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Screening for Internet Dependence: Do the Proposed Diagnostic Criteria Differentiate Normal from Dependent Internet Use?

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Abstract

There is continued discussion of including Internet dependence as a diagnosis in future editions of the *Diagnostic and Statistical Manual of Mental Disorders*. The primary aim of the study was to evaluate the utility of the proposed diagnostic criteria for Internet dependence as measured by Young's Diagnostic Questionnaire (YDQ). Although the YDQ does not provide any measure of severity, there is emerging recognition that some Internet users may display less severe or at risk Internet dependence. The degree to which the cutoff of 5 out of 8 criteria is appropriate to differentiate nondependent from dependent Internet use was evaluated by comparing the Internet usage and psychological dysfunction of 424 university students endorsing 3 and 4 diagnostic criteria (at-risk Internet dependence) to those endorsing less than 3 criteria (nondependent) and those endorsing 5 or more criteria (Internet dependence). The findings suggest that the proposed diagnostic criteria do not adequately discriminate individuals scoring 3 or 4 from those currently classified as Internet dependent. The implications of the findings for the assessment, diagnosis, and treatment of Internet dependence are discussed.

Introduction

DESPITE MOUNTING INTEREST in the concept of Internet addiction, or dependence, there has been much debate regarding the degree to which excessive Internet use should be considered a disorder and regarding appropriate theoretical conceptualizations and definitions for problems related to excessive Internet use. In the face of substantial opposition,^{1,2} the most commonly applied conceptual approach has been to define excessive Internet use as a behavioral addiction, similar to pathological gambling.²⁻⁴ This perspective views excessive Internet use as an impulse control disorder that does not involve an intoxicant^{3,4} but shares characteristics of substance dependence, such as salience, mood modification, tolerance, withdrawal, conflict, and relapse.⁵

Although Internet addiction or dependence has not yet been included as a diagnosis in the *Diagnostic and Statistical Manual (DSM)* nosological system, there have been calls for its inclusion in the DSM-V to be published in 2012.^{5,6} Young³ developed diagnostic criteria for Internet dependence by modifying the DSM-IV criteria for pathological gambling. The proposed diagnosis requires a pattern of Internet usage that results in clinically significant impairment or distress as

indicated by the presence of five or more of the following criteria: (a) preoccupation with the Internet; (b) need for longer amounts of time online to achieve satisfaction; (c) repeated unsuccessful efforts to control, cut back, or stop Internet use; (d) restlessness, moodiness, depression, or irritability when attempting to cut down or stop Internet use; (e) staying online longer than originally intended; (f) jeopardizing or risking the loss of a significant relationship, job, or educational or career opportunity because of the Internet; (g) lying to family members, therapists, or others to conceal the extent of involvement with the Internet; and (h) using the Internet as a way of escaping from problems or of relieving a dysphoric mood.

Beard and Wolf¹ suggested some modifications to these diagnostic criteria. They argued that the first five criteria could account for several behaviors that are not necessarily classified as addictions as they could be met without any impairment in daily functioning but that the last three criteria impact on coping ability and interactions with significant others. They therefore recommended that the diagnosis of Internet dependence require meeting all of the first five criteria and at least one of the last three criteria.

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Young³ developed Young's Diagnostic Questionnaire (YDQ) to measure the proposed diagnostic criteria for Internet dependence. This 8-item diagnostic screening questionnaire has been the most consistently employed instrument to evaluate Internet dependence. Based on the cutoff point for the diagnosis of pathological gambling, a score of 5 or more criteria as measured by the YDQ during a 6-month period is classified as Internet dependent.^{3,4} Despite arguing that the proposed diagnostic criteria as measured by the YDQ provide a workable measure of Internet dependence to assist in differentiating nondependent from dependent Internet use, Young notes that further research is required to evaluate their construct validity and clinical utility.^{3,6} Although the cutoff score of 5 was viewed as more rigorous than that for pathological gambling, as there are only 8 instead of 10 criteria,³ there has not yet been any empirical investigation of whether this cutoff accurately differentiates nondependent from dependent Internet use.

Like most of the available measures of Internet dependence, the YDQ does not provide any measure of severity. There is emerging recognition that there may be variation in the severity of symptoms of Internet dependence and that there may be Internet users who display less severe or at risk dependence.⁷⁻¹¹ This approach, which views Internet dependence as a continuum, may provide a more flexible approach to diagnosis.

