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**Vulnerable Narcissism and Internet
Addiction: Exploring Mediating Pathway
through Vengeance**

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Vulnerable Narcissism and Internet Addiction: Exploring Mediating Pathway through Vengeance

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Abstract

The present study aimed to explore the mediating pathway on internet addiction through vengeance. The sample was consisted of 392 university students (N female = 242, 61.7% and N male = 150, 38.3%). The ages ranged between 18 and 35, with a mean age of 21.6 (SD = 1.95). The sample completed Young's Internet Addiction Test-Short Form, The Vengeance Scale, and Hypersensitive Narcissism Scale. According to mediation analysis results using structural equation modeling and bootstrapping, vengeance partially mediated vulnerable narcissism-internet addiction association. The results of the present study intimated the importance of the effects of individual differences and communication styles or preferences on internet addiction. The possible potential therapeutic power of vulnerable narcissism, which may lead to a direct increase in vengeance and an indirect increase in internet addiction through vengeance, appeared in line with this perspective. Finally, the results provided beneficial outcomes for clinical experts.

Introduction

People, by nature, share a life with other people. Although it is desired for the individuals to gain resources from this sharing, sometimes their interaction with others may reveal disagreements. These disagreements can also bring conflict or injustice. In these cases, the individual may reorganize their relationships or want to make the people associated with the conflict or injustice pay the price (McCullough et al., 2001). In line with this perspective, vengeance was defined as the sum of aggressive feelings towards other people due to thoughts of being injured. At the same time, the sense of vengeance was associated with the perception of injustice, and vengeance might be defined by the individual's responses to resolve this injustice (Bradfield, & Aquino, 1999; Cota-Mckinley et al., 2001). Studies in the literature examine associations between narcissism and vengeance (Brewer et al., 2015; Brown, 2004). Sometimes people decide to take vengeance on people they find guilty. Forgiveness is at the other end of this vengeance process (Uzun, 2018). There can be many reasons for a person to be passionately embraced with a sense of vengeance and not to behave in forgiveness (Johnson et al., 2010). One of these reasons was closely related to the personality traits. When the association between personality traits and vengeance was examined, many studies found that the feeling of vengeance was related to psychotic and neurotic personality traits (Johnson & Butzen, 2008; Bellah et al., 2003; McCullough et al., 2001). There were also several research findings regarding the negative association between empathy and narcissism (Giammarco & Vernon, 2014; Macaskill et al., 2002). In line with the findings of empirical studies, it can be concluded that vulnerable narcissistic traits may be an indicator of a tendency to take vengeance. It would be stated that the emotional and behavioral responses of narcissists can be effective in separating the individual who wants to take vengeance and the individual who does not want to take vengeance (Brown, 2004).

Research reports that narcissists can harm others with aggression (Bushman & Baumeister, 1998; Rhodewalt et al., 1998; Twenge & Campbell, 2003). It was thought that vulnerable narcissists could act by staying behind in the background rather than being in front of the scene. Due to their introverted nature, vulnerable narcissists may want to perform their hostile attitudes without much stress, that is, without interacting with people too much. The vulnerable narcissist, who does not want to communicate with others face to face and wants to take vengeance, can resort to different methods. Online social interaction can be considered one of the significant achievements of modern life. It was predicted that vulnerable narcissists could use social media or the internet rather than face-to-face communication. The behaviors of narcissists in internet-based applications were not surprising. Narcissists have been determined to tend to share pictures of their material (Scott et al., 2018), update the status of their achievements (Marshall et al., 2015), and post more selfies (Kim & Chock, 2017). In addition, vulnerable narcissists would be more likely to use the internet in an addictive way (Andreassen et al., 2017). At the same time, vulnerable narcissists may be willing to use the internet because of the opportunities.

Internet would be assessed as a tool that allows vulnerable narcissists to feel valuable and to confirm themselves (Sheldon & Bryant, 2016). By means of the internet, vulnerable narcissists can reflect themselves to others in a much more controlled (Uski & Lampinen, 2016). As seen, the vulnerable narcissist has many reasons to use the internet. The vulnerable narcissists who want to satisfy themselves more can start using the internet excessively. This situation would be handled as a predisposing factor in addictive behaviors. In the simplest form, excessive use of the internet can lead to the development of internet addiction. However, there were significant issues to be considered here. The processes that cause excessive time on the internet should be examined.

