

The Mediating Role of Difficulties in Emotion Regulation and Social Anxiety in the Relationship between Self-Compassion and Internet Addiction



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Internet addiction continues to be a significant concern, particularly among university students who are increasingly dependent on digital technologies for academic and social activities. Recent research highlights a rising trend in Internet addiction, emphasizing the urgent need to understand and address the underlying factors contributing to this issue, which has been linked to numerous negative outcomes such as depression, anxiety, and reduced academic performance. Notably, a negative link between self-compassion and Internet addiction has been suggested, but the underlying mechanisms remain largely unexplored. To address this gap, the study examines the roles of difficulties in emotion regulation and social anxiety as potential mediators in the relationship between self-compassion and Internet addiction. This study specifically examines a non-clinical sample of 975 young adults, most of whom were university students, with an average age of 21 years, where 60% were female, to explore patterns of Internet usage and its psychological impacts. The study showed that those with greater self-compassion experienced fewer difficulties in regulating emotions, which led to reduced social anxiety and, consequently, lower levels of Internet addiction. In conclusion, the study suggests that difficulties in emotion regulation and social anxiety significantly contribute to Internet addiction, particularly through the lens of self-compassion. These insights enhance our understanding of how to prevent the negative impacts of Internet addiction.

Key words: self-compassion, difficulties in emotion regulation, social anxiety, Internet addiction

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Introduction

With its growing popularity as a communication medium, the Internet has become a part of daily life for many people (Griffiths, 2000). According to data from TUIK's (2023) "Household Information Technology Usage Survey," the Internet usage rate among individuals aged 16-74 in Turkey increased from 85% in 2022 to 87.1% in 2023. Globally, the number of Internet users reached a staggering 5.3 billion in 2023, representing about two-thirds of the world's population (Statista, 2023). While the Internet offers numerous benefits for information access, communication, and education, its overuse can lead to addiction and adversely affect psychosocial functioning.

Young (1998) developed a set of criteria for determining whether Internet use can be classified as an addiction by modeling pathological gambling addiction and stated that Internet addiction could be classified as an impulse control disorder. Subsequently, Griffiths (2000) identified six criteria for behaviors deemed to be functional addictions: salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse.

Despite these classifications, distinguishing between excessive use and addiction and diagnosing addiction remains challenging. The concept of "Internet addiction" has been proposed to explain the uncontrollable, damaging use of this technology (Beard & Wolf, 2001). However, problematic Internet use, pathological Internet use, and Internet addiction are often used interchangeably in studies. In the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; APA, 2013), "Internet Gaming Disorder" is included in the appendix as a condition warranting more clinical research and experience, but Internet addiction has not been comprehensively diagnosed. Consequently,

prevalence data on Internet addiction are limited by methodological challenges related to the heterogeneity of diagnosis and diagnostic tools, with the most commonly used being Young's Internet Addiction Scale (Weinstein & Lejoyeux, 2010).

Extensive research has shown a significant association between Internet addiction and various detrimental mental health factors, including both psychopathological symptoms and dysfunctional attitudes (Taymur et al., 2016). A meta-analysis found that Internet addiction is associated with alcohol abuse, ADHD, depression, and anxiety, and psychiatric comorbidity ranging from 13.3% to 26.3% among patients suffering from Internet addiction (Ho et al., 2014). Additionally, Internet addiction is associated with mental health issues such as social anxiety (Yucens & Uzer, 2018) and loneliness (Ostovar et al., 2016). The severity of these negative outcomes has prompted researchers to investigate risk factors and potential protective measures against Internet addiction.

Self-compassion has emerged as a key factor influencing Internet addiction, as evidenced in recent studies (Hodes et al., 2021). Notably, Iskender and Akin (2011) found an inverse relationship, where increases in self-compassion correspond to decreases in Internet addiction, and Shahabinejad et al. (2018) noted that self-compassion could predict 71.9% of the variance in Internet addiction behaviors. The concept of self-compassion, as outlined by Neff (2003b), is intrinsically linked to the broader understanding of compassion toward others. Compassion, as described by Gilbert (2005), is characterized by an empathetic and nonjudgmental acceptance of one's own and others' suffering, a cognitive recognition of this pain, a motivational drive to alleviate it, and active efforts to help. Simply put, self-compassion is the inward direction of compassion (Germer & Neff, 2013). Strauss

and colleagues (2016) proposed a comprehensive definition of compassion based on the integration of conceptualizations and definitions in the field, applicable to both self-compassion and compassion for others. They defined compassion as a cognitive, emotional, and behavioral construct comprising five components: recognizing suffering; understanding the universality of suffering in human experience; feeling empathy for the person suffering and connecting emotionally with their distress; tolerating uncomfortable feelings aroused in response to the person suffering and remaining open and accepting toward them; and being motivated to act or acting to alleviate the suffering.

