



Research Report

Polish validation of the Internet Addiction Test

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ABSTRACT

In our digital age, the availability of an instrument to measure Internet addiction in Poland is not only a necessity but a priority. The urgency lies in the pressing need to rehabilitate Polish Internet addicts and those who are on the verge of becoming addicts. Thus, the purpose of this research study is to present a valid instrument for measuring Internet users' level of addiction, namely the well-established Young's Internet Addiction Test (IAT). A total of 1245 college students participated in the study (69.5% males). On this large sample, the psychometric properties of the Polish version of the IAT were investigated. The internal consistency was excellent ($\alpha = .900$). Also, except for one item, the corrected item-total correlation values ranged from .384 to .648, indicating that they measured the same construct: Internet addiction. Principal component analysis confirmed the presence of two components. This study presents evidence that the Polish version of the IAT included here is a valid instrument for measuring Internet addiction.

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1. Introduction

The Internet has become an indispensable tool in almost every aspect of human life such as education, work, leisure activity, and communication, to name just a few. It is noteworthy that not only the number of its users is on the increase, but the number of hours spent on its use, too. In Poland, the popularity of the Internet is still growing. In 2013, 63.8% of Poles aged 16 years or above were Internet users (Czapiński & Panek, 2013). Over the last few years, mobile devices with Internet connection, such as tablets or smartphones, have enabled full access anytime and anywhere. With the increasing accessibility of the Internet, the epidemic of Internet addiction is spreading drastically while people need help to face the problems associated with unhealthy use of the Internet (Przepiorka, Blachnio, Miziak, & Czuczwar, 2014). As regards use, the Internet is still changing and Internet addiction will probably become increasingly serious and increasingly difficult to diagnose. To many young people, living without the Internet seems to be impossible. So, ever and again, the borderline between normal use and addiction can be subtle and difficult to discern. The available results suggest that there are differences in this respect between Eastern and Western civilizations. In Poland, about 2% (Poprawa, 2011) to 9% (Kirwil, 2010) of young people have very

serious problems caused by Internet usage while in China the corresponding statistics increase up to more than 12% (Jiang & Leung, 2012), and we can forecast that this trend will continue to increase.

In the literature, there are some terms referring to Internet addiction, such as pathological Internet use (Niemz, Griffiths, & Banyard, 2005), compulsive Internet use (Meerkerk, Van Den Eijnden, & Garretsen, 2006), problematic Internet use (Davis, Flett, & Besser, 2002), impulse-control disorder (Treuer, Fábán, & Furedi, 2001), or Internet abuse (Morahan-Martin, 2005). We will use the term "Internet addiction" in accordance with Young's approach. Internet addiction is an impulse-control disorder without intoxication that has symptoms such as preoccupation with the Internet, problem with control over Internet use, lower mood, excessive amount of time spent online, lower performance at school or work, deteriorating physical health, jeopardized relationships with family or friends, and lying about the Internet use (Young, 1999). In order to claim that a person is an Internet addict, at least five out of eight symptoms need to have occurred within the last year (Young, 1999). Considering the magnitude of the problem and its social, psychological, and physical consequences, therapists have been raising the alarm and emphasizing the importance of early prevention and proper screening of users who are in danger of becoming addicted to the Internet. Therefore, the need for a reliable measure of Internet addiction is very urgent. Young (1998) developed the Internet Addiction Test based on the DSM-IV criteria for pathological gambling, e.g. tolerance, withdrawal symptoms, mood modification or relapse. Since that date, the IAT has been validated across different countries (Table 1).

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The paper's aim is to evaluate the psychometric properties of the IAT on a Polish sample. Although in the original version there was one clear factor structure, in other adapted versions the presented questionnaires differed in the number of factors: there is one factor in the Arabic version (Hawi, 2013), two factors in the German version (Barke, Nyenhuis, & Kröner-Herwig, 2012), three factors in the Hong Kong version (Chang & Law, 2008) and six factors in the Italian version (Ferraro, Caci, D'Amico, & Di Blasi, 2007) and in the English version (Widyanto & McMurran, 2004). There are also other adaptations of the methods based on Young's diagnostic criteria of Internet addiction, for example in the Hungarian (Demetrovics, Szeredi, & Rózsa, 2008) or Greek languages (Siomos, Dafouli, Braimiotis, Mouzas, & Angelopoulos, 2008). Cultural background may account for the differences between adaptations. The complex nature of Internet addiction, the lack of a unique procedure while preparing the adaptations, as well as the different procedures and samples across those countries may have resulted in the different number of factors. Another possible explanation connected with nationality is the linguistic problem. Translating items from one language into another, which is often the case with adaptations, may be quite challenging in terms of clarity and accuracy. What is more, the structure of Internet addiction can be different depending on the style of Internet use that can be determined by culture.