According to the generalized internet addiction model, the troubled functioning of the reinforcement mechanisms in the control processes may cause the development of internet addiction (Brand et al., 2014; Brand et al., 2016). In other words, specific cognitions determine internet usage. In individuals who cannot use positive reinforcement processes while using the internet, dysfunctional coping styles would be active and internet addiction would occur. It was thought that vulnerable narcissists could use the internet for gains that they cannot obtain from face-to-face communication. Furthermore, the Internet would be a safe tool that vulnerable narcissists can use as a means of vengeance. Vulnerable narcissists can spend more time on the internet to attain gains from vengeance or develop dysfunctional coping strategies. At the end of this process, it might be possible that the vulnerable narcissist would be an internet addict. According to the literature, it was clear that there was an association between narcissism and addicted behavior. Alcohol use disorder (Luhtanen & Crocker, 2005), gambling disorder (Rogier & Velotti, 2018), internet addiction (Pantic et al., 2017) were addictive behaviors associated with narcissism. Although there were strong relationships between narcissism and addicted behaviors (Ronningstam, 2005), the mechanism of risk association between narcissism and addiction wasn't precisely known (Bilevicius et al., 2019). Giordano et al. (2019) stated that narcissistic traits may have an essential effect on excessive use of social media. Grandiose narcissists may use social media to attract other people's attention (Casale & Fioravanti, 2018).

In contrast, vulnerable narcissists would prefer social networks because they wouldn't be willing to communicate face-to-face (Casale et al., 2016). It can be concluded that vulnerable narcissists constantly compare themselves with other people (Ozimek et al., 2018). At the same time, individuals with vulnerable narcissistic characteristics have an arrogant view of themselves, just like grandiose narcissists. However, literature revealed that vulnerable narcissists might have a sense of shame due to this point of view and may avoid social relations because of the anxiety of rejection or exclusion (Blachnio et al., 2016; Dickinson & Pincus, 2003). This circumstance may limit the social relationship patterns that they can compare. However, internet technologies offer vulnerable narcissists another social environment where they can experience fewer feelings of shame and rejection. Over time, the internet would become an ideal self-comparison platform for vulnerable narcissists.

According to the social compensation hypothesis, introverted individuals would benefit more from the internet (Grieve et al., 2017). Studies conducted based on this hypothesis reported that hiding the identity of an introverted person on the internet helps reduce the anxiety of rejection and ridicule. Thus, these individuals may exhibit more self-disclosure behavior in online experiences (Grieve et al., 2017; Zywicka & Danowski, 2008). Given the introverted structures of vulnerable narcissists, internet addiction would be an essential risk factor for vulnerable narcissists. According to another theory, using social media accounts by narcissists would help them express their ambitions. This method also might allow them to announce their achievements to life to a large audience. Accordingly, receiving positive feedback from other users for narcissists might be an essential reward and this circumstance may lead them to introduce their selves to other individuals (Andreassen et al., 2017). As a result, internet addiction may be a possible result in vulnerable narcissists. Many studies investigated the association between internet addiction and narcissism (Choi et al., 2011; Eksi, 2012; Ksinan, & Vazsonyi, 2016; Pantic et al., 2017). Many studies also explored the associations between social media addiction and narcissism (Bergman et al., 2011; Casale & Fioravanti, 2018; Müller et al., 2016; Ozimek et al., 2018). This study will investigate the association between vulnerable narcissism, one of the dimensions of narcissus, and internet addiction.

