



Traits associated with internet addiction in young adults: Potential risk factors



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ABSTRACT

The present study sought to determine whether certain personality traits associated with problematic substance use may also characterize young adults who report problematic internet use. An index of internet addiction as well as measures of traits previously linked to problematic substance use were administered to a sample of 86 young adults aged 18–30 years. Measures included the Internet Addiction Test (IAT), Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ), Depression Anxiety and Stress Scales (DASS-21), Toronto Alexithymia Scale (TAS-20), and the Fear of Intimacy Scale (FIS). Results indicated that IAT scores were significantly positively correlated with TAS-20, DASS-21, SPSRQ and FIS scores, as predicted. When age, gender and negative mood were controlled in a hierarchical regression, sensitivity to punishment (SP), sensitivity to reward (SR) and FIS significantly contributed to variance in IAT in the final model. SP partially mediated the relationship between TAS-20 and IAT, whereas no such mediation was indicated for SR or FIS. Present findings suggest that alexithymia and reward sensitivity may be important risk factors for internet addiction as for problematic substance use, whereas sensitivity to punishment may account for at least part of the association between alexithymia and problematic use of the internet.

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The notion that compulsive or problematic use of the internet is a variant of addictive behaviour is somewhat controversial, however the term “internet addiction” (IA) has gained currency (Beard, 2005; Moreno, Jelenchick, & Christakis, 2013; Winkler, Dörsing, Rief, Shen, & Glombiewski, 2013; Young, 1998, 2004). IA is said to be characterized by uncontrollable and compulsive internet use, resulting in problems such as poor academic and professional performance, diminished sleep quality and hygiene, and relational maladjustment (Scimeca et al., 2014). University students are said to be at especially high risk of developing IA (Frangos, Frangos, & Kiohos, 2010; Young, 2004). A review by Chakraborty, Basu, and Kumar (2010) suggested that IA manifests predominantly in young adults, with estimated prevalence rates ranging up to 38% across a variety of populations sampled.

IA can be viewed as a behavioural addiction or impulse control disorder not otherwise specified, like compulsive shopping or compulsive gambling, the latter of which has reportedly shown neurobiological commonalities with substance addictions (see Recupero, 2008). The present study examined potential commonalities in terms of specific traits that have consistently been found to be associated with substance problems. In young adults, traits associated with problematic substance

use (e.g., Lyvers, Duff, Basch & Edwards, 2012) as well as substance dependence (Lyvers, Hinton, Gotsis, Roddy, Edwards & Thorberg, 2014) include reward sensitivity and alexithymia, the latter defined as a difficulty identifying and describing emotional feelings as well as an externalized thinking style (Taylor & Bagby, 2000). The former trait dimension is hypothesised to reflect the functioning of the brain's Behavioral Activation System (BAS; Torrubia, Avila, Molto, & Caseras, 2001) and was recently linked to IA (Dong, Hu, & Lin, 2013), whereas punishment sensitivity is hypothesised to reflect the Behavioral Inhibition System (BIS; Torrubia et al.) and has been found to mediate associations between alexithymia, drinking motives and problematic drinking (Lyvers, Hasking, Albrecht & Thorberg, 2012). Alexithymia has been reported to be very strongly associated with substance problems in both clinical (Lyvers, Hinton et al., 2014; Thorberg, Young, Sullivan, & Lyvers, 2009) and non-clinical samples (e.g., Lyvers, Onuoha, Thorberg & Samios, 2012) and has also been linked to obsessive substance-related thoughts and susceptibility to craving (Lyvers, Lysychka & Thorberg, 2014; Thorberg, Young, Sullivan, Lyvers, Connor et al., 2011). Recent work has also documented associations of alexithymia with IA in young adults (Kandri, Bonotis, Floros, & Zafropoulou, 2014), although the nature of this relationship remains unclear given that alexithymia is commonly associated with anxiety and depression as well as social and interpersonal difficulties (e.g., Thorberg, Young,

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Sullivan, Lyvers, Hurst et al., 2011). In the present study alexithymia, sensitivity to reward (SR) and sensitivity to punishment (SP) were assessed in a sample of young adults in relation to their scores on the Internet Addiction Test (IAT; Young, 1998). Anxiety, depression, stress, and fear of intimacy were also assessed given their hypothesised roles in the development of substance problems (e.g., Thorberg & Lyvers, 2006a, b) as well as problematic internet use (Douglas et al., 2008) and relationships with alexithymia as noted above. Based on extrapolation from previous research cited above on trait correlates of problematic substance use and substance dependence, alexithymia, SR, SP, fear of intimacy, and negative moods were all expected to show positive relationships with IAT scores. Further, SP was predicted to mediate the relationship between alexithymia and IAT scores given that SP was previously reported to mediate the relationship between alexithymia and problematic drinking (Lyvers, Hasking et al., 2012).