So far in Poland, Young's Internet Addiction Test has been translated by Poprawa (2011). The study was conducted on 6119 participants (63.3% males) whose age ranged from 9 to 65 years. The analysis using the principal components method revealed one-factor structure with an eigenvalue of 9.0% and 41% of explained variance with factors loadings ranging from .42 to .73. The scale had a good internal consistency ($\alpha = .935$). However, this Polish version deviated from the original. First, and foremost, the number of items in the Polish version was changed compared to the original version, which led to interference in the questionnaire's structure. One of the items was removed because of the low factor loading and low item-total correlation. Three new items were added. Thus, the adapted version had 22 items instead of the 20 items of the original version. Second, in Poprawa's version, items are not phrased as questions but as statements. We may say that Poprawa obtained a different measure method. Although in Poprawa's study the reliability of the Polish scale was good, only exploratory factor analysis (EFA) was performed, revealing one-factor structure. The inconsistencies between Poprawa's adaptation of the IAT and Young's motivated us to conduct another validation of Young's IAT on a different Polish sample. Considering the frequency of use of this measure and its popularity, ensuring that its adaptation is a reliable tool in research seems of paramount importance. In this context, our primary goal was to reinvestigate the Polish version of the IAT using EFA and CFA analyses and to repeat the process of adaptation in order to obtain a version equivalent to and comparable with the adaptations from other countries, which would permit cross-cultural comparisons and analyses.

2. Method

2.1. Participants

The link with the online questionnaire was sent to 2000 participants, of whom 1297 (Mage = 22.03 years, SD = 5.97 years, age range: 12–62 years, 30.38% male) returned the online questionnaire completed. The sample was similar in terms of age range and educational status to the sample in Poprawa's study. However, sample size and the proportions of women and men in the current study were different. Here, the number of participants was smaller and there were more females than males, which is in contrast to

Poprawa's study, where a majority of the sample were males. The procedure was snowball sampling with one participant inviting others online and recommending that they take part in the study. The distribution of participants by education was as follows: master's degree (11.49%), post-secondary school (48.11%), incomplete higher education (29.83%), high schools (9.56%), and finished vocational schools (0.77%). Regarding the place of living, 31.53%, 27.70%, 15.34%, 12.26%, and 12.87% of participants were from the countryside, large towns, medium-sized towns, cities, and small towns, respectively. The average length of Internet use was 8.84 years (SD = 2.91 years). The mean time spent online per day was 70.45 min (SD = 72.63).

2.2. Instruments

The Polish version of the Internet Addiction Test encompassed 20 items (see Appendix A). Each item was rated on the following Likert scale: not applicable, rarely, occasionally, frequently, often, and always. The translation from English into Polish included back-translation, which ensured reliable and accurate translation between source and target versions. As in the findings of similar research conducted using IAT in other languages, Cronbach's α was .900.

3. Results

In all, 52 cases (4%) were removed from the SPSS dataset because they included missing data or outliers. Outliers were values out of range pertaining to age. For instance, many respondents entered 2013 and 2012 as the years of their birth. The remaining cases were fully completed with valid data and subsequently used in the analysis. The exploratory factor analysis was carried out using IBM SPSS version 20. It started with a reliability analysis. The Inter-Item Correlation Matrix contained no negative values, indicating that the 20 items measured the same characteristic, Internet addiction. Additionally, the Polish version of the IAT had excellent internal consistency, with Cronbach's alpha (α) of .900.

3.1. The principal component analysis

Next, IAT's 20 items were subjected to the principal component analysis (PCA) extraction method. The rotation method was Oblimin with Kaiser Normalization. Prior to performing PCA, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many α coefficients (74.44%) of .300 and above. The Kaiser–Meyer–Olkin measure of sampling adequacy (MSA) was .937, which exceeded the minimum recommended value of .600, and Bartlett's Test of Sphericity reached statistical significance ($\chi^2 = 9646.719$, $df = 190$, $p < .0001$), supporting the factorability of the correlation matrix. In fact, PCA revealed the presence of three components with eigenvalues exceeding 1, explaining 37.09%, 9.57%, and 5.01% of the variance, respectively. An inspection of the scree plot revealed that from the third component on the curve straightens out. This indicates that from the third component on each factor accounts for a decreasing amount of variance. Using Cattell's (1966) scree test, it was decided that two components should be retained. This was further supported by the results of the parallel analysis using the Monte Carlo PCA program, which showed two components with eigenvalues of 7.417 and 1.914, exceeding the corresponding criterion values of 1.230 and 1.190 respectively, for a randomly generated data matrix of the same size (20 variables by 1245 respondents). The first component included the following 11 items: 3, 4, 9, 10, 11, 12, 13, 15, 18, 19, and 20. These items are all related to daily impaired ability to function in life. Thus, the first

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