RESEARCH ARTICLE

Subjective well-being and vulnerability related to problematic Internet use among university students with and without disabilities: A comparative study

Carlos Herruzo ⬤ | Antonio F. Raya Trenas ⬤ |
Rosario Ruiz-Olivares ⬤ | Valentina Lucena ⬤ |
Javier Herruzo Cabrera ⬤ | María J. Pino ⬤

Department of Psychology, University of Córdoba, Córdoba, Spain

Correspondence
Antonio F. Raya Trenas, Av. San Alberto Magno S/N. 14071, Córdoba, Spain.
Email: antonio.raya@uco.es

Funding information
the Ministry of Science, Innovation, and Universities (MINECO/FEDER), Grant/Award Number: PSI2015–69949-R

Abstract

This study aims to observe whether people with disabilities experience problematic Internet use (PIU) like that of young people without disabilities; to relate PIU to psychological distress in young disabled people and to determine whether these problems are similar to or different from those experienced by young people without disabilities. The sample comprised 408 university students with disabilities and 1386 university students without disabilities from several Spanish universities. PIU was evaluated using the *Internet Addiction Test* (IAT) and psychological distress was evaluated using the *Clinical Outcomes in Routine Evaluation-Outcome Measure* (CORE-OM). The group of university students with disabilities showed less PIU than the nondisabled students, but the worst scores in variables referencing psychological discomfort were found among those students with disabilities who also had PIU. Although the results are not completely generalizable, PIU is related to bigger problems in disabled people for whom it represents a higher risk than for people without disabilities.

1 | INTRODUCTION

Over the past three decades, Internet use has become progressively more widespread, coming to form part of the everyday activity (International Telecommunication Union, 2021). The possibility of accessing an almost infinite amount of information has facilitated changes in people's behavior and in social relations, communication, and mobility (Chauhan et al., 2016; Fontemachi, 2014). The increase in the frequency and duration of Internet use has aroused interest regarding the possible problems it may entail, such as so-called "Internet addiction" or "Problematic Internet Use" (PIU) (Fineberg et al., 2018; Pino et al., 2021). Most authors agree that this problem can be defined as an inability to control the use of the Internet which leads to psychological, social, school, or work difficulties in a person's life (Spada, 2014; Yan et al., 2017).

PIU is a global problem, as reflected in the "*Manifesto for a European Research Network into Problematic Usage of the Internet*" (Fineberg et al., 2018). Due to the more than 20 assessment instruments used to measure it and their associated diagnostic criteria (Pino et al., 2021), however, prevalence rates vary, ranging from 0.8% in Italy to 1.5% in Greece, 4% in the USA, 11.3% in Germany, 16.3% in Spain, and 26.7% in Hong Kong (Aponte et al., 2017; Gómez et al., 2017; Kuss et al., 2014).

The use of the Internet has facilitated the inclusion of people with disabilities in social and professional activities (Campbell & Ling, 2008; Chib & Jiang, 2014; Perry et al., 2001). Several studies and reviews have demonstrated the relationship between Internet use and health, well-being, and mental health (Szulc & Duplaga, 2019). It seems that online communication may be an effective way of building appropriate social support and generating psychological health arrangements, thus offsetting the difficulties of social interaction imposed by disability (Cheatham, 2012; Lee & Cho, 2019; Smedema & McKenzie, 2010; Volkova et al., 2019).

Until now, very few studies have focused on people who have some type of disability. It is believed that the presence of a disability, whether physical or sensory, may increase young people's already confirmed vulnerability considerably, thus generating unquestionable interest in the phenomenon. Studies carried out into this problem in disabled people have to date been scarce and/or their data are inconclusive (Lathouwers et al., 2009; Volkova et al., 2019), sometimes due to methodological difficulties or limited access to samples (Adecco survey, 2016; Suriá, 2012, 2015).

In this regard, Lathouwers et al. (2009) compared the characteristics of Internet access in groups of adolescents with and without physical disabilities, finding no differences between the groups in the way they accessed the Internet or the online activities they engaged in. In another study, Suriá (2015) compared PIU in a sample of young people with and without disabilities and found a higher level of PIU in people with motor disabilities than in people without disabilities (Suriá, 2015). More research is therefore needed to detect PIU differences, if they exist, between disabled and nondisabled youth populations.

Some studies that have analyzed PIU and subjective well-being in young people without disabilities have shown that PIU is linked to greater somatic symptoms (weight loss or gain, insomnia, fatigue, etc.), and greater indicators of social dysfunction and depression (Capilla & Cubo, 2017; Caplan et al., 2009; González & Estévez, 2017). In other studies into young people without disabilities, it has been found that people with PIU experience symptoms like anxiety, irritability, emotional maladjustment, problems with social interaction, and neglect of daily routines (Castro et al., 2018; Marín-Díaz et al., 2017; Parra-Sierra et al., 2016).

