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The Mediating Role of Alexithymia in the Relationship Between Childhood Trauma and Internet Addiction in Adolescents: Emphasizing the Interaction of Person-Affect-Cognition-Execution (I-PACE) Model

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A B S T R A C T

Objective: The present study was conducted with the aim of investigating the mediating role of Alexithymia in the relationship between childhood trauma and internet addiction, with an emphasis on the Interaction of Person-Affect-Cognition-Execution (I-PACE) model in adolescents.

Methods and Materials: This study was descriptive-correlational and utilized structural equation modeling. The population consisted of adolescents aged 15 to 18 years on social networks in the year 2023. The sample size was 211 individuals, selected through purposive sampling. Data were collected using the Toronto Alexithymia Scale, Young's Internet Addiction Test, and Bernstein's Childhood Trauma Questionnaire and analyzed using SPSS and AMOS software through path analysis.

Findings: The results showed that Alexithymia plays a mediating role in the relationship between childhood trauma and internet addiction in adolescents ($P<0.01$).

Conclusion: Therefore, it is suggested that programs designed and implemented to reduce internet addiction should take into account Alexithymia and aim to repair childhood traumas.

Keywords: *Alexithymia, Childhood Trauma, Internet Addiction.*

1. Introduction

Internet use has become one of the most popular leisure activities worldwide. In Vietnam, since the official connection to the internet in 1997, internet users have increased significantly, reaching 68.72 million people by January 2021, equivalent to 70.3% of the population. The average daily internet use/access time for Vietnamese individuals was 6.5 hours. Notably, 70.1% of internet users in Vietnam were reported to be between the ages of 13 and 34 (Nguyen et al., 2022). A study in 2016 revealed that 72% of Vietnamese individuals aged 15 to 24 use the internet, with 74% of them reported to be at high risk of cyberbullying (Restrepo et al., 2020). The popularity of the internet among teenagers poses challenges for parents in protecting their children from excessive internet use and its negative impacts from the cyber world (Parsakia & Rostami, 2023; Parsakia, Rostami, Darbani, et al., 2023; Parsakia, Rostami, Saadati, & Navabinejad, 2023). Excessive internet use may display similar patterns and have similar negative consequences in the lives of youth and adolescents compared to other addictive behaviors (Shapira et al., 2003; Young, 2004). From the parents' perspective, adolescents' attachment to the internet may lead to withdrawal from daily activities, changes in psychological states and behaviors, and negative impacts on the quality of parent-child relationships (Li et al., 2021; Restrepo et al., 2020; Shek et al., 2018; van den Eijnden et al., 2010). Studies have shown that internet addiction can lead to headaches, earaches, changes in brain structure, decreased life satisfaction, negative self-perception, reduced academic achievement, and other mental health issues, such as anxiety and depression (Lozano-Blasco et al., 2022). Moreover, it was reported that adolescents are more vulnerable to internet and mobile phone addiction (Parsakia, Rostami, Darbani, et al., 2023; Parsakia, Rostami, Saadati, & Navabinejad, 2023).

On the other hand, according to the Interaction of Person-Affect-Cognition-Execution (I-PACE) model (Brand et al., 2019), experiencing childhood trauma is a predictive factor for addictive behaviors (Männikkö et al., 2020). One objective is to describe the psychological and neurobiological processes underlying the development and maintenance of addictive use of specific internet applications, such as those used for gaming, gambling, viewing pornography, shopping, and social networking (Brand et al., 2019). The person component (including specific behaviors, significant life experiences, and especially childhood) represents the individual's main characteristics that are likely involved in the addiction process as predisposing variables (Brand et al., 2016). Among these, negative childhood experiences have been reported as vulnerability factors for addictive behavior disorders (Roberts et al., 2017; Schneider et al., 2017), findings that align with recent theoretical considerations on the role of attachment in addictive behaviors (Alvarez-Monjaras et al., 2019). A core idea of this model is that the development of problematic and addictive behavior occurs in the interaction between individuals' predisposing variables and specific aspects that certain situations present. These interactions lead to satisfying and compensatory experiences associated with specific behaviors. In the early stages, individuals might perceive external stimuli (such as exposure to behavior-related stimuli) or internal ones (such as negative or very positive moods) in certain situations. These perceptions may lead to emotional and cognitive responses, resulting in increased attention to these stimuli and insistence on engaging in specific ways, for example, insistence on using the internet (Stark et al., 2018).