In preference to a dichotomous classification, several inventories, such as the Pathological Internet Use (PIU)⁹ scale and the Internet Addiction Test (IAT),¹¹ include an additional category that represents less severe or at-risk Internet dependence. Compared to smaller proportions of individuals classified as Internet dependent, several studies using these measures have identified relatively high rates of individuals who display problems related to excessive Internet use that are not sufficiently severe to meet the "diagnosis" of Internet dependence. Rates of at-risk dependence have ranged from 28 to 65% using the PIU^{9,12,13} and from 14 to 46% using the IAT.^{7,10,14-16}

These studies generally reveal some differences in the pattern of Internet usage between the nondependent, at-risk, and dependent groups. For example, findings suggest that although the nondependent group is more likely to use e-mail, chat, and information searches than are the other two groups,¹⁰ the dependent group has been most likely to engage in a range of Internet activities, such as File Transfer Protocol (FTP), Internet gambling, online gaming, Web surfing, use of remote support communication software, online shopping, and online community activities.^{9,10,13} Morahan-Martin and Schumacher⁹ found that while the dependent group reported higher average weekly hours online than both the at-risk and nondependent groups, the three groups did not differ in the time since they had first gone online. In contrast, Jang et al.¹⁴ found that duration of Internet use was an independent predictor differentiating the nondependent from the at-risk group and that length of time per day of Internet use was an independent predictor differentiating the at-risk from the dependent group.

Although some findings are contradictory,^{10,13} these studies also generally reveal that the at-risk group displays Internet dependency in response to emotional states.¹⁰ For example, both the at-risk and dependent groups have reported higher Internet use when they were stressed by people com-

pared to the nondependent group.¹⁰ However, findings also indicate that the dependent group generally displays higher levels of psychological dysfunction, such as low self-esteem, loneliness, depressive moods, anxiety, phobic anxiety, compulsiveness, suicide ideation, and Internet use when stressed by work or depressed, than do the nondependent and at-risk groups,^{9,10,12,14,15} but the at-risk group displays higher levels of psychological dysfunction, such as depression, anxiety, phobic anxiety, compulsiveness, and suicide ideation, than does the nondependent group.^{14,15}

Although these studies generally reveal differential patterns of Internet usage and psychological characteristics associated with each group, a direct examination of the at-risk group was not their intended focus. The emphasis was on the dependent group; most did not provide post hoc statistical analyses to compare the differences among groups, and several combined the at-risk and dependent groups without any rationale.^{7,13}

While the YDQ³ does not define an at-risk group of Internet users, one study⁸ employed the fulfillment of 3 to 4 criteria to denote at-risk use. This study reported that 2.0% of youth (12-18 years) in the general population endorsed 5 or more criteria and that an additional 8.7% displayed at-risk Internet use. However, this study also combined the at-risk and dependent groups without any rationale and made no attempt to compare the characteristics of the at-risk group to the dependent and nondependent groups.

The primary aim of this study was to examine the utility of Young's³ proposed diagnostic criteria for Internet dependence as measured by the YDQ. The degree to which the cutoff of 5 out of 8 criteria is appropriate to differentiate nondependent from dependent Internet use was evaluated by comparing the Internet usage and psychological dysfunction of individuals scoring 3 and 4 on the YDQ to those scoring 5 or more and those scoring less than 3. It was hypothesized that individuals scoring 3 and 4 would (a) spend more time on the Internet and report more years since commencing regular use of the Internet; (b) participate in a broader range of Internet activities; and (c) display more severe scores on measures of psychological dysfunction than those scoring less than 3. It was also hypothesized that individuals scoring 3 and 4 would (a) spend less time and report fewer years since commencing regular use; (b) participate in a narrower range of activities; and (c) display less psychological dysfunction than those scoring 5 or more. A secondary aim of this study was to compare the proportion of individuals classified as dependent using Young's³ diagnostic criteria and Beard and Wolf's¹ modified criteria.

Method

Participants

The sample comprised 424 students (130 males, 293 females, 1 unspecified) recruited from universities in Melbourne, Australia. University students were selected because individuals in this demographic have been identified as being at risk for developing Internet dependence.^{4,17} The participants ranged in age from 18 to 50 years ($M = 22.28$, $SD = 4.97$), and most were born in Australia (75.2%) and reported their marital status as single (82.5%). Table 1 displays the demographic data for participants scoring less than 3 (YDQ0-2), 3 (YDQ3), 4 (YDQ4), and 5 or more (YDQ5+).