The behavioral and cognitive systematic of fragile narcissism would make individuals more prone to take vengeance. However, the narcissist who wants to avoid face-to-face interaction can use the internet to possess gains. This interaction expressed in this research was discussed. Investigating the mediation role of vengeance in the association between vulnerable narcissism and internet addiction represents the originality and novelty of the present study (Fig 1). The present paper is the initial research to quantitatively examine the associations among vulnerable narcissism, internet addiction, and vengeance. This is the first to explore an indirect association between vulnerable narcissism and internet addiction through vengeance. It was hoped that this

study would contribute to the literature regarding the role of vulnerable narcissism in predicting internet addiction through vengeance. The following hypotheses were tested in line with this purpose.

Hypothesis 1: Vulnerable narcissism would be positively associated with internet addiction.

Hypothesis 2: Vulnerable narcissism would be positively associated with vengeance.

Hypothesis 3: Vengeance would mediate the relation between vulnerable narcissism and internet addiction.

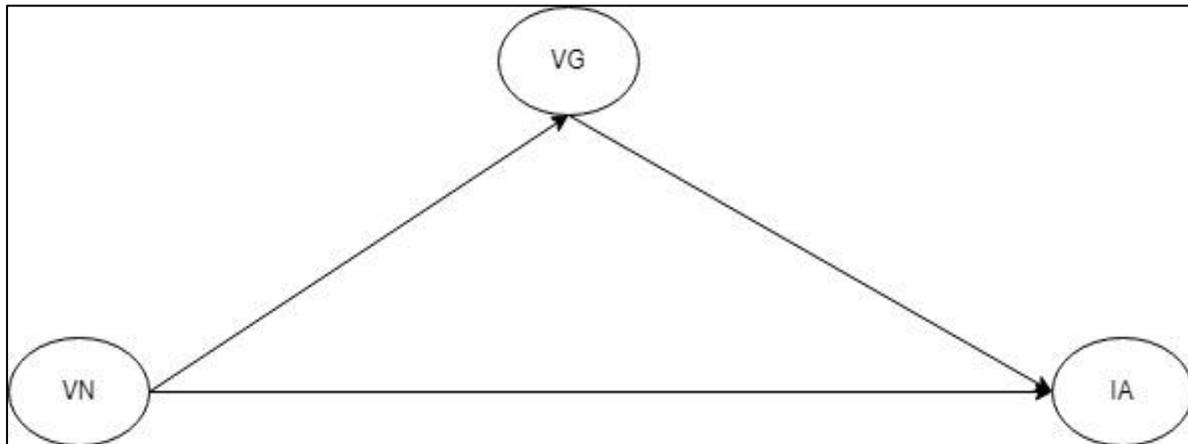


Figure 1. Hypothetical model

Method

Sample

The sample consisted of 392 Turkish university students (N female = 242, 61.7% and N male = 150, 38.3%). The ages ranged between 18 and 35, with a mean age of 21.6 (SD = 1.95). The information in relation to the sample provided impressive outcomes. There were results such as having a smartphone (N = 379, %97.2) and having an internet package for smartphone (N = 357, %91.3). Additionally, there were also results as to the daily internet use time. Accordingly, 48 of university students (12.3 %) used the internet for more than one hour per day, 138 (35.5%) used the internet for 1-3 hours per day, 110 (28.3%) used the internet for 3-5 hours per day, and 91 (23.4%) used the internet for more than 5 hours per day. Some students in the sample did not state their daily internet usage period (N = 2, 0.5%).

Procedure and Ethical Approval

The 2013 Helsinki Declaration was the basis of the ethical standards of this study. In the study, self-report paper-pen measures were used, which were answered by the participants in an average of 20 minutes. The printed forms prepared for the application were administered to the students mainly in the classroom and only volunteer participants were included in the process. In addition, after the written approval of each participant was obtained, the data collection process was started.

Measures

Young's Internet Addiction Test-Short Form

The Young's Internet Addiction Test-Short Form was developed by Young (1998) and adopted into a short form by Pawlikowski et al. (2013). The scale consists of 12 items assessed in 5-point Likert type (e.g. "How often do you find that you stay on-line longer than you intended?"). The validity and reliability of the Turkish form of the scale were performed by Kutlu et al. (2016). The Turkish adaptation study used two different samples (university students and adolescents). The internal consistency coefficients obtained in the reliability study were found as (α) .91 in university students and (α) .86 in adolescents. Within the current study, Cronbach's alpha for the whole scale was .85.

