DOES A VENTING OUTLET EXIST VIA FAVORITE ONLINE GAMES? THE MODERATING ROLE OF THERAPEUTIC CATHARSIS SEEKING ON AGGRESSION

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ABSTRACT

Evidence from empirical research on players' aggression suggests that playing violent games does not increase aggression. Therefore, we conducted a study on aggression tendencies among various types of online game players engaged in violent and non-violent games by including mental and psychological health aspects. We examined mental therapeutic care factors (therapeutic catharsis seeking) in combination with psychological factors (independent and interdependent self-construal) and problem factors (depression and loneliness) in relation to players' aggression. The results showed that therapeutic catharsis seeking was particularly important for the players not only because their aggressive tendencies greatly decreased but also because it revealed interaction effects between depression and loneliness, which can be extended beyond the game therapy area. This study thus makes novel contributions by revealing therapeutic mechanisms through online players' internal factors.

Keywords: aggression, therapeutic catharsis seeking, self-construal, depression, loneliness

INTRODUCTION

Aggression is typically defined as a behavior that is intended to harm others (Averill 1983); Baron & Richardson, 1994). Although the levels of aggression appear to vary in our daily lives, human aggression is an inevitable natural occurrence (Lorenz, 1963; McCall & Shields, 2008). Over the last decades, research about players' enhanced aggression based on the General Aggression Model (GAM) has dominated the literature (Anderson and Carnagey 2004), but recently, opposing opinions have begun to emerge. Many scholars argue that the GAM does not appropriately explain aggression and especially fails to explain players' aggressive tendencies in the violent game context (Bushman and Whitaker 2010); (Denzler, Hafner, and Forster 2011); (Ferguson and Kilburn 2010); (Ferguson and Dyck 2012) (Ferguson 2007).

Furthermore, even though aggression is regarded as a severe risk to our mental health (Krug, Mercy, Dahlberg, & Zwi, 2002) previous literature in media research regarding aggression has revealed that aggression does not predict violent behavior or physically or psychologically aggressive tendencies (Bushman & Whitaker, 2010; Ferguson & John, 2010; Ferguson et al., 2014; (Sherry 2007)). Numerous studies demonstrate that playing games can serve as a means of mood repair (Przybylski, Rigby, and Ryan 2010); Russoniello, O'Brien, & Parks, 2009) and alleviate aggression, particularly when playing violent games (Bushman & Whitaker, 2010; Denzler et al., 2011). Both aspects of playing games can foster therapeutic relaxation in the form of outburst experiences that can extend to daily lives. This assumption is generally associated with the catharsis effect. It is time to look at this issue from new and different angles (Ferguson & Dyck, 2012). Thus, we aim to study the potential of games as a therapeutic venting outlet based on the catharsis perspective of aggression.

Many people can play together online without boundaries between nations and languages. The virtual area around some of these online games is huge, equivalent to the size of a large city or even a small nation (Webber, 2014). Similar to the real world, the behavior in online games converges on a consensus about what the players want and what they do not want, that is, they construe their own behavioral norms. Players' practices take place within the framework of these norms and may meet with other players. Players may express these norms privately within the game or through a more direct exercise of power, such as obstruction or combat, with the result that the

players' aggression may be affected by the level of catharsis seeking, self-construal, depression, and loneliness.

To the best of our knowledge, no prior study has examined mental therapeutic care factors (therapeutic catharsis seeking) together with psychological factors (independent and interdependent self-construal) and problem factors (depression and loneliness) with respect to players' aggression. This study thus aims to make novel contributions by revealing therapeutic mechanisms through which online players might seek stress relief or vent aggressive energy via favorite game playing. Findings from this study will also help game-related researchers and practitioners to develop better strategies for addressing important therapeutic internal factors that contribute to aggression.

LITERATURE REVIEW

Therapeutic catharsis seeking as a mental health care predictor. The concept of catharsis has had a long history and created interest in philosophy, for example, in Aristotle's Poetics VI (Aristotle, trans. 1987) and behavioral sciences (Lorenz 1963). The catharsis hypothesis posits that acting aggressively, or even viewing aggression, is an effective way to vent aggressive feelings, anger, and frustrations. Catharsis is defined as "the verbal or non-verbal expression of intense affect associated with a coherent narrative of experience that provides relief of chronic anxiety states" (Chefetz, 1997). This definition describes an emotional release from repressed negative feelings through vicarious experiences, which is reflected in game characteristics such as interactivity, narrative, social use, and provision of specific experiences (Klimmt 2009).