Addictive behaviors, such as online gaming, may lead to a sense of satisfaction or escape from negative emotional states (Laier & Brand, 2017). These experiences subsequently alter the mental reward expectations associated with specific behaviors. They may also modify individual coping styles. For example, if individuals learn that online gaming is effective in generating positive emotions or avoiding negative emotional states, they may generalize this expectation to perceive internet and virtual space use as useful for coping with emotions in everyday life (Laier et al., 2018). Over time, this link between emotional and cognitive responses, decision-making for behaving in specific ways, satisfying and compensatory experiences, and specific behavioral expectations may strengthen. Consequently, controlling behaviors through general inhibitory mechanisms may become more difficult, and decision-making for engaging in specific behaviors may be more driven by impulsive/reactive responses to stimuli (Brand et al., 2019). In the later stages of the addiction process, although this change may be gradual, the mentioned associations may increasingly strengthen, leading to habitual behaviors that may feel automatic and uncontrollable in certain situations. Cue reactivity and craving may evolve from emotional and cognitive responses over time as a result of conditioning processes (Stark et al., 2018).

Based on this model, some previous research indicates that individuals who have experienced childhood trauma, including physical, sexual, emotional abuse, or neglect, are

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more likely to exhibit problematic behaviors such as excessive use of virtual spaces (Dalbudak et al., 2014; Shi et al., 2020). On the other hand, the Interaction of Person-Affect-Cognition-Execution (I-PACE) model distinguishes between the initial and later stages of the process to clearly demonstrate the potentially different roles of moderating and mediating variables depending on the stage of addiction (Brand et al., 2019).

In this context, research (Hong et al., 2018) has shown that the experience of emotional neglect in childhood can predict emotional problems in individuals. It is assumed that victims unconsciously adopt Alexithymia to cut off the enduring emotional distress by preventing access to their inner feelings (Chung et al., 2016; Meganck et al., 2013). Expressly, the emergence of Alexithymia can be considered as an unconscious inhibitory response that itself serves as a defensive mechanism to suppress intense and negative emotions (Chung et al., 2016; Kooiman et al., 1998). Thus, Alexithymia may act as another mediator in the relationship between trauma-induced harm from the past and psychological distress, a case that has been supported in several studies (Chen & Chung, 2016; Chung et al., 2013; Chung et al., 2016; Chung & Hunt, 2014).

As one of the specific personality traits, the relationship between Alexithymia and internet addiction among youths and adolescents has been extensively studied (Chen & Chung, 2016; Hahn et al., 2017). Alexithymia is a multidimensional construct that falls within the framework of emotional disorder and is characterized by a reduced ability to identify and describe feelings, difficulty in distinguishing between feelings and bodily sensations, limited imaginal processes, and impoverished introspection (Bagby et al., 1994). As a relatively stable personality trait, Alexithymia represents a set of characteristics that reflect the challenges individuals face in processing emotions at emotional and cognitive levels. It mainly includes difficulty in identifying feelings, difficulty in describing feelings, and constricted imaginal processes (Del Bianco et al., 2023; Ditzer et al., 2023; Dong et al., 2023). Specifically, individuals who have difficulty identifying and describing feelings are likely to exhibit problems with emotional self-regulation, where emotional distress is often accompanied by problematic behaviors (Chen & Chung, 2016; Chung et al., 2013). Furthermore, previous research has shown that adolescents, unlike adults who can better regulate their emotions, tend to suppress or stifle their emotions and are easily influenced by negative emotions. This may lead them to view smartphones as an excellent tool for escaping reality, hiding their emotions, and avoiding displaying emotional responses (Parsakia & Rostami, 2023; Peters & Allan, 2016; Roberts et al., 2015), thereby exacerbating their excessive dependency on these devices. Studies have shown that Alexithymia is closely associated with a tendency to seek external emotional regulation through compulsive behaviors and the expression of negative emotions (Hong et al., 2018). The Alexithymia stress hypothesis states that individuals with Alexithymia traits perform negative and exaggerated evaluations of their environment due to improper description of their emotions, thereby affecting their assessment of challenges and threats and ultimately putting themselves in stressful situations (Basharat, 2013). Alexithymia plays a fundamental role in various addiction disorders. For instance, logistic regression analysis showed that Alexithymia is a significant predictor of internet addiction (Karaer & Akdemir, 2019; Lyvers et al., 2021; Mohebi et al., 2020).

Given the above and due to the lack of cohesive and sufficient studies examining the variable, especially with an emphasis on the mediating role of Alexithymia, the present research investigates the mediating role of Alexithymia in the relationship between trauma and internet addiction in adolescents.