Individuals with high self-compassion can develop a non-judgmental understanding of their own pain, inadequacies, and failures, accept them, and consider them as part of the common human experience (Neff, 2003a). Neff (2003b) suggested a three-part model for self-compassion: self-kindness, common humanity, and mindfulness. Self-kindness involves showing kindness and understanding to oneself rather than harsh judgment and criticism. Common humanity refers to recognizing that one's experiences are part of a broader human experience rather than viewing oneself as separate and isolated. Mindfulness involves maintaining a balanced and wise awareness of one's painful thoughts and feelings instead of over-identifying with them. These components interact with each other and contribute to the formation of a compassionate mind.

The concept of self-compassion and its psychological benefits have been explored in numerous research and experimental studies since its introduction in 2003 by Neff (2003a, 2003b). High levels of self-compassion have been associated with greater hedonic happiness (Ferguson et al., 2014), emotional calmness (Leary et al., 2007), positive affect

(Krieger et al., 2015), and resilience (Bluth et al., 2018). A meta-analysis study (MacBeth & Gumley, 2012) found that self-compassion is negatively correlated with psychopathology in the areas of depression, anxiety, and stress, exhibiting a high effect size ($r = -0.54$). All these studies contribute to a meaningful understanding of why self-compassion might explain Internet addiction, which is more commonly associated with psychopathologies in the literature.

Self-compassion has been conceptualized as a crucial component of emotion regulation in numerous studies (Neff, 2003b; Die-drich et al., 2014). Emotion regulation refers to the processes by which individuals pay attention to their emotions, manage the intensity and duration of emotional arousal, and transform the nature and meaning of their emotional states when faced with stressful or distressing situations (Thompson, 1994). While emotion regulation skills are considered a key resilience mechanism for mental health (Trompeter et al., 2017), difficulties in emotion regulation have been recognized as a fundamental mechanism in many psychopathologies (Campbell-Sills & Barlow, 2007; Sheppes et al., 2015). Results from an important systematic review indicate that emotion regulation may serve as a significant change mechanism in the relationship between self-compassion and mental health (Inwood & Ferrari, 2018). In a longitudinal study by Paucsik et al. (2022), it was found that self-compassion positively predicted cognitive reappraisal, acceptance, problem-solving, relaxation, self-support, tolerance, and emotional regulation skills, while negatively predicting behavioral avoidance, expressive suppression, and rumination.

Difficulties in these processes could also be a significant predictor of Internet addiction. The literature reports positive relationships between difficulties in emotion regulation

and Internet addiction in both adult (Babaei et al., 2021) and child-adolescent populations (Karaer & Akdemir, 2019). More recently, researchers have suggested that during the COVID-19 pandemic, self-compassion may play a protective role against Internet addiction, while maladaptive emotion regulation strategies could be risk factors for virus-related anxiety and fear (Moniri et al., 2022).

Social anxiety disorder is another factor connected to self-compassion, emotion regulation, and Internet addiction, as noted in the literature (Klemanski et al., 2017; Werner et al., 2011; Weinstein et al., 2015). The DSM-5 defines Social Anxiety Disorder as the fear or anxiety experienced in social situations, particularly when evaluation by others is anticipated, leading to avoidance. This study employs the term 'social anxiety' to refer to subclinical levels of this condition. Numerous clinical studies indicate that social anxiety involves difficulties in emotion regulation (Hofmann, 2007; Brühl et al., 2013), despite the DSM-5 not explicitly linking it to specific emotion regulation difficulties. The literature suggests a connection between social anxiety and the process model of emotion regulation, encompassing situation selection (e.g., avoiding anxiety-provoking social contexts), situation modification (e.g., employing safety behaviors in social settings), attentional deployment (e.g., heightened self-focus), cognitive change (e.g., ineffective cognitive strategy usage), and response modulation (e.g., experiential avoidance) (Jazaieri et al., 2015).