The uses and gratifications (U&G) theory posits that individuals use certain media to satisfy specific needs (Davis and Baran 2006). In line with this notion, playing a favorite game could be a useful tool to satisfy certain desires and needs of players. (McGonigal 2011) suggested that some of the most positive emotional experiences are induced in the context of playing games. Several studies have shown a relation between playing favorite games and enhanced mood, and how a negative emotion can be turned into to positive emotion. Colwell (2007) (Colwell 2007) identified popular reasons for playing games among adolescents, which included companionship, fun, and stress relief. These results emphasized players' needs and desires for ameliorating negative mood as reasons for playing games. (Przybylski, Rigby, and Ryan 2010) suggested that the motivations for game playing are associated with the potential to satisfy basic psychological needs. (Russoniello, O'Brien, and Parks 2009) found that playing games could enhance players' moods, boost relaxation, and alleviate anxiety. Therefore, gaming activities allow the players to express their current feelings and intervene with a negative mental or physiological situation.

Several recent studies have challenged the catharsis theory in regard to violent games. Kutner and Olson (2008) found that violent games help many players "get their anger out." Continuing research also reports that players respond less aggressively and feel calmer after playing violent video games. Likewise, Ferguson et al. (2014) found that violent video games are suitable for players that want to seek catharsis. Under experimental conditions, Bushman and Whitaker (2010) nevertheless reported that the catharsis theory was false, and that belief in catharsis partially supports players' experience of blowing off steam through violent games. Taken together, playing violent games may be understood as a means of stress reduction. From this perspective, it would be expected that individuals with mental health problems, which include aggression triggered by the stress in their daily lives, would be more inclined to use games to reduce stress. Likewise, (Reinecke 2009) identified that playing games after stressful events helps reduce stress because playing games is effective in alleviating stress by activating the nervous system and increasing positive mood (Russoniello et al., 2009). Furthermore, Allahverdipour et al. (2010) (Allahverdipour et al. 2010) suggested that individuals playing certain games improved mental health outcomes compared to non-gamers.

These findings suggest that the catharsis aspect needs to be examined more deeply and include not only violent games but various types of games. Moreover, previous studies suggest that the catharsis effects in game studies need to be examined in a broader game use context (Bandura 1973); Denzler et al., 2011; Ferguson et al., 2014). Therefore, we attempted to extend this assumption by adding accessible games irrespective of game form

and genre (e.g., role-playing games, action or fighting games, adventure games, sport games, and shooting games) by including violent and non-violent games. We assumed that games, as a favorite leisure activity of people, would be influenced by catharsis seeking in the way of psychological healing. In line with this notion, we combine these therapeutic aspects and catharsis seeking with other mental health perspectives. Thus, we propose that playing favorite games encompassing a wide range of game genres affects therapeutic catharsis seeking.

Role of independent and interdependent self-construal. Self-construal can be defined as thoughts, feelings, and behaviors of heterogeneous individuals from a homogenous group (Markus and Kitayama 1991; Markus and Nurius 1986). People see themselves as similar or distinct to others depending on how they view themselves based on the embodied self-concept. Cultural norms, personal values, and attitude all have an effect on individuals' self-construal, as well as cognitive performances, social interactions, emotions, and motivations of individuals (Markus and Nurius 1986). In that games become part of the culture and cognitive leisure activity, players' aggression could be affected by their self-construal.

The self-construal is divided into two types: independent and interdependent. The concept of independent self-construal refers to an individual's higher level of autonomy, uniqueness, and self-expression. Individuals who use more independent self-construal are likely to describe themselves in relation to their distinctive values and preferences. In particular, these individuals are psychologically more stable despite a changing social context than individuals relying on interdependent self-construal. In contrast, the interdependent self-construal highlights the social role and relationship to others. These individuals tend to be more cooperative and supportive (van Baaren et al. 2003).