TABLE 1. DEMOGRAPHIC INFORMATION FOR EACH DIAGNOSTIC GROUP

Measure	YDQ0-2 (n = 368)	YDQ3 (n = 19)	YDQ4 (n = 20)	YDQ5+ (n = 17)
Gender (male)	29%	37%	45%	47%
Age (mean, SD)	22.5 (5.2)	20.2 (1.8)	21.7 (4.0)	20.4 (2.4)
Country of birth (Australia)	78%	58%	75%	47%
Marital status (single)	83%	84%	90%	94%

Measures

Self-report instruments were employed to measure demographic information (e.g., age, gender, and marital status), Internet usage and dependence, and psychological characteristics previously associated with excessive Internet use.²

Young's Diagnostic Questionnaire (YDQ).³ The 8-item YDQ is a screening questionnaire modeled on the proposed diagnostic criteria for Internet dependence. The YDQ has previously displayed good reliability, consistency, and unidimensionality,⁸ and it displayed adequate internal consistency in this study (Cronbach's $\alpha = 0.72$).

Internet Usage Inventory. An inventory was developed to assess frequency of specific Internet activities, the number of years since commencing regular use, and overall time spent on the Internet. As previously recommended,⁴ only nonessential Internet usage (nonbusiness or nonacademic use) was evaluated.

Depression, Anxiety, Stress Scale (DASS).¹⁸ The 21-item short version of the DASS was employed to evaluate the negative emotional states of depression, anxiety, and stress. Each item has a 4-point Likert-type response format. For clinical purposes, the DASS manual provides cutoff scores for classifying subscale scores as normal, mild, moderate, severe, or extremely severe relative to a sample drawn from the general population.¹⁸ The short version has displayed adequate psychometric properties.¹⁹

UCLA Loneliness Scale.²⁰ A shortened version of the UCLA Loneliness Scale was employed to measure subjective feelings of social isolation or loneliness. This 10-item scale, which has a 4-point Likert-type response format, has good reliability and validity.²⁰

Rosenberg Self-Esteem Scale (SES).²¹ The 10-item Rosenberg SES was employed to evaluate the level of self-esteem among participants. This questionnaire employs a 4-point Likert-type response format, and higher scores indicate higher self-esteem. The Rosenberg SES has displayed adequate psychometric properties.²²

Revised COPE Scale (COPE-R).²³ The Cope-Avoidance subscale of the COPE-R scale, which measures denial, mental disengagement, blaming of others, and behavioral disengagement, comprises 8 items with a 4-point Likert-type response format. This subscale of the COPE-R scale has a reliability coefficient of $\alpha = 0.81$.²³

Procedure and data analysis

Following approval from the RMIT University Human Research Ethics Committee, participants were recruited from several universities in Melbourne, Australia. As participation was truly anonymous, written informed consent was not required from participants. Completed questionnaires were collected from university classes or returned by post using reply paid envelopes. Given the limited amount of missing data, missing data were excluded case-wise. The distributions of the continuous independent variables that violated the assumption of normality were transformed. The prevalence of Internet dependence and at-risk dependence was evaluated using the methods outlined by Young,³ Beard and Wolf,¹ and Johansson and Gotestam.⁸ Individuals scoring 3 and 4 on the YDQ were compared to those scoring less than 3 and those scoring 5 or more on measures of Internet activity usage and psychological dysfunction. Continuous variables were analyzed using independent samples analyses of variance (ANOVAs) and multiple analyses of variance (MANOVAs) with post hoc comparisons, while categorical data were analyzed using chi-square tests with post hoc comparisons.

Results

Prevalence of Internet dependence

Overall, 368 participants (86.8%) scored 1 or 2 on the YDQ, 19 participants (4.5%) scored 3, 20 participants (4.7%) scored 4, and 17 participants (4.0%) scored 5 or more. Therefore, 4.0% of participants were classified as dependent according to Young's³ scoring, and an additional 9.2% were classified as at risk according to Johansson and Gotestam's⁸ scoring. Using Beard and Wolf's¹ recommended modifications to the proposed diagnostic criteria, the proportion of participants classified as dependent dropped to 0.9% ($n = 4$).