Previous studies have also indicated that as self-compassion decreases, social anxiety tends to increase (Werner et al., 2011; Weinstein et al., 2015). A meta-analysis examining the relationship between problematic Internet use and social anxiety indicates a significant and positive correlation between these two factors (Ding et al., 2023). Students with

Internet addiction exhibit higher levels of social anxiety compared to non-addicted students, and social anxiety can predict Internet addiction levels (Ye et al., 2021; Lyvers et al., 2022). In a 12-month longitudinal study with a sample of children and adolescents, Leo and colleagues (2021) found that social anxiety significantly predicted the severity of Internet use disorder symptoms one year later, even after controlling for key variables such as gender and age. Additionally, the group with high social anxiety had lower levels of self-compassion and emotion regulation, and higher levels of depression (McBride et al., 2022). Furthermore, studies investigating the relationship between social anxiety, Internet addiction, and suicidal ideation among adolescents suggest that social anxiety may lead to suicidal thoughts through Internet use (Tan et al., 2024).

The literature review suggests that self-compassion, difficulties in emotion regulation, social anxiety, and Internet addiction are interrelated. However, the exact mechanisms underlying the connections among these variables remain unclear. This study introduces a serial mediation model to address this gap.

Moreover, self-compassion tends to reinforce positive reassessment and proactive coping behaviors while reducing avoidance tendencies (Deniz, 2021). Therefore, it may negatively predict difficulties in emotion regulation. Conversely, difficulties in emotion regulation may heighten social anxiety, predominantly characterized by avoidance behaviors, which could potentially lead to Internet addiction as a coping strategy. Against this backdrop, the current study aims to further our understanding of self-compassion associated consequence of Internet addiction by testing three hypotheses:

H1. Difficulties in emotion regulation mediate the relationship between self-compassion and Internet addiction.

H2. Social anxiety mediates the relationship between self-compassion and Internet addiction.

H3. Difficulties in emotion regulation and social anxiety sequentially mediate the relationship between self-compassion and Internet addiction.

Method

Participants

Participants were recruited through a convenience sampling method. A total of 975 Turkish young adults participated in the study, comprising 73.8% female and 26.2% male. Their ages ranged from 19 to 68 years ($M = 22.31$, $SD = 5.79$). The majority (92.7%) of the participants were single, and most (82.3%) were university students. Additionally, 75.2% of them reported having a moderate economic status. The participants' mean scores for the YIAT-SF (Young Internet Addiction Test Short Form) were found to be 1.58 ($SD = 0.79$), with scores ranging from 0.00 to 3.53. The mean score for the scale used to assess social anxiety levels was 3.11 ($SD = 0.59$), with scores ranging from 1.58 to 4.63.

Measures

Self-Compassion Scale (SCS): Developed by Neff in 2003, the Self-Compassion Scale is a 26-item tool that measures self-compassion across six subdimensions: self-judgment, self-kindness, isolation, common humanity, mindfulness, and over-identification. The SCS includes items like "I try to approach myself with compassion when I experience emotional pain." and "I try to see my failures as part of being human." The scale also provides an overall self-compassion score, with higher scores indicating greater self-compassion. Cronbach's alpha for the total scale was 0.93.

The scale was adapted into Turkish by Deniz et al. (2008), who validated its unidimensional structure. In this study, the Cronbach's alpha for the total scale was 0.88.

Young's Internet Addiction Test Short Form (YIAT-SF): Pawlikowski et al. (2013) developed the YIAT-SF, a 12-item scale utilizing a five-point Likert scale ranging from 1 (Never) to 5 (Very often) to assess Internet addiction. The YIAT-SF includes items like "How often do you neglect family-related duties to spend more time on the Internet?" and "How often do you feel depressed, moody, or nervous when you cannot connect to the Internet, and see these feelings disappear once you are online?" The original scale had a Cronbach's alpha of 0.85, with higher scores indicating greater level of Internet addiction. The Turkish adaptation by Kutlu et al. (2006) has been validated. The Cronbach's alpha for this scale in the current study was 0.88.