With regard to game playing, players face various options during the process of playing. In these contexts, the decision-making, problem solving, and reasoning inherent in the game are all affected by different self-construal mechanisms, depending on whether an individual uses independent or interdependent self-construal from the perspective of aggressive thinking. In other words, players' thoughts involved in in-game events or activities can be either independent or interdependent since people mentally construe such events differently in accordance with their own perspectives.

According to Markus and Kitayama (1991), self-construal could lead to different cognitive experiences and emotional responses. Since playing games can be affected by thoughts and feelings, self-construal of the players within a game might influence the degree of the players' aggression. Furthermore, gaming worlds require more active involvements with the players' own role and interpretation. Thus, we suspect that players' independent and interdependent self-construal will influence the degree of aggression in the context of the game environment.

Psychological problem factors: depression and loneliness. Mood management theory posits that people naturally peruse positive moods and avoid negative moods. When an event induces a negative mood, such as loneliness and depression, people are willing to reverse that feeling. Likewise, (Nabi et al. 2008) found that people with depressed mood seek out strategies that best allow them to enhance their feelings in a positive way. Thus, individuals may depend on playing favorite games to alleviate negative feelings or meet their needs for control that cannot be fulfilled in reality because gaming allows them to satisfy certain desires. In other words, some individuals might use these means to cope with loneliness and depression.

Loneliness refers to an unpleasant experience that is derived from the lack of a social network (Peplau et al. 1982). Feelings of loneliness may result from unfulfilled desires and gaps between one's actual and desired social position. Thus, it is highly probable for these individuals to indulge in playing games to fill the deficiency in social ties. Particularly, playing online games is the best way to socialize and avoid feelings of loneliness for such individuals (Griffiths and Meredith 2009).

Depression is defined as "feelings of sadness, diminished interest in activities, fatigue and diminished ability to think or concentrate, indecisiveness, recurrent thoughts of death" according to the Diagnostic and Statistical

Manual of Mental Disorders (4th ed., text rev, DSM-IV-TR; American Psychiatric Association, 2000, p. 366). (Dillman Carpentier et al. 2008) found that depressed adolescents tend to pursue violent content, and that such media may boost their depressed mood. This implies that depression also involves lethargy and aggression, and playing favorite games in particular may offer an environment for venting negative feelings.

In line with findings from previous studies, we predict that players' aggression will decrease along with depressive mood and loneliness because of mood change tendencies. Moreover, as aggression decreases, loneliness and depression should also decrease because of the ripple effect showing mood contagion (Barsade 2002). Furthermore, assuming that this effect exists, it would be interesting to examine if these psychological problem factors have moderating effects on therapeutic catharsis seeking.

METHODOLOGY

3.1. Data Collection

We conducted an online survey among Korean online game players over two weeks. The study was conducted by the Hankook Research Company (http://www.hrc.co.kr/), which is one of the major research companies in Korea. Participants were randomly recruited from Seoul, the capital city. The age of respondents varied between 16 and 59 years (M = 35.5, SD = 11.5). A total of 918 participants, including 532 (58%) males and 386 (42%) females, took part in this study. All the participants were asked by e-mail to complete an online questionnaire. To allow choice of the favorite game, various options about different types of games were presented, including arcade, console, solo play on computer, and online games. The respondents were informed beforehand that they had to be currently involved in game playing or had played a game within the past 6 months. After selecting the variables significantly correlated with aggression, we used a regression analysis to examine how each variable affected aggression. All analyses were conducted in SPSS version 18.

3.2. Research Instruments

To measure aggression, we used the Buss and Perry Aggression Questionnaire (AQ) (Buss and Perry 1992). The AQ is one of the most extensively used self-report measures of aggression. The 29-item scale is composed of four subscales: physical aggression, verbal aggression, anger, and hostility. A 5-point Likert scale is used for the questionnaire ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me) (α = .89).