2. Methods and Materials

2.1. Study Design and Participants

This study is descriptive-analytical, correlational, and employs path analysis. The population of the study consisted of adolescents aged 15 to 18 in 2023, from whom 250 individuals were selected as samples through purposive sampling from social network users, and research questionnaires were distributed among them. They were then asked to respond to the questionnaire items. After eliminating incomplete questionnaires, the sample size was reduced to 211 individuals. Entry criteria for the study included being a social network user, willing to participate in the research, aged between 15 to 18, and having an average economic status. Exit criteria from the study included unwillingness to participate, incomplete questionnaire filling, and having a chronic physical illness. To adhere to ethical issues, the confidentiality of information was fully preserved by the researcher, and all research execution efforts were made to ensure no harm was inflicted on the participants.

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2.2. Measures

2.2.1. Internet Addiction

Developed by Young (1988), this test is among the most reputable tools for assessing internet addiction. It comprises 20 items based on the criteria of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) by the American Psychiatric Association for diagnosing pathological gambling. The items are scored on a five-point Likert scale ranging from rarely=1, sometimes=2, often=3, most of the time=4, to always=5. The scores classify individuals into three categories: normal internet users (scores 20 to 49), users experiencing problems due to excessive use (scores 50 to 79), and addicted users (scores 80 to 100), indicating dependency and the need for treatment. In the study by Young and colleagues (1988), the test demonstrated an internal reliability above 0.92, and its test-retest reliability was also reported as significant. Alavi and colleagues (2010) identified five factors in the Persian version of the test: "excessive time spent on the internet," "using the internet for psychological relief," "preoccupation," "compulsive use of chat rooms," and "neglect of work and academic duties." Additionally, they reported two types of validity, content and discriminative (r=0.5), and three types of reliability, test-retest (r=0.79), internal consistency (r=0.88), and split-half (r=0.82), establishing the best clinical cut-off point for this test as 46.

2.2.2. Childhood Trauma

Developed by Bernstein et al. (2003) to assess childhood traumas and abuses, the CTQ is a screening tool for identifying individuals with experiences of abuse and neglect during childhood. It is applicable to both adults and adolescents, measuring five types of maltreatment: sexual abuse, physical abuse, emotional abuse, emotional neglect, and physical neglect. The questionnaire consists of 28 questions, with 25 dedicated to assessing the main components and 3 aimed at identifying individuals who deny their childhood issues. In the study by Bernstein et al. (2003), Cronbach's alpha coefficients for the dimensions of emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect were reported as 0.87, 0.86, 0.95, 0.89, and 0.78, respectively. Concurrent validity with therapists' ratings of childhood traumas ranged between 0.59 and 0.78 (Bernstein et al., 2003). In Iran, Ebrahimi, Dezhkam, and Seghatoleslam reported Cronbach's alpha for the five components between 0.81 and 0.98 in their article on childhood traumas and adult suicidal behavior (Ebrahimi et al., 2014).

2.2.3. Alexithymia

Introduced by Bagby, Parker, and Taylor (1994), the Toronto Alexithymia Scale has 20 items and measures three subscales: difficulty identifying feelings, difficulty describing feelings, and external-oriented thinking. The scoring is based on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). A total Alexithymia score is calculated from the sum of the three subscales. This scale is suitable for both clinical and general populations and can be administered individually or in groups. Its psychometric properties have been examined and validated in numerous studies (Bagby et al., 1994; Parker et al., 2001). Besharat (2014) reported Cronbach's alpha coefficients for total Alexithymia and the three subscales as 0.85, 0.82, 0.75, and 0.72, respectively. Test-retest reliability of the Toronto Alexithymia Scale-20 in a sample of 67 individuals over four weeks ranged from 0.70 to 0.77 for total Alexithymia and different subscales. Concurrent validity of the Toronto Alexithymia Scale-20 was confirmed through correlations between its subscales and measures of emotional intelligence, psychological well-being, and psychological distress (Basharat, 2013). In the current study, the questionnaire's reliability, assessed by Cronbach's alpha, was found to be 0.83.

2.3. Data analysis

Statistical analysis was conducted using SPSS version 25 and AMOS version 24, employing Pearson correlation coefficients and path analysis.

3. Findings and Results

The mean age of the participants in the study was 16.014 ± 1.189. Descriptive statistics including mean, standard deviation, skewness, and kurtosis were used to analyze and describe the data obtained from the sample, with results reported in Table 1.