The Vengeance Scale

The original form of The Vengeance Scale was developed by Stuckless and Goranson (1992). The single-factor model of Vengeance scale consists of twenty items (e.g., "Revenge is fun", "The desire for revenge embarrasses me"). In addition, the scale has a Likert-type assessment. (1 = strongly disagree 7 = strongly agree). The validity and reliability of the Turkish form of the scale were performed by Satici et al. (2015). The Cronbach Alpha internal consistency coefficient of the adaptation of the scale to Turkish was found to be 0.91. Within this research, the internal consistency coefficient (α) of data from the study group was found to be .91.

Hypersensitive Narcissism Scale

The Hypersensitive Narcissism Scale (HSNS) was used to measure the concept of Vulnerable Narcissism. The original HSNS was developed by Hendin and Cheek (1997) to evaluate vulnerable narcissism. The measure consists of 10 items (e.g., "I can become entirely absorbed in thinking about my personal affairs, my health, my cares or my relations to others;" "My feelings are easily hurt by ridicule or the slighting remarks of others"). With a single factor, the measure has a five-point Likert-type assessment (1 = very uncharacteristic.... 5 = very characteristic). The validity and reliability of the Turkish form of the scale were established by Sengul e al. (2015). Using Cronbach's alpha, the reliability analysis demonstrated that the Turkish version of the HSNS was a reliable measure ($\alpha=0.66$). The Cronbach's alpha for HSNS was found as .60 for the present study.

Analytical Approach

Using IBM AMOS Graphics, structural equation modeling with maximum likelihood estimation was applied to assess the hypothesized conceptual mediation model. The current paper examined vengeance as a mediator variable in the association between vulnerable narcissism and internet addiction. The item parceling method was used to reduce the number of observed variables in the mediation analysis. In addition, item parcellation can increase the reliability and normality of the measures (Alhija & Wisenbaker, 2006). In the current study, the balanced item parceling method was preferred. In line with the results of the exploratory factor analysis, the factor loadings of the items constituting the measures were ranked from largest to smallest. Then, the items with the highest and lowest factor loadings were assigned to the first parcel and the other parcels were formed respectively (Little et al., 2002). A two-stage approach was adopted to prefer which model was more appropriate. This approach tested partial and full mediation models after the measurement model was validated (Anderson & Gerbing, 1988). While deciding which model is more appropriate, several fit indices were used, as well as a chi-square difference test. These fit indices included χ^2/df , Comparative Fit Indices (CFI), Tucker and Lewis index (TLI), Goodness of Fit Index (GFI), Bentler-Bonett Normed Fit Index (NFI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Akaike's Information Criterion (AIC), and Expected Cross-Validation Index (ECVI). To determine the extent to which the models are fit to the data, fit indices were examined based on some boundary values. Accordingly, χ^2/df less than 5, CFI, TLI, GFI, NFI are greater than 0.90, and SRMR is less or equal than 0.05 provides empirical evidence that the model showed an acceptable fit to the data (Tabachnick & Fidell, 2006). As for AIC and ECVI, the model which indicated lower values was accepted as more appropriate (Burnham & Anderson, 2004). Finally, because large samples may be more useful in assessing indirect effects, confidence intervals were calculated with 10,000 bootstrap samples (Preacher & Kelly, 2011).

Results**Preliminary Analysis**

Within the scope of the preliminary analysis, the kurtosis and skewness values were evaluated. Relevant literature revealed that kurtosis and skewness values between -1.5 and + 1.5 indicate that the distribution does not deviate excessively from normal (Tabachnick & Fidell, 2006). For multicollinearity analysis, the associations among the variables were examined, and it was found that the correlation coefficients varied between .21 and .40. If there is a high level of correlation between variables, the variable or variables that cause this problem should be removed from the model (Field, 2013). Therefore, it was concluded that there was no multicollinearity problem between variables in the model. Correlation analysis revealed that internet addiction was positively associated with vengeance ($r = .21, p < .01$; 95% CI [.11, .30]) and vulnerable narcissism ($r =$

.40, $p < .01$; 95% CI [.31, .49]). Additionally, vulnerable narcissism was positively associated with vengeance ($r = .24, p < .01$; 95% CI [.14, .33]) (Table 1).