For therapeutic catharsis seeking, we created a scale by combining both Ferguson's catharsis seeking scale (Ferguson et al., 2014) and the Therapeutic Realizations Scale–Revised (TRS-R) (Kolden et al. 2000) to measure an individual's degree of therapeutic catharsis seeking by adding "gaming" and "therapeutic aspects" to the questions (Lee, Jeong, & Kim, 2016) (e.g., "I think that gaming helps me relieve my stress," "I think that gaming helps me share my joys and sorrows," and "I think that gaming helps me feel satisfied."). The scale consists of 20 items in the form of a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (α = .92).

Self-construal was measured with the independent (α = .792) and interdependent (α = .845) subscales of the Self-Construal Scale developed by (Singelis 1994). Each subscale consists of six items. The response to each item uses a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Depression was measured with the Center for Epidemiologic Studies Depression Scale (CES-D). A screening version of the CES-D consists of a subset of the 11-item CES-D scale and has been used extensively in general populations (Hann, Winter, and Jacobsen 1999). The scale items ask about the degree of sadness, gloominess, and so forth (α = 0.74) and are rated from 1 to 4 according to how often the symptoms are present (1 = never/rarely, 2 = sometimes, 3 = often, and 4 = very often) (α = 0.88).

Loneliness was measured with the UCLA Loneliness Scale (Russell 1996). The scale consists of 20 items designed to measure one's subjective feelings of loneliness as well as feelings of social isolation. The items are

rated on a 4-point scale ranging from 1 (strongly disagree) to 4 (strongly agree) (α = 0.92).

In order to measure game genre, the participants were asked for details about what their favorite game of all time was (e.g., adventure games, sport games, social games, action or fighting games, shooting games, role playing games, simulation games, web board games, physics simulation games).

RESULTS

4.1. Descriptive Analysis

The average duration of online gaming time each day was 86 minutes (SD = 1.55), with men playing for 91 minutes (SD = 1.59) and women for 79 minutes (SD = 1.50). Considering the ratio of each age group, 65 (7.1%) were teens, 246 (26.8%) were in their 20s, 246 (26.8%) were in their 30s, 228 (24.8%) were in their 40s, and 133 (14.5%) were in their 50s. The average aggression score was 3.38 (SD = 0.53). The average level of therapeutic catharsis seeking was 2.62 (SD = 0.72). The average level of independent self-construal was 3.10 (SD = 0.69) and interdependent self-construal was 3.56 (SD = 0.53). The average depression score was 1.83 (SD = 0.42). The average violent games score was 2.55 (SD = 0.44). The average loneliness score was 2.19 (SD = 0.31).

Regarding the ratio of each game type, violent games represented 48% while non-violent games represented 52% of reported games. Demographic factors, scoring of the different measures, and corresponding means and standard deviations are presented in Table 1.

Table 1 Measures and Descriptive Statistics

	Measure	*M*	*SD*
Gender	0 = female 1 = male		
Age group	1 = teens 2 = 20s 3 = 30s 4 = 40s 5 = 50s	3.12	1.16
Daily online gaming time	Minutes	86.50	1.39
Game type		1.52	0.49

	1 = Violent games (Lineage, StarCraft, The King of Fighters, Rainbow Six, Quake) 2 = Non-violent games (Tetris, Anipang for Kakao, SimSE Online, SimCity, Korean chess)		
Aggression	1–5 (low–high)	3.38	0.53
Independent self-construal	1–5 (low–high)	3.10	0.69
Interdependent self-construal	1–5 (low–high)	3.56	0.53
Therapeutic catharsis seeking	1–5 (low–high)	2.62	0.72
Depression	1–4 (low–high)	1.58	0.52
Loneliness	1–4 (low–high)	2.55	0.44

Table 2 Correlations between Variables

	1	2	3	4	5	6	7	8	9	10
1. AG	1									
2. TCS	-.290**	1								
3. INDI	-.250**	.230**	1							
4. INTER	.113**	.027	.108**	1						
5. DEPRE	-.404**	.150**	.074*	-.033	1					
6. LONE	-.429**	.099**	.093**	-.117**	.407**	1				
7. OGT	-.200**	.328**	.096**	-.067	.171**	.154**	1			
8. GT	-.004	.027	.069	-.022	.056	.007	.015	1		
9. GEN	.082*	-.180**	-.073*	-.071*	.044	.105**	-.140**	-.087*	1	
10. AGE	.088**	-.152**	-.177**	.112**	-.149**	-.067*	-.277**	-.238**	.052	1

Note. AG = Aggression; TCS = therapeutic catharsis seeking; INDI = independent self-construal; INTER = interdependent self-construal; DEPRE = depression; LONE = loneliness; OGT = online gaming time; GT = game type; GEN = gender; AGE = age. *p <, **p < .01.