As mentioned above, to date most of the research into PIU and its effects has focused on young people without disabilities. For this reason, it is also of interest to ascertain whether PIU can produce different symptoms in people with functional diversity.

The objectives of this paper are, therefore, first to observe whether people with disabilities have PIU similar to that of young people without disabilities, and second to study whether PIU is related to psychological discomfort and problems in young people with disabilities and if these problems are similar to or different from those experienced by young people without disabilities.

2 | METHODS

2.1 | Sampling and participants

The calculation of the sample size was based on the state database of people with disabilities in Spain in 2019, which indicates that 1.5% ($N = 22,190$) of university students have disabilities. The expected statistical power was calculated ($1-\beta = 0.80$) with G*power 3.1, taking into account the statistical analyses to be carried out. A sample group comprising a total of 408 Spanish university students with disabilities was then selected. These students were users of the Disabled Student Support Services of the participating universities. To make use of these services, students had to have a percentage of disability higher than 33%, recognized by the social-health services. 36% of the sample had a motor disability, 22.1% a sensory disability (auditory or visual), and 41.9% other disabilities such as chronic illness (excluding cognitive disabilities). 26.5% were born disabled and the remaining 73.5% had an acquired disability, while 54.2% of the sample were women and 45.8% were men. The average age was 41.87 years ($SD = 13.67$). The sample was recruited by means of an invitation to participate delivered through the Services for Disabled Students at eight Spanish universities (UNED—Spain's national distance learning university—and the universities of Valencia, Cadiz, Malaga, Jaen, La Laguna, Barcelona, and the Basque Country). In this group, 24.4% of the participants were students of Humanities; 41.4% of Social, Economic and Legal Sciences; 11.9% of Sciences and Information and Communication Technologies (ICT), and 22.4% of Health Sciences. In total, therefore, 34.2% were studying Sciences and ICT, and 65.8% were studying Social Sciences and Humanities.

To calculate the sample of students without disabilities, the total number of university students in Spain in 2019 was used ($N = 2,749,711$). The same procedure was followed to select a second sample group made up of a total of 1386 university students without disabilities. 68.7% of this second group were women and 31.3% were men. The average age was 21.81 years ($SD = 4.65$). Cluster sampling was then carried out, choosing classes that were representative of the different macro-areas of knowledge found in the disabled group. As a result, 20.6% of the participants were students of Humanities, 33.7% of Social, Economic and Legal Sciences, 7.4% of Sciences, 8.9% of Health Sciences, and 29.4% of ICT. In total, 45.7% were students of Science and ICT, and 54.3% were students of Social Sciences and Humanities.

2.2 | Instruments

An ad hoc questionnaire was developed, containing a number of instruments.

Sociodemographic and Internet use questionnaire: sex, age, studies, whether the person had a disability, number of hours and percentage of time online: dedicated to leisure, work, studies, and so forth.

Internet Addiction Test (IAT) (Young, 1998), adapted for Spanish speakers by Carbonell et al. (2012) and validated in Spain by Fernández-Villa, Molina, et al. (2015). This test analyses the extent to which Internet use affects a person's daily life, social life, productivity, sleep, and feelings. It consists of 20 elements, evaluated by means of a Likert scale from 0 to 5 (0 = Never; 1 = Almost never; 2 = Occasionally; 3 = Frequently; 4 = Often; 5 = Always). The literature reports internal structures ranging from one to six dimensions. For the present study, a three-dimensional structure was found in the Exploratory Factor Analysis (CMIN/DF = 3159; AGFI = 0.95; IFC = 0.903; NFI = 0.865; IFI = 0.904; TLI = 0.876; RMSEA [90% CI] = 0.073 [0.066–0.081]). However, since these analyses tend to suggest over-dimensioned latent structures, only the global dimension of PIU was used in this study (Faraci et al., 2013; Van

der Eijk & Rose, 2015). Young (2012) proposes a score of 30 as the limit between normal and pathological use. Other authors, such as Jelenchick et al. (2012), set the limit at 40 points. Given the controversy about the number of factors involved, in this study we decided to analyze PIU based on a cutoff point of 40, considering those who obtained scores of 40 or more as problem users (in line with other studies into Spanish populations [Fernández-Villa, Molina, et al., 2015a; Fernández-Villa, Ojeda, et al., 2015b; Young, 2012]). The Cronbach's alpha internal consistency coefficient is close to 0.90. In the present study, the sample alpha coefficient was 0.925.

Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM), by Evans et al. (2002), adapted for Spanish populations by Trujillo et al. (2016). This is a self-report questionnaire consisting of 34 items that assess the subject's condition based on four dimensions: Subjective well-being/discomfort (4 items); Problems/Symptoms (12 items, measuring anxiety, depression, trauma, and physical symptoms); General functioning (12 items, assessing intimate relationships, social relationships, and levels of daily functioning); and Risk (4 items serving as clinical indicators of suicide attempts and self-harm, and 2 items to predict acts of aggression against others). Mean scores below 1 indicate healthy levels. The psychometric properties of this test have demonstrated acceptable levels of internal consistency (Cronbach alpha values between 0.75 and 0.90) and sensitivity in the measurements obtained (Evans et al., 2002). It has been used in numerous clinical settings (Connell et al., 2007; Palmieri et al., 2009) and with a university population (Botella, 2006; Connell et al., 2007).

2.3 | Data collection

The study procedures were carried out in accordance with the Declaration of Helsinki, and the study was approved by the Institutional Review Board of the Andalusian Regional Government (Ethics Committee) (Ref. 3050, record 249, February 4, 2016). After approval by the Ethics Committee, the Disabled Student Support Services of the participating universities were contacted. These services sent an email to the individuals listed in their databases with a link to a website, inviting them to participate in research on Internet use. The email and the first page of the questionnaire informed them that by completing the survey they agreed to allow their responses to be used exclusively for research purposes, in complete confidentiality, and that no data other than their survey responses would be recorded.

To collect the sample of university students without disabilities, schools and universities were contacted. The teachers were asked to reserve a few minutes of a practical class for the students to individually fill out the questionnaire. On the first page of the questionnaire participants were asked to give their informed consent, be informed about the confidentiality of the data, and be assured that the data would be used exclusively for research purposes.

2.4 | Data analysis

The study was carried out following an ex post facto prospective transversal design. Analysis of variance (ANOVA) was used to compare the scores obtained in PIU and in the different factors related to psychological discomfort in the group of people with disabilities, with those obtained in the group of people without disabilities. For all comparisons, the size of the effect was calculated using the η^2 coefficient and considering the classification established by Cohen (1988), according to which a η^2 value lower than 0.1 would be low, between 0.1 and 0.25 would be moderate, and between 0.25 and 0.4 would be high.

The cutoff points set for the IAT and for the different factors of the CORE-OM were used to classify the sample into four groups: people without disabilities and without PIU (G1), people without disabilities but with PIU (G2), people with disabilities but without PIU (G3), and people with disabilities and with PIU (G4). After calculating the average score of each of the four groups in the different factors related to psychological distress, a general univariate linear model was used to identify not only the differences between persons with and without disabilities but also to determine interaction with the dichotomous variable with or without PIU. The different probabilities of

attaining clinical levels in the different indicators of discomfort measured in groups G2, G3, and G4, in comparison with G1, were calculated using the corresponding contingency tables, the χ^2 test, and the odds ratio. All analyses were performed using the Statistical Package for the Social Sciences (SPSS-25).