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Table 1

Descriptive Statistics of Research Variables

Variables	Skewness	Kurtosis	Standard Deviation	Mean
Internet Addiction	-0.387	0.232	22.542	56.473
Difficulty Identifying Feelings	-0.078	0.397	5.334	19.687
Difficulty Describing Feelings	-0.248	0.203	3.955	14.146
External-Oriented Thinking	-0.063	0.234	5.876	22.682
Emotional Abuse	-1.268	0.124	5.849	14.113
Physical Abuse	-1.196	0.281	5.770	14.066
Sexual Abuse	-1.264	0.211	4.766	11.146
Emotional Neglect	-1.215	0.205	4.671	11.203
Sexual Neglect	-1.386	0.165	4.878	11.284

Table 1 presents the means and standard deviations for variables such as internet addiction, Alexithymia, and childhood traumas. Figure 1 shows the structural model of the study variables, examining the mediating role of Alexithymia in the relationship between childhood trauma and internet addiction. Table 2 presents the results of the examination of the direct effects of the study variables.

Figure 1

A Summary of the Model with Standard (Beta) Coefficients

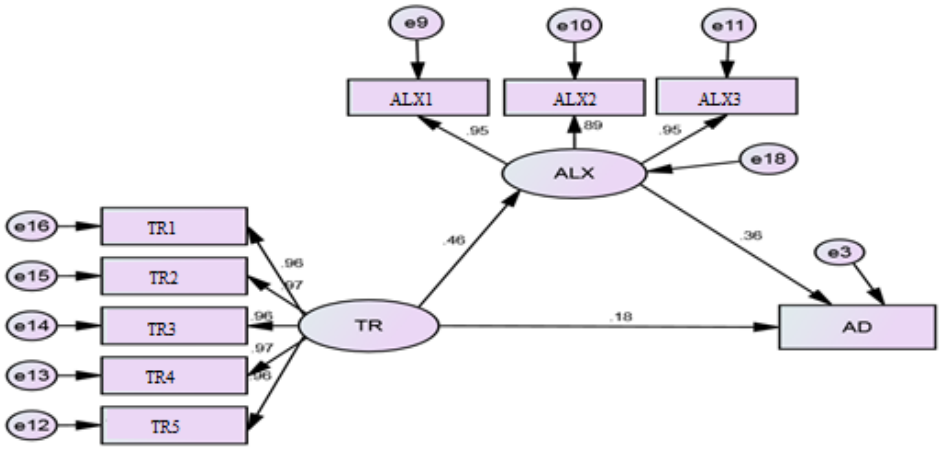

Table 2

Estimation of Direct Effect Coefficients of Research Variables

Path	Variable	Standard Coefficients	Unstandardized Coefficients	t-Statistic	Significance
Childhood Abuse ---> Alexithymia	Alexithymia	0.460	0.497	7.107	0.001
Childhood Abuse ---> Internet Addiction	Internet Addiction	0.181	0.869	2.578	0.010
Alexithymia ---> Internet Addiction	Internet Addiction	0.355	1.581	4.973	0.001

According to the results in Table 2, the direct path coefficients in the model are significant. The findings indicate that childhood trauma has a direct and significant effect on Alexithymia ($t = 7.107$, $P < 0.01$), with an effect size of 0.46; also, the direct effect of childhood trauma on internet addiction is significant ($t = 2.578$, $P < 0.01$), with an effect size of 0.18. The direct effect of Alexithymia on internet addiction is also significant ($t = 4.973$, $P < 0.01$), with an effect size of 0.355. The parameters for measuring indirect relationships are also presented in Table 3.

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Table 3

Estimates of Indirect Effect Coefficients of Research Variables

Indirect Path	Indirect Path Coefficient	Standard Error	Lower Confidence Interval	Upper Confidence Interval	p
Childhood Abuse > Alexithymia > Internet Addiction	0.164	0.035	0.100	0.235	0.001

The results in Table 3 show that the level of significance for the mediated path has been met. Therefore, it can be concluded that Alexithymia plays a mediating role in the relationship between childhood traumas and internet addiction ($P < 0.01$).

Table 4

Estimates of Indirect Effect Coefficients of Research Variables

Fit Indices	CMIN/DF	CFI	NFI	GFI	RMSEA
Research Model	2.294	0.988	0.979	0.944	0.078
Acceptable Value	1-3	>0.90	>0.90	>0.90	<0.08

As shown in Table 4, all fit indices are at a satisfactory level, indicating that the operational model of the study has an appropriate and significant structure. The Comparative Fit Index (CFI), Goodness of Fit Index (GFI), and Normed Fit Index (NFI) should be greater than 0.90, which in this model were found to be 0.98, 0.97, and 0.94, respectively. The Root Mean Square Error of Approximation (RMSEA) is defined as the measure of discrepancy per degree of freedom, with values less than 0.08 indicating a good model fit; in this study, the RMSEA is 0.078, demonstrating a good fit of the model.

