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Original article

Insights Into Aspects Behind Internet-Related Disorders in Adolescents: The Interplay of Personality and Symptoms of Adjustment Disorders

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ABSTRACT

Purpose: Problematic Internet use (PIU) that has recently been referred to as Internet-related disorder is a growing health concern. Yet, it is unclear why some adolescents are developing problematic use, whereas others sustain control. Based on previous research, we hypothesize that personality traits (low conscientiousness and high neuroticism) act as predispositions for PIU. We further hypothesize that PIU can be understood as a maladaptive reaction toward critical life events and that these maladaptive reactions are exacerbated by dysfunctional personality traits.

Methods: The study investigates the prevalence of distinct subtypes of PIU among a sample of adolescents (n = 1,489; 10–17 years). Personality traits (Big Five Inventory-10 [BFI-10]), perceived stress (Perceived Stress Scale 4 [PSS-4]), and their relations to PIU (Scale for the Assessment of Internet and Computer Game Addiction [AICA-S]) were examined. As novel research questions, associations between PIU and adjustment disorders (Adjustment Disorder—New Module [ADNM]-6) and the mediating role of personality were investigated.

Results: The prevalence of PIU was 2.5%; girls (3.0%) were more often affected than boys (1.9%). Social networking sites in girls and online games in boys were most often associated with PIU. Low conscientiousness and high neuroticism generally predicted PIU. Significantly more adolescents with PIU (70%) reported critical life events compared with those without PIU (42%). PIU was related to heightened stress and higher adjustment disorder symptoms. These associations were exacerbated by conscientiousness and neuroticism.

Conclusions: Although the overall prevalence for PIU is in line with previous studies, it appeared unexpectedly that girls were affected more often than boys. Adjustment disorders and stress showed strong associations with PIU. This bears implications for adapting etiopathological assumptions and early intervention strategies.

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IMPLICATIONS AND CONTRIBUTION

Low conscientiousness and high neuroticism were related to problematic Internet use, but their influence was specified by significant interactions with adjustment disorder symptoms. Adolescents with problematic Internet use and adjustment disorder symptoms may need more specific intervention strategies.

Conflicts of Interest: The authors have no conflicts of interest to disclose.

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Since the late 1990s, symptoms such as loss of control and continued Internet use, despite negative repercussions, have been documented in a small but significant number of Internet users. There is still no consensus on the nosological nature of problematic Internet use (PIU), although neuroscientific research has demonstrated that paradigms known from substance-use disorders are also valid for PIU [1]. Still, there has been a lasting debate if PIU is appropriately classified as a non-substance related addiction. Because of these unresolved questions, the German Society for Addiction Research and Addiction Treatment has recently introduced the term "Internet-related disorders" (IRDs) for describing excessive and poorly controlled Internet use [2].

For adolescents, concerns have been expressed about pathologizing contemporary types of recreational activities [3]. It has also been argued that, especially in adolescents, IRD can be prone to high rates of remission [4] and that adolescent treatment seekers do not necessarily meet full criteria for IRD [5]. In contrast, clinical and epidemiological research has emphasized that adolescents meeting the criteria for IRD also display heightened psychopathological symptoms [3–7], decreased life satisfaction [8], poorer physical health [9], and impaired psychosocial functioning [5,10]. However, because of these ongoing debates and unresolved issues, the term PIU has been recommended to be used with adolescents to avoid premature stigmatization [11].

In 2013, the American Psychiatric Association [12] decided to include Internet gaming disorder, a subtype of IRD in Section III of the DSM-5. This raised the question if IRD is a homogenous concept or an umbrella term encompassing various subtypes. Studies have demonstrated that some online activities are more closely related to symptoms such as loss of control than others [13,14], and it has been recommended to differentiate between generalized and specific IRD [15].

Using the Internet has become a common recreational activity. Most adolescents are able to retain a functional Internet use, which is emphasized by prevalence rates for IRD that range between 1.2% and 4.4% in Europe [4–6,16]. It follows that mere exposure to specific Internet-related contents is not a sufficient explanation for the development of a problematic use (exposureprevalence paradox) [17]. Thus, we need to learn more about predisposing factors for IRD. Research has suggested that some personality traits may act as risk factors for addictive behaviors in general [18,19], and preliminary results have related high neuroticism and low conscientiousness to PIU in adolescents and IRD in adults [5,19–22]. Although prospective studies are lacking, there is emerging evidence that high neuroticism influences the development of IRD [23]. The nature of these associations has not yet been elucidated. High neuroticism is related to instable emotionality, proneness to stress, and a negative self-concept [24]. Thus, it has been argued that individuals high in neuroticism are seeking specific virtual environments (e.g., online games) to distract from stressors and to compensate for emotional dysregulation [20]. Low conscientiousness is related to struggles regarding self-organization and lack of consistency in goal pursuit [24]. It has been hypothesized that individuals with low conscientiousness might perceive the demands of online games as being more transparent and explainable compared with offline demands [20,21]. At present, it remains unclear if these explanations can be generalized to other types of PIU/IRD. Moreover, there are recent data indicating that other types of IRD might be related to different personality traits [21].

From a diathesis-stress perspective, it can be assumed that the effects of dysfunctional personality traits on IRD are triggered by external factors [17,25]. Despite findings suggesting that traits such as psychoticism interact with stressful life events to heighten the risk of PIU in adolescents [9] and similar interactions between low conscientiousness and classroom hostility [26], our knowledge on these interactions is still limited.

Adjustment disorders (ADs), transient maladaptive reactions to stressful life events, have been shown to occur frequently among adolescents, and research has demonstrated associations with distress and psychopathological symptoms [27]. Although IRD has been related to poorer coping abilities, associations between PIU/IRD and AD have not yet been investigated.

Research Questions

Our primary goal was to determine the prevalence of PIU among German adolescents. As described previously, PIU is conceptualized as a multidimensional construct consisting of various subtypes of uncontrolled online activities. Since most of the existing epidemiological studies focus on PIU in general, our knowledge on the frequency of single PIU subtypes is limited. Thus, we intend to determine the prevalence of PIU in general and its specific subtypes.

Research indicates that PIU is related to specific preconditions. Therefore, we aimed to evaluate prior findings on personality traits (especially high neuroticism and low conscientiousness) according to the Five-Factor Model of Personality [24] that may act as risk factors for PIU.

Our third aim focused on the examination of diathesisstress assumptions posed by some of the current etiopathological models [17,25]. To that purpose, we examine the influence of critical life events, related distress, and AD symptoms on PIU. Based on prior research [9,25,26], we expect a positive relationship between the occurrence of critical life events, perceived stress, and PIU. We further assume that AD symptoms will be related to PIU and that dysfunctional personality traits (high neuroticism and low conscientiousness) interact with AD symptoms to exacerbate the probability of PIU.

Methods

Study design and participants

In 2015 and 2016, we conducted a questionnaire-based cross-sectional study in a probability sample of n=1,829 adolescents (aged 10–17 years). The stratification was based on region, school type, and age, and encompassed 14 sampling units. The sample size was based on a power analysis with an expected frequency of IRD of 3%.

Before data collection, the adolescents and their parents were asked to provide written informed consent. Participation was voluntary and the study was approved by the local ethical commissions and corresponded to the Declaration of Helsinki.

The response rate of the schools contacted amounted to 68%. Data collection took place in the classrooms and was supervised by an experienced member of our institution. From the original sample enrolled, 18.6% (n=340) of the individuals had to be excluded because of missing data in key variables, failed plausibility checks, or premature termination of the questionnaire. Thus, the final sample consisted of n=1,489 participants (Table 1 for demographic characteristics).

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