Table 1. Descriptive statistics and correlations among variables

	M	SD	Kurtosis	Skewness	1	2	3
VN (1)	21.00	7.17	-.31	-.04	1		
VG (2)	46.76	7.14	.09	.52	.24**	1	
IA (3)	74.05	9.03	-.59	.22	.40**	.21**	1

Note. $N = 392, k = 10000, ** p < .01$; VN = Vulnerable Narcissism; VG = Vengeance; IA = Internet Addiction

Measurement Model

The measurement model includes three latent variables (vulnerable narcissism, vengeance and internet addiction) and nine observed variables. The measurement model indicated acceptable fit to the data. $\chi^2_{(df=25, N=392)} = 56.94, p < .05; \chi^2/df = 2.27, CFI = .98, TLI = .97, GFI = .97, NFI = .96; RMSEA = .05$ 90% CI [.038, .077]; $SRMR = .04$. Factor loadings of variables were all significant and ranged from .52 to .88. The t values of the measurement model were given in Table 2. This result supported that observed variables were indicators of latent variables. The path diagram of the measurement model was presented in Figure 2.

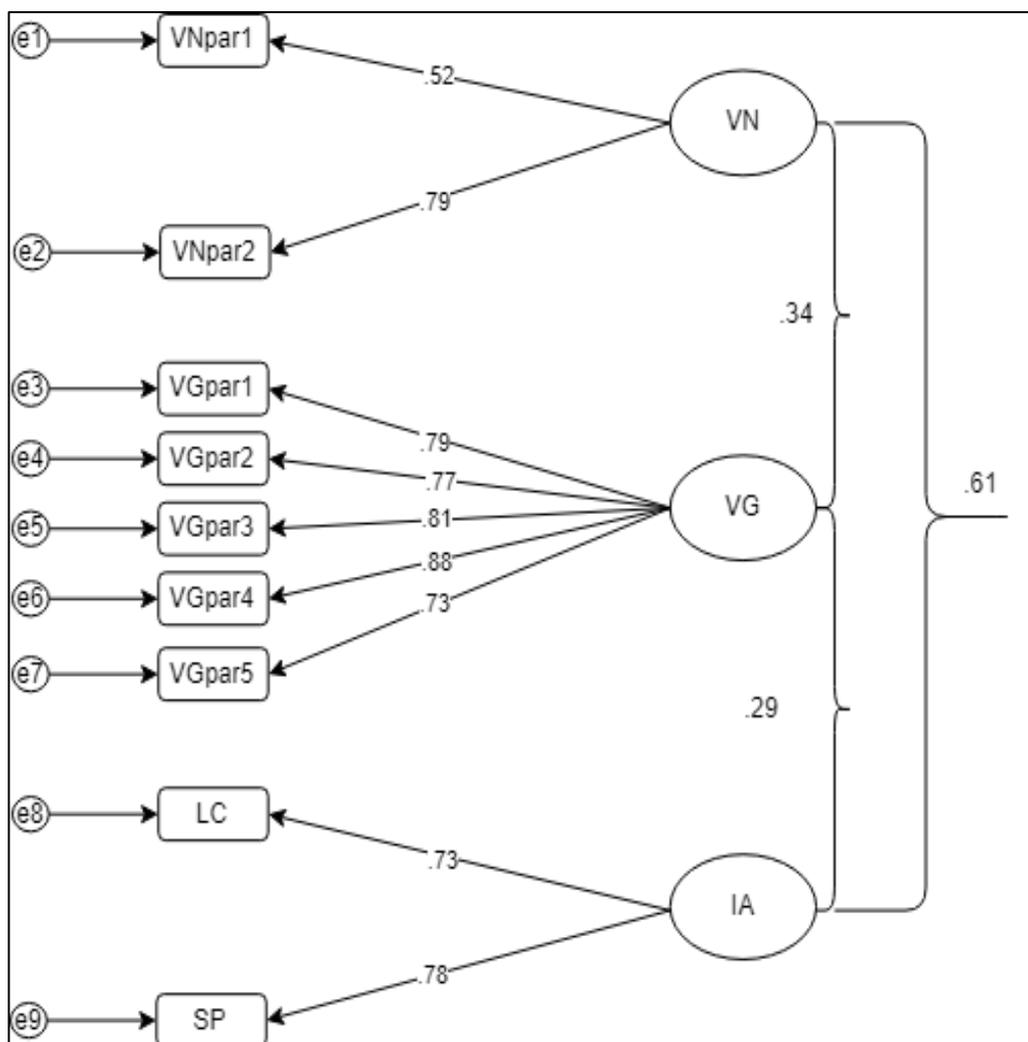


Figure 2. The path diagram of the measurement model.

Note. VN = Vulnerable Narcissism; VG = Vengeance; IA = Internet Addiction; VNpar1, VNpar2 = Parcels of Vulnerable Narcissism; VGpar1, VGpar2, VGpar3, VGpar4, VGpar5 = Parcels of Vengeance; LC = Locus of Control; SP = Social Problems

Table 2. Parameter estimates of the measurement model

Path	Unstandardized Regression Coefficient	Standardized Regression Coefficient	t value	Error variance
VNpar1 ← VN	1.00*	.52	-----	.27
VNpar2 ← VN	.59	.79	6.04***	.62
VGpar1 ← VG	1.00	.79	-----	.63
VGpar2 ← VG	1.20	.77	16.92***	.59
VGpar3 ← VG	1.06	.81	15.66***	.65
VGpar4 ← VG	1.04	.88	144.88***	.77
VGpar5 ← VG	1.10	.73	15.34***	.54
LC ← IA	3.55	.73	19.68***	.53
SP ← IA	3.55	.78	19.68***	.61