4. Discussion and Conclusion

The present research aimed to investigate the mediating role of Alexithymia in the relationship between childhood trauma and internet addiction in adolescents, emphasizing the Interaction of Person-Affect-Cognition-Execution model. The results indicated that Alexithymia mediates the relationship between childhood trauma and internet addiction. These findings are consistent with the results of previous studies (Chen & Chung, 2016; Chung et al., 2013; Chung et al., 2016; Chung & Hunt, 2014; Del Bianco et al., 2023; Ditzer et al., 2023; Dong et al., 2023; Karaer & Akdemir, 2019; Kooiman et al., 1998; Lyvers et al., 2021; Mohebi et al., 2020).

Explaining these findings, it can be stated that, as mentioned, according to the Interaction of Person-Affect-Cognition-Execution model proposed by Brand et al. (2019), recently used to understand the reasons behind adolescents' addictive behaviors to the virtual space, the results point to the connection between human addictive behaviors and emotional responses stimulated by personality traits (Brand et al., 2019). From this perspective, the virtual space can be considered a safer and less risky environment for developing relationships. Emotional and cognitive responses lead to decision-making for engaging in specific behaviors. The decision to engage in a particular behavior may be driven by two interactive systems: an impulsive/reactive system, primarily based on associative learning (classical and operant conditioning), and a reflective/deliberative system, mainly related to reasoning and executive cognitive functions (Parsakia & Rostami, 2023). In individuals with addiction, behavior increasingly depends on the impulsive/reactive neural systems, including limbic structures (Noël et al., 2006). Inhibitory control related to the prefrontal cortex over urges and desires may decrease throughout the addiction process (Bechara, 2005; Volkow & Morales, 2015). Combining these theoretical views, it is plausible that the relationship between emotional and cognitive responses to external or internal stimuli and decision-making for engaging in specific behaviors is influenced by the level of general inhibitory control (unlike specific mood or stimulus inhibitory control) and self-regulation/self-direction, at least in the early stages of addictive behaviors (Brand et al., 2019; Hahn et al., 2017). It can be asserted that adolescents who experienced childhood traumas attempt to avoid confronting these unpleasant emotions and feelings, hiding their emotions, where Alexithymia acts as one of the unconscious inhibitory responses that itself serves as a defensive mechanism for

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suppressing intense and negative emotions (Kooiman et al., 1998). Furthermore, individuals with Alexithymia, due to dysfunction in emotional regulation in the context of addiction (Del Bianco et al., 2023; Karaer & Akdemir, 2019), lack control over their behavior and performance when excessively using the internet and virtual space, potentially leading to dependence on it. Moreover, individuals tend to use their smartphones and virtual space as a means to escape from their reality or to seek companionship when facing specific problems (Karaer & Akdemir, 2019). In fact, difficulties in expressing and recognizing others' emotions cause a preference for virtual space interactions, which are online and non-face-to-face, over face-to-face interactions. Thus, it is natural that addiction to virtual space is more prevalent in these individuals.

5. Limitations & Suggestions

Among the limitations of the present study was its cross-sectional execution, while a longitudinal approach from childhood experiences to adolescence could have provided clearer results. Despite these limitations, the findings of this research may offer valuable insights for mental health professionals to design and implement appropriate and personalized interventions. Additionally, the results underscore the importance of assessing Alexithymia levels in individuals with internet addiction and the potential focus on this aspect of clinical intervention, particularly for those who have also experienced adverse childhood experiences, affirming the significance of maintaining research attention. Ultimately, supporting the possibility of expanding precise interventions for both clinical activities and preventive efforts, the results also underscore the strong relationships between risk factors for internet addiction in individuals with adverse childhood experiences, in adolescents and young adults. Thus, these data provide information about a specific target towards which interventions should be directed, benefiting their effectiveness and maximizing the use of available insights. Overall, the findings of this study have important practical implications for planning therapeutic intervention programs.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

References

Alvarez-Monjaras, M., Mayes, L. C., Potenza, M. N., & Rutherford, H. J. V. (2019). A developmental model of addictions: integrating neurobiological and psychodynamic theories through the lens of attachment. *Attachment & Human Development*, *21*(6), 616-637. https://doi.org/10.1080/14616734.2018.1498113

Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia scale—I. Item selection and cross-validation of the factor structure. *Journal of psychosomatic research*, *38*(1), 23-32. https://doi.org/10.1016/0022-3999(94)90005-1

