

Exploring the Relationship between Problematic Internet Use and Well-Being among Adolescents: The Mediating Role of Resilience, Self-control, Negative Mood, and Loneliness

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Abstract

The increase in the massive use of the internet use in recent years, especially among youth, has led to an increase in the phenomenon called Problematic Internet Use (PIU). Problematic internet use is defined as an excessive and disproportionate use of the internet, which may result in psychological, social, academic, and professional difficulties in one's life. PIU relates to an individual's inability to control internet use, which in turn leads to feelings of distress, anguish, and difficulties in daily activities. The problematic usage of the internet among adolescents has become an emerging mental health issue, and little is known about the nexus of relationships between problematic usage of the internet and the sense of well-being among youth. Thus, the current study aimed at examining the mediating role of four social-emotional variables in these relationships: resilience, self-control, negative mood, and loneliness. Data of 433 adolescents high school students (aged between 12 to 17, 219 [50.6%] boys and 214 [49.4%] girls) were analyzed using a Structural Equation Modeling (SEM). The analysis have revealed the following significant results: Among adolescents, low levels of resilience and high levels of negative mood (together), as well as low levels of self-control and high levels of negative mood (together) and low levels of resilience and high levels of loneliness, mediate these relationships. The findings indicate that high levels of PIU predict low levels of well-being. Girls were found to be higher in PIU, have more computer skills, and have more resilience than boys. The study results expose specific implications for intervention programs for adolescents in the context of PIU.

Keywords: PIU• Well-being• Resilience• Self-control• Negative mood• Loneliness

Introduction

Problematic internet use and well-being

Problematic Internet Use (PIU) is defined as an excessive use of the internet that results in negative outcomes; an overuse of the internet that may lead to psychological, social, academic, and/or professional struggles [1,2] resulting from massive increase in Internet usage during the last decade. The research literature addresses this phenomenon as a multidimensional syndrome that could be characterized by the individual's inability to control internet use, which in turn leads to feelings of distress, anguish, and difficulties in daily activities [1-3]. In other words, PIU refers to the inability to control one's Internet use, which over time involves psychological, social, academic, and occupational problems in life.

A problematic behavior can take different forms and is not homogeneous [4,5]. Lopez-Fernandez [6] adds that compared to

pathological addiction" the term problematic describes the behavior in a broader way and, address greater flexibility and clinical value when contemplating a severity continuum regarding excessive internet use, allowing mental health agents to better understand the form and intensity of PIU's potential effect on troubled users' lives. Similarly, according to Tokunaga, PIU is not seen as a pathology or clinical disturbance but rather as a distinct pattern of cognitions and behaviors that prime negative results in daily life. Tokunaga states that PIU is situated in the middle range of the severity in the continuum of the problem and has a benign nature, whereas internet addiction is at the upper end of the continuum, requiring the experience of serious negative life consequences [7].

PIU can be defined as specific or generalized. Specific PIU refers to the excessive use of specific features of internet content, such as online gaming, online viewing of sexual videos, and more, whereas generalized PIU relates to non-specific and multidimensional internet use that results in negative consequences for the individual. Generalized PIU manifestations include cognitions and maladaptive behaviors related to non-specific internet use. In other words, the internet is, in these cases, used as a multipurpose vehicle [6]. The positive responses resulting from being online reinforce the individual's behavior, thus increasing the probability of a new occurrences. Once reinforcement occurs, the person will repeat the action more frequently to achieve this response, resulting in a decrease of the individual sense of well-being.

Caplan notify that individuals with low social competences prefer to establish online social interactions rather than traditional face-to-face interactions [8]. This preference may lead them to self-regulate in a deficient way when using the internet (through increased cognitive concern about being online and using the internet compulsively) and when using the internet to regulate mood (which, in turn, will increase deficient self-regulation). This deficient self-regulation will ultimately reveal negative consequences at many levels of the individual's life (e.g., social, emotional, academic/work, family).

Regarding the sources of the phenomenon, studies have drawn attention to compensatory mechanisms that may lead individuals to use the internet to cope with their initial psychosocial problems. Research has suggested that PIU often functions as an emotion-regulation strategy that hepto use# 1

virtual world may serve as a place to escape, and in turn, PIU may prime other emotions and decline in the subjective well-being.

Accordingly, the research literature indicates a decline in one's sense of well-being after overuse of the internet, as well as negative associations between PIU and subjective well-being [16,17] and comorbidities with many emotional problems, mood disturbances and low levels of self-control [18]. Yet, these findings are not unequivocal, in spite of study findings regarding the associations between PIU and poorer well-being, on the other hand, there are studies like Ellison, et al. [19] that have found a significant positive association between Facebook over-use and improved psychological well-being. Therefore, exploration of the role of social-emotional factors that mediate the relationship between PIU, and well-being is necessary. The research literature points to the need for a deeper understanding of the relationships between PIU and well-being in adolescence, and little is known about the social-emotional mediators in these relationships. Thus, the main aim of the current study was to explore the nexus between PIU and well-being among adolescents, we investigate these relationships through a Structural Equation Modeling (SEM) approach that enables us to examine a series of interrelated dependence relationships between the variables. Therefore, we examined the associations in-light of the social-emotional mediators: resilience, self-control, negative mood, and loneliness. In other words, the current study examined the potential mediation effect of four social-emotional factors in the relationship between PIU and psychological well-being among adolescents.