Comparison of the diagnostic groups

Internet use. The diagnostic groups as measured by the YDQ (YDQ0-2, YDQ3, YDQ4, and YDQ5+) were compared on the number of years since commencing regular use of the Internet and overall time spent on the Internet (Table 2). Single-factor between-participants ANOVAs revealed that there was no significant difference between the diagnostic groups for years since commencing regular Internet usage, $F(3, 391) = 0.009$, $p > 0.99$, $\eta_p^2 < 0.001$, but a significant difference between the groups for average weekly number of hours spent on the Internet, $F(3, 415) = 33.49$, $p < 0.001$, $\eta_p^2 = 0.20$. Post hoc pairwise comparisons revealed that the YDQ3 group reported a significantly lower number of hours

TABLE 2. INTERNET USE HISTORY AND WEEKLY DURATION FOR EACH DIAGNOSTIC GROUP

Measure	YDQ0-2 (n = 368)		YDQ3 (n = 19)		YDQ4 (n = 20)		YDQ5+ (n = 17)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Internet use history (yrs)	5.8	2.3	5.9	1.4	5.8	1.4	5.8	1.9
Weekly duration (hrs)*	4.6	5.4	9.4	6.9	16.9	11.0	22.9	35.3

* $p < 0.001$

than the YDQ5+ group ($p < 0.001$) but did not significantly differ from the YDQ0-2 group on this variable ($p = 0.13$). In contrast, the YDQ4 group reported significantly more hours than the YDQ0-2 group ($p < 0.001$) but did not differ from the YDQ5+ group on this variable ($p = 0.25$).

Internet activities. The proportion of each diagnostic group engaging in Internet activities is displayed in Table 3. Chi-square analyses with Bonferroni adjustments for multiple comparisons ($p = 0.005$) revealed significant differences between the four groups for all Internet activities ($p < 0.001$) except Internet surfing ($p = 0.13$), and e-mail ($p = 0.40$).

Post hoc pairwise comparisons with Bonferroni adjustments for multiple comparisons ($p = 0.005$) were conducted to compare the YDQ3 and YDQ0-2 groups and the YDQ3 and YDQ5+ groups on all Internet activities except Internet surfing and e-mail. These comparisons revealed that the YDQ3 group reported higher rates of participation on most Internet activities than did the YDQ0-2 group: chat/instant messaging ($p < 0.001$), newsgroups ($p = 0.005$), multiple user domains ($p < 0.001$), Web logging ($p = 0.004$), and discussion forums ($p < 0.001$); there were no significant differences between the two groups for the remaining Internet activities ($p = 0.009$ to 0.03). Post hoc pairwise comparisons between the YDQ3 and YDQ5+ groups revealed that the two groups did not differ on any Internet activity ($p = 0.30$ to 0.96).

Similarly, post hoc pairwise comparisons using Bonferroni adjustments for multiple comparisons ($p = 0.005$) revealed that the YDQ4 group reported higher rates of participation

on almost all activities than did the YDQ0-2 group: chat/instant messaging ($p < 0.001$), FTP ($p < 0.001$), newsgroups, ($p < 0.001$), multiuser domains ($p < 0.001$), downloading media ($p = 0.005$), online games ($p = 0.003$), discussion forums ($p < 0.001$), and checking homepages ($p < 0.001$); there was no significant difference between the two groups for Web logging ($p = 0.007$). Like the YDQ3 group, the YDQ4 group did not differ on any Internet activity compared to the YDQ5+ group ($p = 0.16$ to 0.94).

Psychological functioning. The diagnostic groups were compared on a range of psychological variables. Examination of Table 4 indicates that the YDQ0-2 group appears to display less severe scores on the psychological functioning measures compared to the other groups. According to the DASS manual,¹⁸ the YDQ0-2 group displayed moderate levels of depression, anxiety, and stress. In contrast, the remaining groups displayed severe to extremely severe levels of depression, anxiety, and stress.

An independent samples MANOVA revealed a significant multivariate difference between the groups on the psychological functioning measures, Wilks's $\Lambda = 0.87$, $F(18, 1171.45) = 3.42$, $p < 0.001$, $\eta_p^2 = 0.05$. Subsequent univariate analyses revealed significant differences on all measures: depression ($p < 0.001$), anxiety ($p < 0.001$), stress ($p = 0.002$), loneliness ($p < 0.001$), self-esteem ($p < 0.001$), and avoidant coping ($p < 0.001$).