1. Method

1.1. Participants

The initial sample of 86 young adults included university students and members of the local community. The former were 61 students recruited from the university research participant pool for the incentive of one course credit point for psychology subjects, whereas the remaining 25 were recruited via advertisement in a local newspaper for the incentive of an electronic \$25 gift voucher. Three cases were subsequently removed as their values for Mahalanobis distances were above the critical value relevant for the number of variables in the analysis ($\chi^2 = 27.88$, $p < .001$; Tabachnik & Fidell, 2014), resulting in a final sample size of 83. Participants were aged between 18 and 30 years ($M = 22.66$ years, $SD = 4.04$), and included 20 males and 63 females. Participants indicated how the majority of their time on the internet in an average week was spent, including using the internet for online gaming (6; 7%), online shopping (2; 2%), social media (34; 41%), watching movies and television online (21; 25%), and for homework, employment, or research related activities (20; 24%).

1.2. Materials

1.2.1. Demographics questionnaire

This questionnaire asked for participant details such as age, gender, country of origin, and education level.

1.2.2. Depression Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995)

The widely used DASS-21 consists of three subscales with seven items each measuring depression (e.g., "I felt I had nothing to look forward to"), anxiety (e.g., "I felt scared without any good reason") and stress (e.g., "I found it hard to wind down"). Answers to statements are scored on a 4-point scale, from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*). Higher scores indicate higher levels of depression, anxiety or stress. The Cronbach's alpha reliability indexes for the DASS-21 were .82 for Stress, .80 for Depression, and .81 for Anxiety in the current study.

1.2.3. Fear of Intimacy Scale (FIS; Dcutner & Thelen, 1991)

The FIS is a 35 item self-report measure that aims to examine one's level of anxiety concerning close and personal relationships (e.g., "There are things I have done in previous relationships that prevent me from getting close"). Questions are rated on a 5-point scale (1 = *not characteristic of me at all* to 5 = *extremely characteristic of me*). Of the 35 items, 15 items are reverse scored (e.g., "I would feel comfortable expressing my true feelings to person X"). A high score is indicative of a greater fear of intimacy. Scores on the FIS have demonstrated significant associations with a sense of loneliness, social intimacy, and

reluctance to self-disclose (Lutwak, Panish, & Ferrari, 2003). The Cronbach's alpha reliability index was .65 in the current study.

1.2.4. Internet Addiction Test (IAT; Young, 1998)

The IAT is a self report measure consisting of 20 questions assessing the extent to which internet usage interferes with one's daily routine, sleeping patterns, emotional feelings, and social life. Dysfunction is assessed on a 6-point Likert scale (0 = *does not apply* to 5 = *always*), with higher scores denoting a higher level of problems related to internet use. Those who score under 39 are classified as typical internet users, a score between 40 and 69 suggests that use is causing a moderate level of problems, and a score of 70 or greater suggests that internet use is causing a severe level of problems (Young, 1998). Factor analysis of the IAT by Widyanto and McMurrin (2004) yielded six factors (salience, excessive use, neglecting work, anticipation, lack of control, and neglecting social life) with all factors reportedly showing good internal consistency and concurrent validity. They concluded that the IAT is a valid and reliable instrument for research on IA. The Cronbach's alpha reliability index was .92 in the current study.

1.2.5. Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ; Torrubia et al., 2001)

The SPSRQ is a self report measure consisting of 48 questions, of which half measure sensitivity to punishment (SP; e.g., "How often do you refrain from doing something because you're afraid of it being illegal?"), whereas the other half measure sensitivity to reward (SR; e.g., "Does the prospect of obtaining money motivate you strongly?"). Questions are answered by a yes or no response, with affirmative responses summed to produce a score on SP or SR. The Cronbach's alpha reliability index was .81 for SP and .79 for SR in the current study.

1.2.6. Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994)

The TAS-20 is a 20 item self-report questionnaire assessing the level of alexithymia. Questions are answered via a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The TAS-20 has three subscales: difficulty identifying feelings (DIF; e.g., "I am often confused about what emotion I am feeling"), difficulty describing feelings (DDF; e.g., "It is difficult for me to find the right words for my feelings") and externally oriented thinking (EOT; e.g., "I prefer to analyse problems rather than just describe them"). After reverse scoring five items, a total alexithymia score is obtained by summing the ratings for the 20 items. A total score that is equal to or less than 51 indicates no alexithymia, scores between 52 and 60 indicate borderline alexithymia, and scores equal to or greater than 61 indicate high levels of alexithymia. The Cronbach's alpha reliability index for the total TAS-20 was .76 for the present sample.

1.3. Procedure

Ethics approval for this study was granted by the university research ethics committee prior to data collection. Communication with interested respondents was conducted via email. An explanatory statement informed them of the purpose of the study, the inclusion criteria (age 18–30 years and at least an occasional internet user), the requirements of participation, and the contact details of the researchers if the participant had any queries. Additionally, participants were made aware of their right to withdraw at any stage, and the confidential nature of data collection. The link to the online survey was then sent to them.

Data were collected by means of an online survey created using the website Qualtrics.com. The first page of the survey contained a copy of the original explanatory statement. To begin the survey, participants were required to click a statement that confirmed that they had read the explanatory statement, understood what was required of them, consented to participation, and that data collection was confidential. The survey consisted of six questionnaires in the following order: demographics questionnaire, IAT, TAS-20, DASS-21, SPSRQ, and FIS. All questions required an answer before the participant could continue.

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