Note. *These values were set equal to zero for estimation. *** p < .001, VN = Vulnerable Narcissism; VG = Vengeance; IA = Internet Addiction; VNpar1, VNpar2 = Parcels of Vulnerable Narcissism; VGpar1, VGpar2, VGpar3, VGpar4, VGpar5 = Parcels of Vengeance; LC = Locus of Control; SP = Social Problems

Structural Model

In the current paper, the full mediation model (Model 1), including a mediator, vengeance, and no direct path from vulnerable narcissism to internet addiction was tested. The fit indices for full mediation model (Model 1) were as follows: χ^2 (df = 25, N = 392) = 98.85, $p < .05$; $\chi^2/df = 3.95$, $CFI = .95$, $TLI = .93$, $GFI = .95$, $NFI = .93$; $RMSEA = .09$ 90% CI [.069, .105]; $SRMR = .08$; $AIC = 138.85$, $ECVI = .36$ 90% CI [.286, .443]. All paths in full mediation model were significant. Secondly, partial mediation model was tested (Model 2). Model 2 revealed sufficient fit to the data: χ^2 (df = 24, N = 392) = 33.94, $p > .05$; $\chi^2/df = 1.41$, $CFI = .99$, $TLI = .99$, $GFI = .98$, $NFI = .98$; $RMSEA = .03$ 90% CI [.010, .056]; $SRMR = .03$; $AIC = 75.94$, $ECVI = .19$ 90% CI [.169, .244]. To investigate which model may be more efficient in explaining the mediation role of vengeance, model 1 and model 2 were compared. In the comparison process, AIC and ECVI values enable us to determine a better model. The AIC and ECVI values were lower in model 2 ($AIC = 75.94$, $ECVI = .19$) than in model 1 ($AIC = 138.85$, $ECVI = .36$). Additionally, the chi-square difference test was performed to provide more evidence for model comparison. The path from vulnerable narcissism to internet addiction improved the model fit ($\Delta\chi^2_{[1]} = 64.91$, $p = .001$). According to these results, vengeance was determined as showing a partial mediation role in the association between vulnerable narcissism and internet addiction (Table 3, Fig. 3).