Basharat, M., Zahiditjarishi, K. and Nurbala, A. (2013). Alexithymia and emotion regulation strategies in patients with somatization, anxiety disorders, and normal individuals: A comparative study. *Contemporary psychology*, *8*(2), 3-16. https://www.magiran.com/paper/1237543

Bechara, A. (2005). Decision making, impulse control and loss of willpower to resist drugs: a neurocognitive perspective. *Nature Neuroscience*, *8*(11), 1458-1463. https://doi.org/10.1038/nn1584

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child abuse & neglect*, *27*(2), 169-190. https://doi.org/10.1016/S0145-2134(02)00541-0

Brand, M., Wegmann, E., Stark, R., Müller, A., Wölfling, K., Robbins, T. W., & Potenza, M. N. (2019). The Interaction of Person-Affect-Cognition-Execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of

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E-ISSN: 3041-8518

the process character of addictive behaviors. *Neuroscience & Biobehavioral Reviews*, *104*, 1-10. https://doi.org/10.1016/j.neubiorev.2019.06.032

Brand, M., Young, K. S., Laier, C., Wölfling, K., & Potenza, M. N. (2016). Integrating psychological and neurobiological considerations regarding the development and maintenance of specific Internet-use disorders: An Interaction of Person-Affect-Cognition-Execution (I-PACE) model. *Neuroscience & Biobehavioral Reviews*, *71*, 252-266. https://doi.org/10.1016/j.neubiorev.2016.08.033

Chen, Z. S., & Chung, M. C. (2016). The Relationship Between Gender, Posttraumatic Stress Disorder from Past Trauma, Alexithymia and Psychiatric Co-morbidity in Chinese Adolescents: A Moderated Mediational Analysis. *Psychiatric Quarterly*, *87*(4), 689-701. https://doi.org/10.1007/s11126-016-9419-1

Chung, M. C., Allen, R. D., & Dennis, I. (2013). The impact of self-efficacy, alexithymia and multiple traumas on posttraumatic stress disorder and psychiatric co-morbidity following epileptic seizures: A moderated mediation analysis. *Psychiatry research*, *210*(3), 1033-1041. https://doi.org/10.1016/j.psychres.2013.07.041

Chung, M. C., Di, X., & Wan, K. H. (2016). Past trauma, alexithymia, and posttraumatic stress among perpetrators of violent crime. *Traumatology*, *22*(2), 104-112. https://doi.org/10.1037/trm0000066

Chung, M. C., & Hunt, L. J. (2014). Posttraumatic Stress Symptoms and Well-Being Following Relationship Dissolution: Past Trauma, Alexithymia, Suppression. *Psychiatric Quarterly*, *85*(2), 155-176. https://doi.org/10.1007/s11126-013-9280-4

Dalbudak, E., Evren, C., Aldemir, S., & Evren, B. (2014). The severity of Internet addiction risk and its relationship with the severity of borderline personality features, childhood traumas, dissociative experiences, depression and anxiety symptoms among Turkish University Students. *Psychiatry research*, *219*(3), 577-582. https://doi.org/10.1016/j.psychres.2014.02.032

Del Bianco, C., Ulivi, M., Liguori, C., Pisani, A., Mercuri, N. B., Placidi, F., & Izzi, F. (2023). Alexithymia, impulsiveness, emotion, and eating dyscontrol: similarities and differences between narcolepsy type 1 and type 2. *Sleep and Biological Rhythms*, *21*(1), 39-50. https://doi.org/10.1007/s41105-022-00414-4

Ditzer, J., Wong, E. Y., Modi, R. N., Behnke, M., Gross, J. J., & Talmon, A. (2023). Child maltreatment and alexithymia: A meta-analytic review. *Psychological bulletin*, *149*(5-6), 311-329. https://doi.org/10.1037/bul0000391

Dong, Z., Zhou, J., Conti, A., Westwood, S. J., Fu, X., Liu, Q., Yuan, Y., Huang, X., Qiu, C., Zhang, X., & Tang, W. (2023). Association between alexithymia and non-suicidal self-injury in psychiatric patients: the mediating role of self-esteem and the moderating role of emotional intelligence. *Journal of psychiatric research*, *162*, 57-64. https://doi.org/10.1016/j.jpsychires.2023.04.006

Ebrahimi , H., Dejkam , M., & Seghatoleslam , T. (2014). Childhood Traumas and Suicide Attempt in adulthood. *Iraninan Psychiatry and Clinical Psychology*, *19*(4), 275-282. https://www.magiran.com/paper/1248912