Post hoc pairwise comparisons for main effects with Bonferroni adjustments for multiple comparisons revealed that the YDQ3 group displayed significantly more dysfunction

TABLE 3. PROPORTION OF EACH DIAGNOSTIC GROUP ENGAGING IN SPECIFIC INTERNET ACTIVITIES

Internet activity	YDQ0-2 (n = 368)	YDQ3 (n = 19)	YDQ4 (n = 20)	YDQ5+ (n = 17)	χ^2
Internet surfing	83.3	89.5	100.0	94.1	5.70
E-mail	95.0	100.0	100.0	100.0	2.93
Chat rooms/IM	32.9	73.7	84.2	76.5	41.68*
File transfer protocol	21.0	42.1	65.0	52.9	29.77*
Newsgroups	13.6	36.8	45.0	29.4	21.37*
Multiuser domains	9.0	42.1	52.6	29.4	48.66*
Downloading media	48.1	73.7	80.0	82.4	18.38*
Online games	15.0	36.8	40.0	47.1	22.48*
Web logging	16.2	42.1	40.0	41.2	18.95*
Discussion forum	13.1	47.4	42.1	64.7	49.51*
Checking homepages	38.5	68.4	80.0	70.6	34.41*

* $p < 0.001$

TABLE 4. STANDARDIZED MEASURES OF PSYCHOLOGICAL FUNCTIONING FOR EACH DIAGNOSTIC GROUP

Measure	YDQ0-2 (n = 368)		YDQ3 (n = 19)		YDQ4 (n = 20)		YDQ5+ (n = 17)		F (3, 419)
	M	SD	M	SD	M	SD	M	SD	
DASS depression	7.4	7.8	10.7	7.2	17.8	16.8	13.1	8.9	10.28*
DASS anxiety	5.9	6.9	10.2	6.4	11.9	7.8	12.3	7.8	11.45*
DASS stress	11.5	8.1	16.5	6.6	16.0	7.4	15.4	9.7	4.85*
UCLA loneliness	20.4	6.2	24.8	5.7	26.7	6.9	25.8	7.7	9.25*
Rosenberg self-esteem	30.7	4.5	28.5	4.2	26.7	5.3	27.5	6.4	7.55*
COPE-R avoidance	11.7	3.5	14.8	4.1	15.5	4.8	14.0	4.8	9.59*

* $p \leq 0.002$

on most measures of psychological functioning than did the YDQ0-2 group: anxiety ($p = 0.01$), loneliness ($p = 0.03$), and avoidant coping ($p = 0.006$); no significant differences were found for depression ($p = 0.20$), stress ($p = 0.06$), and self-esteem ($p = 0.37$). In contrast, pairwise comparisons between the YDQ3 and YDQ5+ groups revealed no significant difference on any measure of psychological functioning ($p > 0.99$).

Similarly, post hoc pairwise comparisons for main effects with Bonferroni adjustments for multiple comparisons revealed that the YDQ4 group displayed significantly more dysfunction on almost all measures than did the YDQ0-2 group: depression ($p < 0.001$), anxiety ($p = 0.001$), loneliness ($p < 0.001$), self-esteem ($p = 0.003$), and avoidant coping ($p < 0.001$); only stress did not differ between the groups ($p = 0.10$). In contrast, pairwise comparisons between the YDQ4 and YDQ5+ groups revealed no significant difference on any measure of psychological functioning ($p > 0.99$).

Discussion

This study primarily aimed to evaluate the utility of Young's³ proposed diagnostic criteria for Internet dependence as measured by the YDQ. The degree to which the cutoff of five criteria is appropriate to differentiate nondependent from dependent Internet use was evaluated by comparing the Internet usage and psychological dysfunction of individuals scoring 3 or 4 on the YDQ to those scoring 5 or more and those scoring less than 3.

Compared to a marginal proportion of individuals meeting criteria for Internet dependence, the current study identified a relatively high proportion of at-risk Internet users. The results revealed that 4.0% of undergraduate university students were classified as dependent (scoring 5 or more on the YDQ), and a further 9.2% were classified as at risk (scoring 3 or 4 on the YDQ).⁸ These rates are generally consistent with the only other study to examine this group using the YDQ.⁸ Given the apparent vulnerability of university students to developing Internet dependence,^{4,17} it is not surprising that this study found slightly higher rates than those reported in youth in the general population.⁸

The hypothesis that individuals scoring 3 and 4 on the YDQ would spend more time on the Internet and have a longer history of use, participate in a broader range of activities, and display more severe psychological dysfunction than individuals scoring less than 3 was generally supported.

Although there were no significant differences between the diagnostic groups on the history of Internet use and participation in Internet surfing and e-mail, individuals scoring 3 on the YDQ reported higher participation in most Internet activities and displayed more severe scores on most of the standardized measures of psychological dysfunction. Similarly, individuals scoring 4 on the YDQ reported higher participation in all of the Internet activities except Web logging and displayed more severe scores on all of the measures of psychological dysfunction except stress. Taken together, these findings suggest that the proposed diagnostic criteria as measured by the YDQ appear to discriminate those scoring less than 3 on the YDQ from those scoring 3 or 4 in terms of both their Internet use and psychological functioning.