Difficulties in Emotion Regulation Scale-Short Form (DERS-16): The DERS-16, created by Bjureberg et al. (2016) as a shorter version of the DERS by Gratz and Roemer (2004), is a 16-item measure assessing emotion regulation difficulties across five subscales: clarity, goals, impulse, strategies, and non-acceptance. The DERS-16 includes items like "I find it difficult to make sense of my emotions" and "I feel uncomfortable with myself when I feel bad." The original scale had a Cronbach's alpha of 0.93, with higher scores indicating greater difficulties in emotion regulation. The Turkish version of this scale was adapted by Yigit and Guzey Yigit (2019) and has been validated. In this study, the Cronbach's alpha for the total scale was 0.93.

Social Anxiety Scale: Developed by Ozbay and Palanci (2001), this scale assesses social anxiety with 30 items in three subscales: social avoidance, anxiety of evaluation, and sense of worthlessness. The scale includes items like, "My face turns red when I talk to someone"

and, "I feel like everyone is watching me when I do something in a crowded place." Higher scores indicate higher levels of social anxiety. The scale's reliability was initially established with a Cronbach's alpha of 0.89. In this study, the total scale's Cronbach's alpha was 0.95.

Procedure

Data were gathered through a web-based questionnaire in Turkey. The Research Ethics Committee granted ethical permission (No: E-46409256-300-17341). Surveys were created online via Google Forms and included an informed consent form outlining the study's purpose, confidentiality, anonymity, and the right to withdraw. The survey link was distributed via WhatsApp groups, Instagram, and Twitter. Participants were allowed to share the link with others. Participants from the authors' university received one credit point as an incentive, which helped reduce low participation rates and survey fatigue, motivating participation without biasing results (Vereda-Alonso et al., 2024). However, students who did not wish to participate in the survey were given the option to complete a simple assignment to earn the same credit. Data were collected between April 7 and 14, 2022, and the survey took approximately 10 minutes to complete. Inclusion criteria were being aged 18-60 years and having no diagnosed mental health problems. Sample size calculation using G*Power indicated that 136 participants were needed to achieve a power of 0.90, with an effect size of 0.15 and an alpha level of 0.05. This ensured the sample size was adequate to detect medium-sized effects in the sequential mediation model.

Data Analysis

SPSS 22 was utilized for all data analyses. Data screening indicated no outliers or miss-

ing data. The data met all regression assumptions as per Tabachnick & Fidell (2014). Descriptive statistics and Pearson correlations were conducted for the study variables. The PROCESS macro for SPSS (Hayes, 2008; Model 6) was employed for sequential mediation analysis, which is grounded in linear models and facilitates the assessment of indirect effects through multiple mediators. Specifically, self-compassion was used as the independent variable, difficulties in emotion regulation and social anxiety were used as mediating variables, and Internet addiction was used as dependent variable. Gender, age, marital status, educational status, and socio-economic status were controlled for the mediation analysis as covariate variables. The analysis used bias-corrected bootstrapping with 5000 resamples to generate 95% confidence intervals (CI).

Results

Preliminary Analyses

Table 1 shows descriptive statistics and Pearson correlations for the study variables. Self-compassion had a significant negative relationship with difficulties in emotion regulation, social anxiety, and Internet addiction. On the contrary, there were significant positive correlations between difficulties in emotion regulation, social anxiety, and Internet addiction.

The Multiple Mediation Model

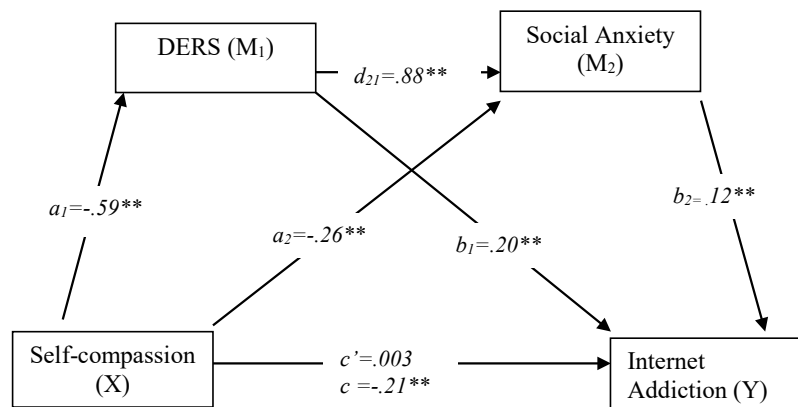
As presented in Figure 1, self-compassion was found to be a direct predictor of Internet addiction (total effect; $B = -.21$, 95% CI = -0.24 to -0.17). However, when difficulties in emotion regulation and social anxiety were incorporated into the model, the direct effect of self-compassion on Internet addiction be-