Hahn, E., Reuter, M., Spinath, F. M., & Montag, C. (2017). Internet addiction and its facets: The role of genetics and the relation to self-directedness. *Addictive behaviors*, *65*, 137-146. https://doi.org/10.1016/j.addbeh.2016.10.018

Hong, F., Tarullo, A. R., Mercurio, A. E., Liu, S., Cai, Q., & Malley-Morrison, K. (2018). Childhood maltreatment and perceived stress in young adults: The role of emotion regulation strategies, self-efficacy, and resilience. *Child abuse & neglect*, *86*, 136-146. https://doi.org/10.1016/j.chiabu.2018.09.014

Karaer, Y., & Akdemir, D. (2019). Parenting styles, perceived social support and emotion regulation in adolescents with internet addiction. *Comprehensive Psychiatry*, *92*, 22-27. https://doi.org/10.1016/j.comppsych.2019.03.003

Kooiman, C. G., Spinhoven, P., Trijsburg, R. W., & Rooijmans, H. G. M. (1998). Perceived Parental Attitude, Alexithymia and Defense Style in Psychiatric Outpatients. *Psychotherapy and psychosomatics*, *67*(2), 81-87. https://doi.org/10.1159/000012264

Laier, C., & Brand, M. (2017). Mood changes after watching pornography on the Internet are linked to tendencies towards Internet-pornography-viewing disorder. *Addictive Behaviors Reports*, *5*, 9-13. https://doi.org/10.1016/j.abrep.2016.11.003

Laier, C., Wegmann, E., & Brand, M. (2018). Personality and Cognition in Gamers: Avoidance Expectancies Mediate the Relationship Between Maladaptive Personality Traits and Symptoms of Internet-Gaming Disorder [Original Research]. *Frontiers in Psychiatry*, *9*. https://doi.org/10.3389/fpsyt.2018.00304

Li, J., Yu, C., Zhen, S., & Zhang, W. (2021). Parent-Adolescent Communication, School Engagement, and Internet Addiction among Chinese Adolescents: The Moderating Effect of Rejection Sensitivity. *International journal of environmental research and public health*, *18*(7), 3542.

Lozano-Blasco, R., Robres, A. Q., & Sánchez, A. S. (2022). Internet addiction in young adults: A meta-analysis and systematic review. *Computers in human Behavior*, *130*, 107201. https://doi.org/10.1016/j.chb.2022.107201

Lyvers, M., Senturk, C., & Thorberg, F. A. (2021). Alexithymia, impulsivity and negative mood in relation to internet addiction symptoms in female university students. *Australian Journal of Psychology*, *73*(4), 548-556. https://doi.org/10.1080/00049530.2021.1942985

Männikkö, N., Ruotsalainen, H., Miettunen, J., Pontes, H. M., & Kääriäinen, M. (2020). Problematic gaming behaviour and health-related outcomes: A systematic review and meta-analysis. *Journal of Health Psychology*, *25*(1), 67-81. https://doi.org/10.1177/1359105317740414

Meganck, R., Vanheule, S., & Desmet, M. (2013). Affective Processing and Affect Regulation:A Clinical Interview Study. *Journal of the American Psychoanalytic Association*, *61*(6), NP12-NP16. https://doi.org/10.1177/0003065113516365

Mohebi, M., Asadzade, H., & Farrokhi, N. (2020). Modeling the structural relationships of internet addiction based on executive functions and problems interpersonal: the mediating role of Alexithymia [Research]. *Shenakht Journal of Psychology and Psychiatry*, *7*(3), 150-165. https://doi.org/10.52547/shenakht.7.3.150

Nguyen, T. T. P., Nguyen, T. T., Do, H. N., Vu, T. B. T., Vu, K. L., Do, H. M., Nguyen, N. T. T., Doan, L. P., Vu, G. T., Do, H. T., Nguyen, S. H., Latkin, C. A., Ho, C. S. H., & Ho, R. C. M. (2022). Parent–Child Relationship Quality and Internet Use in a Developing Country: Adolescents' Perspectives [Original Research]. *Frontiers in psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.847278

Noël, X., Van Der Linden, M., & Bechara, A. (2006). The neurocognitive mechanisms of decision-making, impulse control, and loss of willpower to resist drugs. *Psychiatry (Edgmont)*, *3*(5), 30. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2990622/

Parker, J. D. A., Taylor, G. J., & Bagby, R. M. (2001). The relationship between emotional intelligence and alexithymia.