In contrast, the hypothesis that individuals scoring 3 and 4 on the YDQ would spend less time on the Internet and have a shorter history of use, engage in a narrower range of activities, and display less severe psychological dysfunction than individuals scoring 5 or more was not supported. In fact, the findings of this study indicated that individuals scoring 4 displayed an identical pattern of Internet usage and psychological dysfunction to those scoring 5 or more and that those scoring 3 on the YDQ differed from those scoring 5 or more only in terms of the average weekly number of hours on the Internet. Although these results are not generally consistent with the literature using the PIU and IAT,^{9,10,12-15} they suggest that the proposed diagnostic criteria for Internet dependence as measured by the YDQ may not adequately discriminate at-risk users from dependent users in terms of their Internet use and psychological functioning.

These findings have implications for the assessment and diagnosis of Internet dependence because they suggest that individuals scoring 3 or 4 on the YDQ are equivalent in many ways to those individuals scoring 5 or more. Although Young¹¹ desired a rigorous cutoff and argued that the cutoff score of 5 would adequately differentiate normal from dependent Internet use, the findings of this study imply that this score may actually be overly stringent. Specifically, they suggest that the endorsement of three or four criteria may be adequate for the "diagnosis" of Internet dependence.

Of course, reducing the number of required criteria would result in a higher proportion of individuals with Internet use sufficiently problematic to meet the diagnosis of Internet dependence. This may not be desirable given suggestions that the prevalence of "real" Internet dependence may be largely

overrepresented.¹² However, it can be argued that the current cutoffs for defining Internet dependence on the YDQ provide a conservative estimate relative to some other available measures, such as the PIU.¹²

A secondary aim of this study was to compare the rate of individuals classified as dependent using Young's³ diagnostic criteria and Beard and Wolf's¹ modified criteria. The findings indicate that the prevalence of Internet dependence in university students dropped from 4.0% to 0.9% when the YDQ was scored using the modified criteria. It is not surprising that these modifications result in an even more conservative estimation of the prevalence of Internet dependence given the more stringent scoring procedure.

Although there is continued discussion of including Internet dependence in future revisions of the DSM,^{5,6} it is evident that further research is required to determine appropriate cutoffs and explore the accuracy of the diagnostic criteria in identifying Internet dependence.¹ Although there is no gold standard against which to evaluate the proposed criteria, an examination of their concurrent validity as measured by the YDQ with other measures of Internet dependence and clinical interview would contribute to the literature in this area. Until this research is conducted, the findings of the current study should be viewed with caution. Given the limitations in employing a student sample and small samples of individuals classified as at risk and dependent, replication with large representative community samples is required. Moreover, given that diagnoses such as pathological gambling are now employing harm-based definitions,²⁴ a comparison of the diagnostic groups on the consequences of their excessive Internet use is required before drawing any definitive conclusions about whether the diagnostic cutoff employed by the YDQ accurately differentiates nondependent from dependent Internet use.

Whether or not scores of 3 or 4 on the YDQ eventually become conceptualized as at risk or "light" Internet dependence, their similarity to the Internet-dependent group suggests that psychological interventions and treatments should be targeted toward these individuals. Although the cross-sectional nature of this study does not allow for the provision of causal statements concerning the direction of the relationship between psychological dysfunction and Internet dependence (i.e., the degree to which psychological dysfunction promotes vulnerability to Internet dependence or whether the problems produced by Internet dependence produce psychological dysfunction), individuals endorsing 3 or 4 diagnostic criteria displayed psychological problems severe enough to merit psychological intervention.

In conclusion, this study found that the individuals endorsing 3 and 4 diagnostic criteria as measured by the YDQ displayed a pattern of psychological dysfunction and Internet usage that was almost identical to that of the Internet-dependent group. Future research is needed to examine the reliability and validity of the standardized diagnostic tools currently employed to measure Internet dependence. Even more fundamental is the need to resolve the disagreement regarding the conceptual definition of Internet dependence and its validity as a disorder.^{1,2} However, given that these conceptual debates will likely continue for some time, we must be cautious in our use of the available assessment instruments and be aware that individuals endorsing 3 or 4 diagnostic criteria may require assistance in addressing harmful Internet use.

Disclosure Statement

The authors do not have a conflict of interest.

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