Table 1 Descriptive statistics and Pearson correlations between study variables (N = 975)

Variable	1	2	3	4
SC	-	-.621**	-.474**	-.331**
DERS		-	.612**	-.500**
SA			-	.501**
IA				-
M	3.11	2.99	1.58	2.56
SD	.59	.87	.79	.77
Skewness (Curtosis)	.118 (-.229)	-.016 (-.538)	.133 (-.703)	.010 (-.701)

Note. SC = self-compassion; DERS = difficulties of emotion regulation; SA = social anxiety; IA = Internet addiction.

**p < .001



Note. **p < 0.001

Figure 1 The multiple mediation model.

came non-significant, suggesting full mediation (direct effect; $B = 0.003$, 95% CI = -0.4 to 0.5). Additionally, self-compassion was a direct negative predictor of difficulties in emotion regulation ($B = -0.59$, 95% CI = -0.63 to -0.54) and social anxiety ($B = -0.26$, 95% CI = -0.37 to -0.15).

The mediation analysis (see Table 2) examined the relationship between self-compassion and Internet addiction with the inclusion

of two sequential mediators. Self-compassion indirectly predicted Internet addiction through difficulties in emotion regulation, $B = -0.12$, 95% CI = [-0.15, -0.9]. Higher levels of self-compassion were linked to lower levels of difficulties in emotion regulation, which in turn were associated with decreased Internet addiction. Similarly, self-compassion indirectly predicted Internet addiction via social anxiety, $B = -0.03$, 95% CI = [-0.05, -0.02]. Finally,

Table 2 Indirect effect of self-compassion on Internet addiction via difficulties in emotion regulation and social anxiety

Path	Coefficient	SE	95%CI	
			LL	UL
SC → DERS → IA	-.12	.02	-.15	-.09
SC → SA → IA	-.03	.01	-.05	-.02
SC → DERS → SA → IA	-.06	.01	-.08	-.04
Total effect	-.21	.02	-.24	-.17
Direct effect	.003	.02	-.04	.05
Total indirect effect	-.21	.02	-.24	-.18

Note. SC = self-compassion; DERS = difficulties in emotion regulation; SA = social anxiety; IA = Internet addiction

it was determined that self-compassion was a predictor of Internet addiction in a sequential manner, via difficulties in emotion regulation and social anxiety, $B = -0.06$, 95% CI = [-0.08, -0.04]. In summary, self-compassion was sequentially correlated with lower levels of difficulties in emotion regulation and reduced social anxiety, subsequently leading to a decrease in Internet addiction.

Discussion

The research results demonstrate that self-compassion negatively predicts Internet addiction, with difficulties in emotion regulation mediating this relationship. This supports the first hypothesis and aligns with previous findings (Iyer et al., 2022). Arslan (2017) also found that mindfulness, a key aspect of self-compassion, negatively predicts Internet addiction. Neff (2003b) suggests self-compassion as an effective emotional coping strategy. Conversely, Internet addiction is often an avoidance behavior from negative emotions (Griffiths, 2000). Such contrast suggests that the relationship between these two variables may also be closely related to difficulties in emotion regulation. Indeed, research findings

indicate that self-compassion negatively predicts difficulties in emotion regulation. Previous studies, both relational (Eichholz et al., 2020; Yilmaz & Cenkseven, 2020) and experimental (Torbaty et al., 2022), support this finding. A positive and significant relationship between difficulties in emotion regulation and Internet addiction has also been consistently reported in previous research (Gunaydin et al., 2022; Spada & Marino, 2017). Furthermore, Neff (2000a) posits that self-compassion is an effective emotion regulation strategy because it involves embracing painful or distressing emotions with kindness, understanding, and a shared sense of humanity, rather than avoiding them. These difficulties in emotion regulation may have triggered Internet addiction as a coping strategy. Indeed, Young and Rogers (1998) have proposed that Internet use tends to alleviate dysphoric moods, thereby serving as an incongruent method of regulating emotions.

