



# Comorbidity of psychiatric disorders with Internet addiction in a clinical sample: The effect of personality, defense style and psychopathology



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## HIGHLIGHTS

- High comorbidity of Internet Addiction Disorder (IAD) with Axis I and II disorders.
- Temporal precedence of comorbid disorders or IAD is only established individually.
- Comorbid psychopathology can further exacerbate the presentation of IAD.
- A complete psychiatric evaluation is appropriate for cases of IAD.

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## ABSTRACT

This study aims to contribute to the understanding of underlying causes for the development of Internet Addiction Disorder (IAD) and assess comorbidity with other mental disorders through the analysis of data from a clinical sample of college students who presented for treatment of IAD. The clinical sample of our study has demonstrated a high percentage of comorbidity with Axis I and II disorders, while the temporal precedence of the establishment of those disorders cannot lead to specific conclusions. Half of the sample (25/50) presented with comorbidity of another Axis I disorder and 38% (19/50) with a concurrent Axis II personality disorder. The majority of Axis I disorders (51.85%) were reported before the onset of IAD, 33.3% after the onset while it was unclear in 14.81% of cases. The examination of a path model demonstrated that important contributions to the understanding of this disorder can be made through concepts from the neurobiological, trait personality paradigm, as well as from the psychodynamic defense style paradigm. Comorbid psychopathology can further exacerbate the presentation of IAD through a direct link, regardless of the underlying personality structure. The clinician treating IAD patients should complete a clinical evaluation for comorbid Axis I and II diagnoses since their presence may signify a more serious presentation.

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## 1. Introduction

### 1.1. Internet Addiction Disorder; cause or effect of comorbidity?

Internet Addiction Disorder (IAD) has been formulated as a clinical syndrome several years ago (Young, 1996) and gradually attracted the attention of numerous researchers (Kuss, Griffiths, Karila, & Billieux, 2014). In a recent development, the American Psychiatric Association has examined this new concept and decided to include 'Internet Gaming Disorder' in Section III of the new DSM-5, as a condition warranting

more clinical research and experience, before it might be considered for inclusion as a formal disorder (American Psychiatric Association, 2013). The focus on a unique online behavior, rather than the full spectrum of possible online activities, was warranted by the larger body of research data accumulated for online gaming in particular contrary to other online activities (Petry & O'Brien, 2013).

Every addictive behavior may be a consequence of, or lead to the development of, psychiatric symptomatology. It may even exacerbate pre-existing symptomatology. It follows that the same etiology or consequences should hold for the manifestations of online addictive behaviors, should we accept the validity of this new concept. Examining this tenet would include examining three distinct possibilities; either that an individual with a pre-existing psychiatric diagnosis develops IAD, or that an individual clinically diagnosed with IAD develops psychiatric symptomatology as a result of the adverse effects that IAD causes to the

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sufferer, or finally that a person with a pre-existing psychological vulnerability (e.g. a personality disorder) develops IAD when exposed to adverse life events (Dong, Lu, Zhou, & Zhao, 2011).

Up to this point, research in a clinical setting has been limited. Instead, there has been a multitude of studies carried out in a non-clinical setting with research questionnaires; those questionnaires have had cut-off values denoting addiction that were arbitrarily set beforehand. This methodology posits that an addictive behavior is a process that develops linearly from non-existence to full-blown addiction. Furthermore, it posits that we may describe an addictive behavior that by definition should limit normal functioning based on individuals who are recruited in a typical setting. This deflates prevalence rates since those most affected skip classes, leading to low percentages (Kalaitzaki & Birtchnell, 2014). Both those tenets lead to research bias since an established addictive process differs qualitatively as well from the corresponding behavior which is practiced without consequences for the individual (e.g. typical online gaming for recreation versus addictive online gaming). It is likely that a clear picture of comorbidity and temporal precedence in the establishment of IAD and that of any other comorbid mental disease requires individuals who have received a clinical diagnosis for both of them.

### 1.2. Comorbid IAD in clinically diagnosed mental disease

Measuring IAD symptoms among patients diagnosed with a mental condition was the first approximation to the optimal methodology suggested above. The first published research of IAD symptoms in a sample of diagnosed psychiatric patients was carried out among 15 outpatients of a psychiatric clinic (Bernardi & Pallanti, 2009). The only assessment regarding their Internet use was through a questionnaire. Their comorbid diagnoses were Attention deficit–hyperactivity disorder (ADHD), social phobia, generalized anxiety disorder (GAD), hypomania and dysthymia. There were also two instances of comorbid borderline personality disorder and one instance of comorbid obsessive–compulsive and another one of avoidant personality disorder. No effort was made to collect data as to which disorder preceded the onset of the other.

