. Çalışmaya katılımınızın anonim olması beklenmekte ve sizden isim-soyisim bilgileri istenmemektedir. Çalışmanın objektif olması ve elde edilecek sonuçların güvenirliği bakımından anket sorularında duygu ve düşüncelerinizi yansıtacak şekilde içtenlikle yanıtlamanız önemlidir. Çalışmaya katılım tamamıyla gönüllülük esasına dayanmaktadır. Katılım sırasında herhangi bir nedenden ötürü kendinizi rahatsız hissederseniz çalışmayı istediğiniz anda bırakmakta serbestsiniz. Ancak yarım bırakılan anketler değerlendirmeye alınamamaktadır. Bu sebeple, anketin tamamını doldurmanız araştırma için büyük önem taşımaktadır. Verdiğiniz bilgiler gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir; elde edilecek bilgiler bilimsel yayınlarda kullanılacaktır. Katılımınız için şimdiden teşekkür ederiz.

Çalışma hakkında daha fazla bilgi almak için Çankaya Üniversitesi Psikoloji Bölümü Arş. Gör. Merve DENİZCİ NAZLIGÜL (mervenazligul@cankaya.edu.tr) ile iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğin bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum. ☐

(*Cümle sonundaki kutucuk işaretlendikten sonra anket formu sayfası açılacaktır*)

APPENDIX 12: Acknowledgements

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