Personality and individual differences, *30*(1), 107-115. https://doi.org/10.1016/S0191-8869(00)00014-3

Parsakia, K., & Rostami, M. (2023). Digital Intimacy: How Technology Shapes Friendships and Romantic Relationships. *AI and Tech in Behavioral and Social Sciences*, *1*(1), 27-34. https://doi.org/10.61838/kman.aitech.1.1.5

Parsakia, K., Rostami, M., Darbani, S. A., Saadati, N., & Navabinejad, S. (2023). Explanation of the concept of generation disjunction in studying generation z. *Journal of Adolescent and Youth Psychological Studies*, *4*(2), 136-142. http://dx.doi.org/10.52547/jspnay.4.2.174

Parsakia, K., Rostami, M., Saadati, N., & Navabinejad, S. (2023). Analyzing the causes and factors of the difference between the girls of the generation Z and the previous generations in Iran from the perspective of social psychology. *Psychology of Woman Journal*, *4*(1), 1-13. https://doi.org/10.61838/kman.pwj.4.1.1

Peters, C., & Allan, S. (2016). Everyday imagery: Users' reflections on smartphone cameras and communication. *Convergence*, *24*(4), 357-373. https://doi.org/10.1177/1354856516678395

Restrepo, A., Scheininger, T., Clucas, J., Alexander, L., Salum, G. A., Georgiades, K., Paksarian, D., Merikangas, K. R., & Milham, M. P. (2020). Problematic internet use in children and adolescents: associations with psychiatric disorders and impairment. *BMC psychiatry*, *20*(1), 252. https://doi.org/10.1186/s12888-020-02640-x

Roberts, A., Sharman, S., Coid, J., Murphy, R., Bowden-Jones, H., Cowlishaw, S., & Landon, J. (2017). Gambling and negative life events in a nationally representative sample of UK men. *Addictive behaviors*, *75*, 95-102. https://doi.org/10.1016/j.addbeh.2017.07.002

Roberts, J. A., Pullig, C., & Manolis, C. (2015). I need my smartphone: A hierarchical model of personality and cell-phone addiction. *Personality and individual differences*, *79*, 13-19. https://doi.org/10.1016/j.paid.2015.01.049

Schneider, L. A., King, D. L., & Delfabbro, P. H. (2017). Family factors in adolescent problematic Internet gaming: A systematic review. *Journal of Behavioral Addictions*, *6*(3), 321-333. https://doi.org/10.1556/2006.6.2017.035

Shapira, N. A., Lessig, M. C., Goldsmith, T. D., Szabo, S. T., Lazoritz, M., Gold, M. S., & Stein, D. J. (2003). Problematic internet use: Proposed classification and diagnostic criteria. *Depression and Anxiety*, *17*(4), 207-216. https://doi.org/10.1002/da.10094

Shek, D. T. L., Zhu, X., & Ma, C. M. S. (2018). The Influence of Parental Control and Parent-Child Relational Qualities on Adolescent Internet Addiction: A 3-Year Longitudinal Study in Hong Kong [Original Research]. *Frontiers in psychology*, *9*. https://doi.org/10.3389/fpsyg.2018.00642

Shi, L., Wang, Y., Yu, H., Wilson, A., Cook, S., Duan, Z., Peng, K., Hu, Z., Ou, J., Duan, S., Yang, Y., Ge, J., Wang, H., Chen, L., Zhao, K., & Chen, R. (2020). The relationship between childhood trauma and Internet gaming disorder among college students: A structural equation model. *Journal of Behavioral Addictions*, *9*(1), 175-180. https://doi.org/10.1556/2006.2020.00002

Stark, R., Klucken, T., Potenza, M. N., Brand, M., & Strahler, J. (2018). A Current Understanding of the Behavioral Neuroscience of Compulsive Sexual Behavior Disorder and Problematic Pornography Use. *Current Behavioral Neuroscience Reports*, *5*(4), 218-231. https://doi.org/10.1007/s40473-018-0162-9

van den Eijnden, R. J. J. M., Spijkerman, R., Vermulst, A. A., van Rooij, T. J., & Engels, R. C. M. E. (2010). Compulsive Internet Use Among Adolescents: Bidirectional Parent–Child Relationships. *Journal of abnormal child psychology*, *38*(1), 77-89. https://doi.org/10.1007/s10802-009-9347-8

Volkow, Nora D., & Morales, M. (2015). The Brain on Drugs: From Reward to Addiction. *Cell*, *162*(4), 712-725. https://doi.org/10.1016/j.cell.2015.07.046

Young, K. S. (2004). Internet Addiction:A New Clinical Phenomenon and Its Consequences. *American behavioral scientist*, *48*(4), 402-415. https://doi.org/10.1177/0002764204270278

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