The second hypothesis supported by the research is that social anxiety mediates the relationship between self-compassion and Internet addiction. Consistent with previous research (Rasmussen & Pidgeon, 2011; Bates et al., 2021), a negative correlation between

self-compassion and social anxiety was observed, along with a positive correlation between social anxiety and Internet addiction (Kavici et al., 2024; Yucens & Uzer, 2018). Strauss et al. (2016) noted that the five-component structure of compassion includes elements that also can be important components of emotion regulation, such as understanding the universality of suffering, emotionally connecting with one's own and others' distress, tolerating uncomfortable feelings related to suffering, and being open and accepting toward them, and being motivated to alleviate the suffering. In the context of social anxiety, there is often negative self-criticism and a persistent concern about others' evaluations. Hence, it is expected that individuals with lower self-compassion skills experience more intense social anxiety. To alleviate anxiety, socially anxious individuals might prefer engaging in low-risk social communication (Weinstein et al., 2015). Those with high social anxiety and low ego strength are more likely to use the Internet as a self-regulation tool (Shepherd & Edelman, 2015).

The study's primary hypothesis, that difficulties in emotion regulation and social anxiety sequentially mediate the relationship between self-compassion and Internet addiction, is validated. This extends the model of problematic mobile phone use (I-PACE) by Billieux (2012), suggesting that individuals with low self-esteem, prone to maladaptive emotion regulation strategies, experience higher social anxiety and are more sensitive to interpersonal relationship assessments, potentially leading to increased Internet use for emotional security.

Individuals with high self-compassion generate positive emotions by embracing negative ones (Germer & Neff, 2013) and maintain a balanced, wise awareness instead of identifying with their emotions (Neff, 2003b). This ability decreases emotion regulation difficul-

ties (Eichholz et al., 2020). Individuals who are more adept at regulating their emotions tend not to perceive emotions experienced in social settings as repulsive or threatening. They are inclined to pay less attention to bodily symptoms and exhibit fewer avoidance behaviors, which in turn results in less social anxiety (Rusch et al., 2012). Finally, individuals with lower social anxiety are less anxious about impacting others positively, have a diminished need for low-risk social communication, and are less likely to use Internet addiction as a coping strategy (Weinstein, 2015).

Limitations and Future Research

This research has the general limitations of cross-sectional design studies based on self-report questionnaires. Although cross-sectional studies do not allow for causal inferences, they can provide predictive insights for future longitudinal and experimental research that may be planned. In this study, some sociodemographic variables were controlled (age, gender, educational status, marital status, socioeconomic status); however, there might be other confounding variables that could have affected the results. Access to Internet-based self-report data in this research has also led to an imbalanced gender distribution, as is often the case, which may affect the generalizability of the results.

When evaluating the effects of self-compassion on Internet addiction, it is crucial to consider the diagnostic challenges and methodological limitations. The widely used YIAT-SF lacks a definitive cutoff point as demonstrated in the Turkish validity and reliability study (Kutlu et al., 2016). Internet addiction is typically studied using a correlational design and does not provide a clinical diagnosis. Similarly, social phobia is assessed through scales where higher scores indicate greater severity, with non-clinical sample. Considering these limitations, studies on self-compassion's impact on Internet ad-

diction and social phobia should interpret their findings with caution regarding the measurement tools and research designs used.

Despite these limitations, it is thought that this research will have positive effects on preventing and intervening in Internet addiction. Consistent with previous studies, this research has also confirmed the impact of self-compassion on Internet addiction and identified significant mediating mechanisms. Future studies might evaluate the applicability of the mediation model proposed in the current study to different types of addictions (e.g., gaming addiction). There is a need to develop preventive interventions that include counseling and media training, particularly for individuals with low self-compassion, difficulty in emotion regulation, and high social anxiety, to avoid addiction tendencies.

Conclusion

The current study indicates that self-compassion predicts a decrease in emotion regulation difficulties, which in turn predicts lower social anxiety and consequently, a reduced level of Internet addiction. In conclusion, emotion regulation and social anxiety appear to play significant roles in Internet addiction, particularly in the context of self-compassion. These findings enhance our overall understanding of how to shield individuals from the adverse effects of Internet addiction.

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