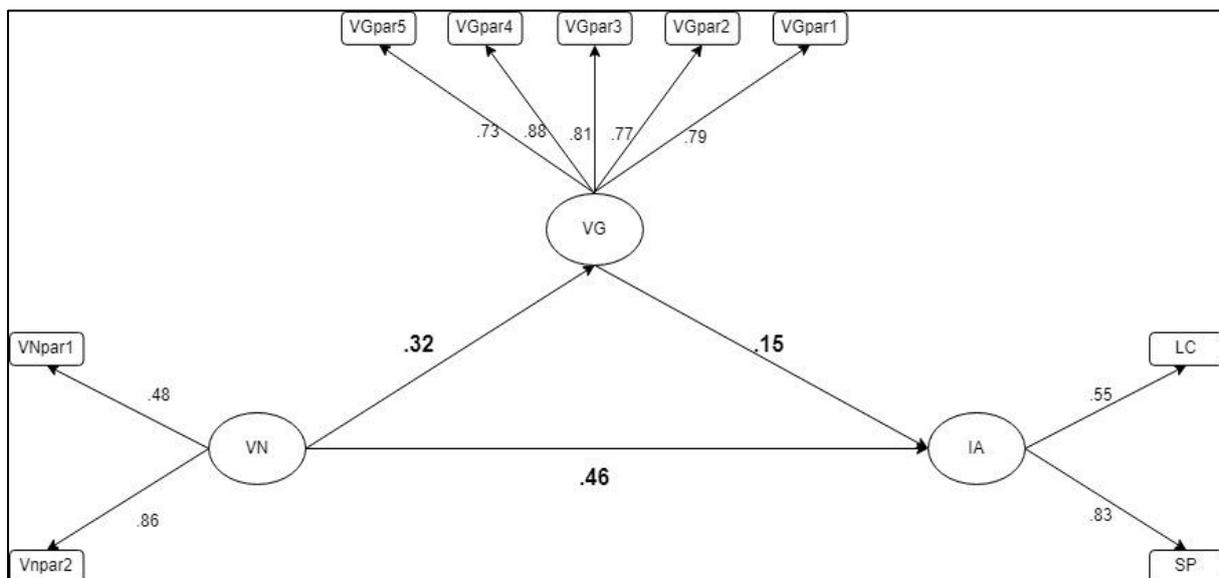


Figure 3. Mediation model from vulnerable narcissism to internet addiction through vengeance

Note. VN = Vulnerable Narcissism; VG = Vengeance; IA = Internet Addiction; VNpar1, VNpar2 = Parcels of Vulnerable Narcissism; VGpar1, VGpar2, VGpar3, VGpar4, VGpar5 = Parcels of Vengeance; LC = Locus of Control; SP = Social Problems

Table 3. Direct and indirect effects of among latent variables

Model pathways	Effect	95% BCa		S.E	C.R.
		Lower	Upper		
Direct effect					
VN→VG	.32	.21	.42	.13	4.18**
VG→IA	.15	.05	.24	.06	2.71*
VN→IA	.46	.28	.61	.18	4.97**
Indirect effect					
VN→VG→IA	.05	.02	.08	---	---

Note: Bootstrapping process was confirmed with 10.000 bootstrap samples.

VN = Vulnerable Narcissism; VG = Vengeance; IA = Internet Addiction ** p < .001 * p < .01

Discussion

The results of the study showed that there was a relationship between vulnerable narcissism and internet addiction. This result rejected the null hypothesis of hypothesis 1 and confirmed the alternative hypothesis. It also demonstrated that vulnerable narcissism would have a role in accounting for internet addiction. In this respect, vulnerable narcissism may be considered an essential variable in the development or increasing the level of internet addiction. A study conducted on individuals with grandiose and vulnerable narcissistic traits determined that vulnerable narcissists use social media networking sites more intensively and prefer online social interactions more (Casale et al., 2016). Based on this finding, orientation to the internet or social networking sites could be considered a secondary problem that may develop due to a vulnerable narcissistic pattern. The present study supported the social compromise hypothesis. In other words, it can be assumed that vulnerable narcissistic people can exhibit themselves more easily in online environments because of their introversion.