4.2. Correlation Analysis

To examine the relationship between variables, we employed a Pearson correlation analysis using the SPSS statistical software (see Table 2). The analysis compared players' therapeutic factor (therapeutic catharsis seeking), two psychological factors (independent and interdependent self-construal), two psychological problem factors (depression, loneliness), and demographic variables (age, gender) and game type.

The analyses identified a significant negative relationship between therapeutic catharsis seeking and aggression ($r = -.290$, $p < .01$). Independent self-construal showed a negative association with players' aggression ($r = -.250$, $p < .01$), while interdependent self-construal showed a positive association with players' aggression ($r = .113$, $p < .01$). Psychological problem factors, such as depression ($r = -.404$, $p < .01$) and loneliness ($r = -.429$, $p < .01$), were also significantly and negatively correlated with players' aggression. Online gaming time showed a negative association with players' aggression ($r = -.200$, $p < .01$) while game type did not show any association with players' aggression. Both gender ($r = .082$, $p < .05$) and age showed a positive association with players' aggression ($r = -.076$, $p < .05$), while age showed a positive association with players' aggression ($r = .088$, $p < .01$).

4.3. Regression Analysis

Table 3 shows the results of the regression analysis for the different variables. Regarding therapeutic factors, the players' catharsis seeking was an important predictor for the degree of aggression. Players who reported higher levels of therapeutic catharsis seeking had a significantly decreased degree of aggression ($\beta = -.207$, $p < .001$). Independent self-construal showed a significantly negative effect on players' aggression ($\beta = -.140$, $p < .001$), while interdependent self-construal showed a positive effect on aggression ($\beta = .121$, $p < .01$). The stronger the independent self-construal of the players, the lower the degree of aggression; while the stronger the interdependent self-construal, the higher the degree of aggression.

For the factors of psychological problems, interestingly, both depression ($\beta = -.187$, $p < .001$) and loneliness ($\beta = -.279$, $p < .001$) were significant negative predictors for the degree of aggression. However, we could not find any significant relationships between online gaming time and game type and players' aggression. With respect to demographic variables, gender showed a positive effect ($\beta = .076$, $p < .05$) while age did not show any significant effects on aggression.

Table 3. Regression Analysis and Interaction Effects

	Unstandardized coefficients	Standardized coefficients	t	p-value	Collinearity statistics	
	B	β			Tolerance	VIF
(Constant)	119.351		21.232	.000		
Therapeutic catharsis seeking	-.213***	-.207***	-5.259	.000	.847	1.180
Independent self-construal	-1.446***	-.140***	-3.648	.000	.896	1.116
Interdependent self-construal	.547**	.121**	3.234	.001	.932	1.072
Depression	-.571***	-.187***	-4.660	.000	.813	1.230
Loneliness	-.636***	-.279***	-6.857	.000	.795	1.258
Online gaming time	-.278	-.031	-.784	.433	.841	1.189
Game type	.138	.038	1.018	.309	.932	1.073
Gender	1.832*	.076*	2.027	.043	.925	1.081
Age	-.046	-.043	-1.094	.274	.842	1.188
Durbin-Watson = 2.193 R square = .272 (p < .001) *p < .05, **p < .01, ***p < .001						
Interaction effects						
TCS × depression	-3.194**	-.464**	-2.738	.006	.045	22.240
TCS × loneliness	3.625*	.533*	2.274	.023	.024	42.429
Durbin-Watson = 2.164 R square = .284 (p < .001) *p < .05, **p < .01, ***p < .001						

Note. TCS = therapeutic catharsis seeking; VIF = variance inflation factor.