Problematic internet use, resilience, and self-control

Resilience and Self-control are both positive, protective factors in the examined relationship. Resilience relates to the ability to use mental processes and behaviors that protect the self from the negative impact of various stressors [20].

Resilience is the embodiment of the individual's qualities that enable him to thrive in the face of adversity [21] and to overcome the negative effects associated with risk exposure. It may be viewed as a measure of one's stress-coping ability for reducing negative psychological outcomes such as anxiety, depression, and other issues associated with negative experiences. Resilience may serve as a protective factor that moderate the relationship between risk exposure and a negative outcome, by either neutralizing the relationship between the two or weakening it. Resilience may have an immunization effect, especially in adolescence, when past negative experiences may help build resilience in experiencing future risk [22].

The literature points to the negative associations between resilience and PIU, and finds resilience reduces the negative psychological effects associated with PIU [23]. Studies indicate resilience may moderate the relationship between online risk exposure and negative affect, by reducing the effect of online risk exposure on negative affect. According to Robertson, Yan, and Rapoza, resilience is a strong protective factor for PIU [24,25], whereas high levels of resilience enable the individual to maintain normal physical and psychological functioning, so that resilient teens are more likely to respond to stress with adaptive and successful coping strategies, than prevent the harm to the sense of well-being.

Another explored variable as a mediator in the current study is self-control, namely, the ability to regulate one's emotions, thoughts, impulses, and behaviors that involves problem solving, planning, dependability, attentional control, and future-oriented time perspective. It is an executive function and cognitive process that serves to buffer certain behaviors and emotions, temptations, and impulses [26]. Previous studies have empirically shown PIU is characterized by high impulsivity and poor inhibitory control [27,28] and that self-control is negatively associated with high levels of PIU [29,10]. In addition, research in the Netherlands and in Korea indicates PIU is correlated with subclinical symptoms, such as high levels of aggression and low levels of self-control (in contrast to loss of control) and narcissism [30]. Moreover, research suggests higher self-control and resilience are negatively associated with PIU among adolescents [31].

Problematic internet use, negative (depressive) mood, and loneliness

Both negative mood and loneliness have a negative risk factor in the examined relationships. Negative moods can direct people's behavior and have important implications for mental and physical well-being. They may last for hours, days, weeks, or longer and have been connected in the clinical research literature to depression, anxiety, and low self-esteem.

Research shows problematic and excessive use of the internet has a detrimental effect on mental well-being [32] and is associated with depressive mood symptoms [33]. Currently, most of the research on general SNS (Social Networks Sites) use and specifically on Facebook use imply on the effects of the overuse on mental well-being, namely, depression and negative mood [34,35]. Kross [16] found Facebook overuse predicts declines in two aspects of well-being: how people feel moment to moment (now) and how satisfied people are with their lives (in general). Further research [36] have highlighted that as time spent on SNSs increases, so does negative mood and depression. Yet, Donnelly and Kuss [37] found no relationship between time spent on SNSs and depression. In a recent study [38], PIU was associated significantly with high levels of negative mood, depression, anxiety, and stress. The same study reports a significant negative association between PIU, social support, and resilience, and a significant positive association between social support and resilience.

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The current study

This study examined the mediating role of four social-emotional variables in the relationship between PIU and well-being. Accordingly, first we hypothesized a significant and inverse relationship between PIU and WB, and secondly, we hypothesized that resilience, self-control, negative mood, and loneliness will mediate the relationship between PIU and well-being.

Loneliness scale: Consisting of 16 primary items and eight filler items on a 5-point Likert scale (1=never, 5=always) (higher scores reflect greater loneliness or intense feelings of loneliness; e.g., It's easy for me to make new friends at school or I feel left out of things at school), constitute the

	0.04	0.22***	0.32***	0.37***	0.28***	0.56***
R2	(0.02)	(0.04)	(0.07)	(0.05)	(0.06)	(0.05)

In Figure 1, the oval shapes represent latent factors, whereas rectangles represent observed variables. Because standardized coefficient estimates are comparable, we report these estimates rather than the unstandardized

Note the mediators between PIU and personal well-being are resilience and negative mood (together), self-control and negative mood (together),

activities, therefore having a focus, exploring how the use of specific features contributes to excessive and potentially problematic internet use is pertinent. As such, studies with an experimental design may be useful in exploring and deepening the nature of online addictive behaviors. Similarly, future studies using behavioral data may be beneficial in fulfilling this objective and clarifying the distinction between normal use, excessive use, and problematic use of the internet.

Importantly, future studies should focus on cause and effect. Some of the variables explored here may also predict addictive behaviors on the internet. Loneliness and negative mood may lead to overuse of the internet and may lead teenagers to look for anonymous relationships on the internet, which then may trigger their vulnerability, thus creating a vicious circle. Future studies should explore the temporality of events. Longitudinal research could be beneficial for that purpose. In addition, further investigation should focus on gender differences in separate samples for boys and girls, because the study results imply initial gender differences regarding the examined relationships.

Conclusion and Implications for Interventions

This study offers an innovative contribution to the field, since the findings provide more precise, focused information for the developers of intervention programs for youth for coping with PIU as well as school counselors and educational psychologists, thus can contribute to a more specific, accurate understanding of the topics that should be addressed when facing the PIU phenomenon and its negative effects. Emphasizing nurturing resilience and self-control, in addition to addressing loneliness and mood, may be the best way to prevent a decrease in well-being, and guide more sensible use of the internet among adolescents.

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