Ahn et al. (2015) stated that individuals with high levels of vulnerable narcissism avoid processes that threaten privacy on social networking sites. From this perspective, it can be concluded that vulnerable narcissists refrain from being rejected or ridiculed by hiding their identities and keeping privacy. Thus, they may avoid negative evaluations of their self. Individuals with high levels of vulnerable narcissism experience more problems in their social relationships, so they may be reinforced to the preference of online social interactions (Ksinan & Vazsonyi, 2016). At this point, Caplan's (2005) online social interaction model becomes functional. According to this model, people prefer online environments due to problems in social interactions. The interactions of individuals preferring online interactions in real life may be seriously damaged. This situation and vulnerable narcissistic traits may lead to overusing the internet by preferring online social interactions again. Preferring online social interactions is known to be associated with social interaction anxiety and low social self-efficacy (Ksinan & Vazsonyi, 2016). Kim et al. (2009) emphasized that in this way, the individual may come up against a negative circle and that this process may reinforce the development of internet addiction. As can be seen, the vulnerable narcissistic trait may interact with multiple mechanisms and lead to excessive use of the internet. So, what other factors may affect the association between Internet addiction and vulnerable narcissism? One of the possible answers to this question was vengeance, and the mediator role of vengeance between vulnerable narcissism and internet addiction was discussed below.

Hypothesis 2 was tested to achieve the main aim of the study. The results showed the partial mediation role of vengeance in the association between vulnerable narcissism and internet addiction. In other words, vulnerable narcissism had a positive indirect effect on internet addiction through vengeance. According to this result, it would be stated that vulnerable narcissism has an explanatory function on internet addiction and the mediator variable (vengeance). Mediation analysis provides an understanding of the interactions of the independent variable and the other variable (s) (mediator), which have a descriptive role on the dependent variable. Therefore, the results may be interpreted that the increase in the level of vulnerable narcissism may lead to an increase in the level of vengeance and that the increase in the mediator variable, based on the increase from vulnerable narcissism, may increase the level of internet addiction.

The mediation analysis results supported the problem behavior theory. According to problem behavior theory, personality, environment, and behavior are evaluated interactively (Jessor, 1987). In the present study, internet addiction was considered a behavioral experience. An individual with vulnerable narcissistic characteristics must maintain his / her self-identity (Malesza & Kaczmarek, 2018). The most critical process in the emergence of vengeance is the loss of self-identity (Bechwati & Morrin, 2007). Vulnerable narcissists may turn to

vengeance when subjected to an attack on themselves. Brown (2004) found significant relationships among narcissistic personality traits, vengeance, and forgiveness. The internet may be an effective tool for the person seeking vengeance if it is inaccessible or if the narcissist wants to conceal his identity while taking revenge.

Therefore, the individual who can use the internet as a tool for a purpose may not be able to control the time spent on the internet. According to another perspective, the self-perception and cognition of the vulnerable narcissist who interacts negatively with the environment to take vengeance were thought to be negative. It was assumed that the individual may turn to the internet to escape these negativities. The findings obtained in the current study supported this perspective of Davis (2001). When the findings related to the second hypothesis were discussed, it was thought that there was another model that could be functional. In the generalized internet addiction model, some of the individual's unique cognitions cause excessive internet use. According to this model, control processes play an essential role in developing internet addiction and enable positive or negative reinforcement systems to work. An individual who uses the internet to take vengeance can give negative reinforcement as it is directed to a purpose. In other words, the failure of the control processes may cause excessive internet use.

Limitations and Recommendations

The research design limited the causal relationship among the variables. In this context, future studies should be conducted in a longitudinal and experimental design, primarily to determine the cause-effect relationships among variables. The following limitation was the sample of the study. In order to increase the generalizability of the study results, it is considered appropriate to conduct research in different and large samples. Response bias and social desirability were among other significant limitations. In addition to the necessity of longitudinal and experimental studies in the future, future studies based on different research approaches may facilitate understanding the more qualified interactions among variables.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in JESEH journal belongs to the authors.

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