4.4. Interaction Effects

As expected, we found two interaction effects on aggression. An interaction effect on aggression was observed between therapeutic catharsis seeking and depression, $F_{(1, 914)} = 4.221$, $p < .01$ (see Figure 1) and between therapeutic catharsis seeking and loneliness, $F_{(1, 914)} = 7.069$, $p < .05$ (see Figure 2). For depression, there were significant differences between low and high levels of therapeutic catharsis seeking and between low and high levels of depression. For loneliness, there were differences between low and high levels of therapeutic catharsis seeking, and between low and high levels of loneliness. These findings suggest that therapeutic catharsis seeking moderates the relationship between aggression and depression as well as loneliness.

Figure 1. Interaction effect between therapeutic catharsis seeking (TCS) and depression
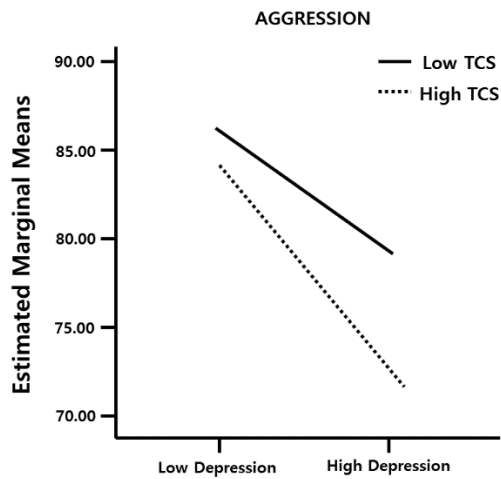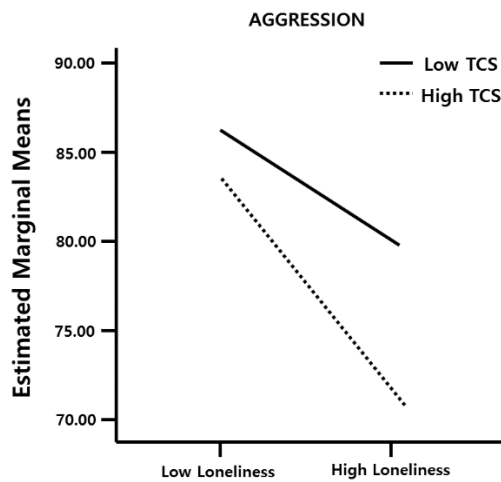
Figure 2. Interaction effect between therapeutic catharsis seeking (TCS) and loneliness

DISCUSSION

Although many issues regarding players' aggression remain in dispute and might not get resolved in the near future, it is worth revealing that games might lead to a reduction of aggressive thoughts in terms of mental health, because games could serve as effective tools to vent repressed negative feelings. This concept is generally associated with the catharsis concept, mood management theory, and uses and gratification theory. This study examined the relationships between therapeutic catharsis seeking, self-construal, psychological problem aspects, gaming duration, game type, and players' aggression. The results of this study provide empirical evidence that gaming activities are negatively related with the degree of players' aggression.

Therapeutic catharsis seeking is particularly important to players because it not only greatly decreases their aggressive tendencies but also interacts with depression and loneliness. This finding is in line with the results of previous studies stressing that playing games fulfills players' needs and desires far more effectively via infinite vicarious experiences that reflect the unique properties of games. This implies that games may be outlets for relieving aggressive energy, have mental healing powers, and provide a means to satisfy certain desires. This perspective agrees with the uses and gratifications theory and is also associated with therapeutic catharsis seeking in the way of psychological healing.

More notably, therapeutic catharsis seeking could be regarded as moderator, which acts through either mood

repair or mood management, and affects players' depression and loneliness related to aggression tendency; thus, playing a favorite game triggers a chain reaction for players suffering from negative emotions. Especially among players suffering from loneliness and depressive symptoms, therapeutic catharsis seeking can be a key element in inducing positive feelings as well as a tool for blowing off steam. From this perspective, it would be expected that individuals with mental health problems, which includes aggression triggered by stress in their daily lives, would be more inclined to use games to reduce stress.

It is possible that favorite online game playing allows "venting" aggression. Our empirical study presented in this paper clearly indicates that playing games is interpreted differently by individuals. This implies that gaming activity needs to be specified in order to understand its actual meaning for players. The present study on human aggression provides insights from therapeutic catharsis as a first step towards understanding mental health in a game context.