In a Korean study the researchers aimed to evaluate clinical comorbidity in children and adolescents with IAD, using structured interviews (Ha et al., 2006). The researchers proceeded in two stages, identifying first with a research questionnaire an initial population of 63 children and 170 adolescents who exceeded the cut-off. Then they selected 12 children and 12 adolescents at random to determine any current psychiatric diagnoses by way of a structured clinical interview. In the child group, 7 were diagnosed with attention deficit–hyperactivity disorder (ADHD). In the adolescent group, 3 subjects had major depressive disorder, 1 had schizophrenia, and 1 had obsessive–compulsive disorder. The authors concluded that there is a distinct possibility of age-specific comorbid psychiatric disorders in cases of IAD, without however being able to determine temporal precedence.

A similar survey of Korean college students (Ko, Yen, Chen, & Yen, 2008) employing diagnostic interviews for specific disorders revealed that adult ADHD and depressive disorders were associated with IAD among college students. The authors concluded that effective evaluation of, as well as treatment for, adult ADHD and depressive disorders is required for college students with IAD.

A recent survey in Turkey (Bozkurt, Coskun, Ayaydin, Adak, & Zoroglu, 2013) reported high comorbidity of other psychiatric diagnoses in instances of adolescents with IAD. Sample size was 60 adolescents, (45 boys and 15 girls) referred to a child and adolescent psychiatry department due to various behavioral and emotional issues. Again, the subjects were deemed as presenting IAD from answers on self-report measures. All subjects had at least one and 88.3% had at least two comorbid psychiatric disorders. The frequencies of diagnoses, grouped according to similarity, were as follows: behavioral disorder, 86.7%; anxiety disorder, 71.7%; mood disorder, 38.3%; elimination disorder,

26.7%; tic disorder, 16.7%; and substance use disorder, 6.7%. The most common psychiatric disorders were attention deficit–hyperactivity disorder, 83.3%; social phobia, 35%; and major depressive disorder, 30%.

Recent research in Germany (Wölfling, Beutel, Koch, Dickenhorst, & Müller, 2013) sought to measure IAD, by way of research questionnaire, in 1826 patients treated for other addictive behaviors in 15 inpatient rehabilitation centers. Using the cut-off score they identified 71 patients as having IAD and compared them to a control group of 58 patients, without IAD, who were treated for alcohol abuse. Comorbid IAD was associated with higher levels of psychosocial symptoms, especially depression, obsessive–compulsive symptoms, and interpersonal sensitivity. Moreover, the patients with IAD more frequently met criteria for additional mental disorders, displaying higher rates of psychiatric symptoms, especially depression. Further study of the same populations (Müller, Koch, Dickenhorst, & ME, 2013) showed that patients with comorbid IAD could be discriminated from controls by specific personality traits.

An indirect source of clinical information stems from studies on treatment for IAD. A study of 62 children diagnosed with ADHD who were also online game players showed a decrease on the level of video gaming after receiving treatment for ADHD. The authors concluded that 'Internet video game playing might be a means of self-medication for children with ADHD' (Han et al., 2009).

### 1.3. Comorbidity of other mental health conditions in patients clinically diagnosed with IAD

There is a distinct lack of studies with clinically diagnosed cases of IAD, despite the fact that numerous treatment centers have been set up worldwide. In a recent German study the researchers (K. W. Müller, Beutel, & Wölfling) studied 290 adults who sought treatment for IAD in a specialized clinic for behavioral addictions. 71% of all treatment seekers met the clinical diagnosis of IAD. These displayed higher levels of psychopathology, especially depressive and dissociative symptoms. Half of the patients met the criteria for one further psychiatric disorder according to clinical interviews, especially depressive disorders. Their level of functioning was decreased in all domains. Half of those diagnosed with IAD fulfilled the criteria of an additional disorder. The largest percentage (34.2%) had comorbid emotional disorders, 17.9% had comorbid anxiety disorders, 11.1% had comorbid substance abuse, while 10.3% had a personality disorder.

### 1.4. Personality correlates of IAD

Personality is a concept defined as a complex pattern of deeply embedded individual characteristics that are expressed automatically in almost every area of psychological functioning (Millon, Millon, Meagher, Grossman, & Ramnath, 2004). As such, personality attributes enter in the research of any addictive behavior. The field of personality theory that has been applied more in related research is the one composed of various trait and factorial models. A recent review of the subject attempted to group related factors together, so as to provide a clearer picture (Floros & Siomos, 2014). There were positive correlations, in all reviewed studies, of IAD scores with the traits of psychoticism, sensation seeking and neuroticism. Negative correlations were reported in all studies with the traits of extraversion, conscientiousness, reward dependence, agreeableness and self-directedness. The authors concluded that there was a need for more research in the field of personality pathology in IAD, especially noting the effective lack of any research on comorbid personality disorders and measures of abnormal personality, unrelated to the trait-factorial paradigm.

### 1.5. Aim of this study

The principal aim of this study is to explore data from a clinical sample of Internet-addicted college students in order to assess for the

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