Regarding self-construal, this study yields useful insights for understanding mental health as an important aspect depending on players' level of independent and interdependent self-construal. We found that independent self-construal decreased the levels of players' aggression, while interdependent self-construal increased the levels of players' aggression. In studying the individual characteristics of self-construal, it should be noted that individuals with high independent self-construal tend to have more unique own principles and beliefs. Thus, we can reason that these individuals played more freely than players with interdependent self-construal because of the mastery of controls. Mastery of controls indeed plays an important role in satisfying psychological desires as it allows acting upon one's resolution. Therefore, players with higher independent self-construal could be more affected by venting aggression, which indicates therapeutic or healing power.

According to social interdependence theory, the achievement of each individual's goals is affected by thoughts and behaviors of others (Deutsch, 1949, 1962; Johnson, 1970; Johnson & Johnson, 1989). Players with higher interdependent self-construal are easily affected by social norms and others. Thus, they believe that social roles and relationships are more important than their own principles and values. This tendency could block their free playing, and as a result, a higher level of interdependent self-construal increased aggression in these players. Indeed, playing online games requires ample social cooperation, whereby individuals with interdependent self-construal encounter a number of interpersonal situations. This could drive players with interdependent self-construal into a state of being emotionally repressed as a consequence of their tendencies.

With regard to players' depression and loneliness, there is evidence from aggression-reducing studies to support these results. Previous studies addressed depression as a risk factor for aggression (Barsade, 2002; Dutton & Karakanta, 2013; Kovacs & Beck, 1977). Interestingly, our results indicate that depression can reduce aggression through gaming activity. In other words, players with a higher level of depression may alter their depressed mood to a more positive mood via game playing with the result that aggression is reduced.

According to the social compensation hypothesis, the media are more beneficial to very lonely or introverted individuals. Under this hypothesis, Internet-based media permit concealing one's identity and reduce the introvert's fear of rejection. Thus, it is possible that this compensatory strategy satisfies the needs of lonely players, thereby decreasing both feelings of loneliness and aggression by playing games. Taken together, both depression and loneliness could be affected by venting aggression. It seems likely that blowing off steam via game playing triggers a chain reaction for players suffering from depression and loneliness. Depression and loneliness are vulnerable conditions, which are known to cause considerable emotional suffering and which have social as well as psychological consequences (Andrews and Henderson 2000). The current results suggest that individuals play games to satisfy certain needs for altering their depressed mood or avoiding social isolation, eventually generating mood repair and mood management.

Furthermore, in that therapeutic catharsis seeking moderates depression and loneliness, it could be extended to the area of game therapy. Not only the most severely affected patients need psychotherapy but also the general

public, because contemporary society is inundated with stressful events at school, in the company, and so forth. These pressures cause people to experience psychological discomfort while creating increased expectations and desires. The characteristics of various games seem to especially converge on drama therapy, which is an active, experiential approach to facilitating change through storyline, projective play, and performance. Performers are invited to rehearse desired behaviors and perform the changes they wish to happen in the real world (Johnson 1991; Laurel 2013), There are many similarities between game properties and the drama therapy approach, since games can affect communication challenges, choices, and desired opportunities in various ways for the players (Lee, Jeong, and Kim). Thus, to maximize the potential of games for promoting mental health, gaming developers or researchers need to collaborate with drama therapists.

Our research aimed to improve upon some of the limitations of the aforementioned study. First, our sample was obtained through simple random sampling and included the general game population from adolescence to old age, whereas the previous study only focused on a small age group such as adolescents or university students. Second, we studied preferences on the basis of different types of games, compared to a single type of games (e.g., violent games).

In closing, we need to mention possible limitations of the current study and provide suggestions for future studies. First, the data were collected only from South Korean players. Future studies should gather data from additional countries. Second, we used a survey and relied on self-report measures, which limits the generalizability of our results. Future studies should thus be carried out using other methods such as longitudinal designs and experimental settings with controlled conditions. Finally, future studies should be carried out to compare the relationships of various other factors that could affect aggression.

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