3 | RESULTS

First, to identify the differences between the groups of people with and without disability with regard to PIU and different indicators of psychological discomfort, the average scores of both groups were calculated for each variable. These average scores are shown in Figure 1, where we can see that the people with disabilities had higher
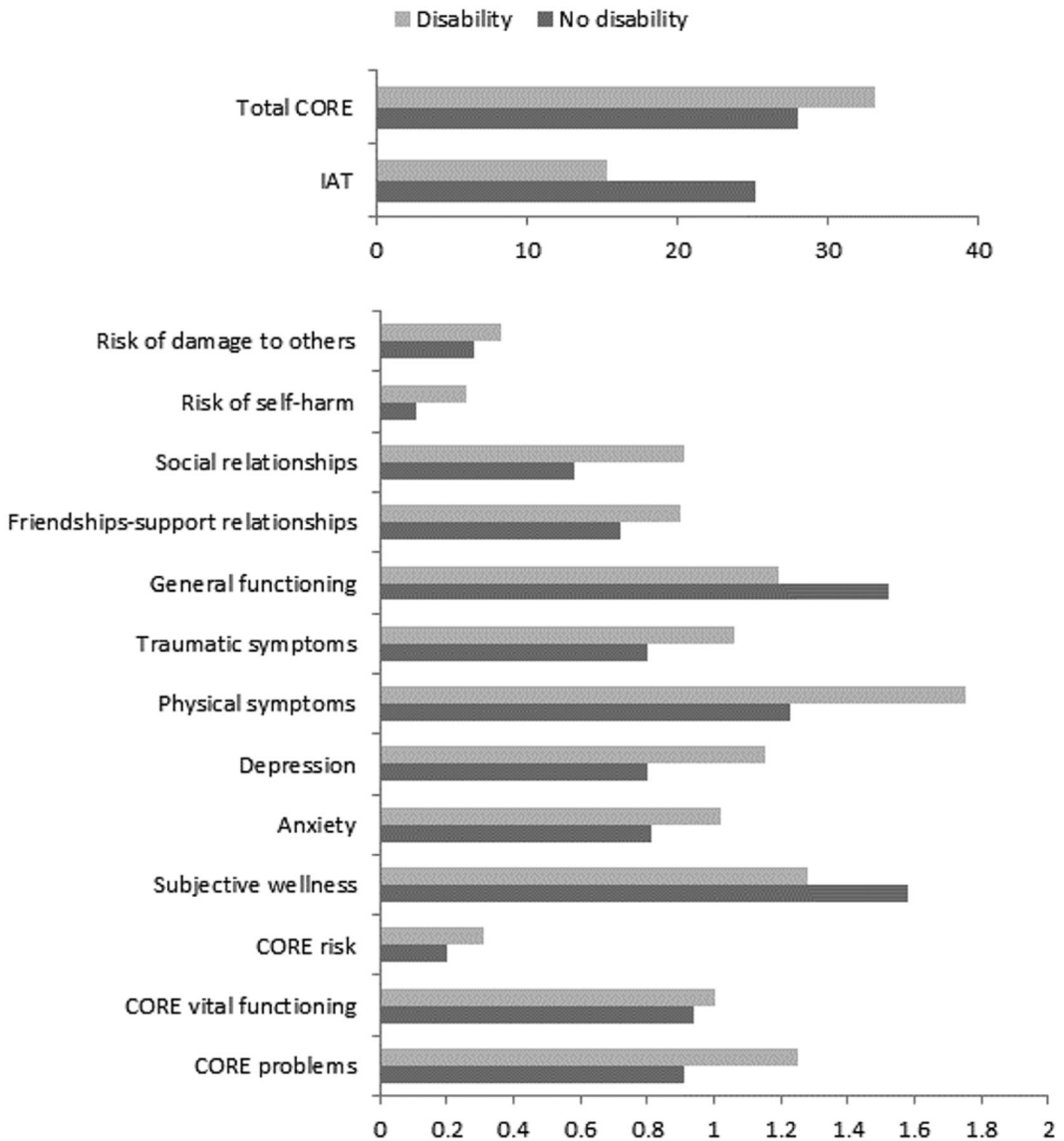

FIGURE 1 Average scores were obtained by the groups of people with and without disabilities in PIU and the CORE-OM factors. CORE-OM, Clinical Outcomes in Routine Evaluation-Outcome Measure; PIU, problematic Internet use

average scores for all the indicators of discomfort, whereas in the case of PIU the higher scores were found in the people without disabilities. Using the cut-off point established in the IAT, 33.3% ($N = 442$) of students without disabilities and 13.5% ($N = 51$) of students with disabilities would therefore display PIU.

The ANOVA gave significant results in all comparisons, with $F = 25.688$ ($p < 0.001$ $\eta^2 = 0.121$) for the total CORE-OM score; $F = 66.818$ ($p < 0.001$ $\eta^2 = 0.200$) for the CORE-OM problem dimension; $F = 4.075$ ($p = < 0.05$ $\eta^2 = 0.057$) for vital functioning; $F = 25.774$ ($p < 0.001$ $\eta^2 = 0.102$) for the risk variable; $F = 61.165$ ($p < 0.001$ $\eta^2 = 0.212$) for subjective wellbeing; $F = 20.976$ ($p < 0.001$ $\eta^2 = 0.105$) for anxiety; $F = 60.698$ ($p < 0.001$ $\eta^2 = 0.188$) for depression; $F = 81.169$ ($p < 0.001$ $\eta^2 = 0.239$) for physical symptoms; $F = 23.298$ ($p < 0.001$ $\eta^2 = 0.113$) for traumatic symptoms; $F = 46.858$ ($p < 0.001$ $\eta^2 = 0.177$) for general functioning; $F = 21.608$ ($p < 0.001$ $\eta^2 = 0.130$) for support-friendship (close relationships); $F = 71.618$ ($p < .001$ $\eta^2 = 0.192$) for problems in social relationships; $F = 39.655$ ($p < 0.001$ $\eta^2 = 0.138$) for risk of self-harm; $F = 6.206$ ($p = < 0.05$ $\eta^2 = 0.315$) for the PIU score obtained through the IAT.

To compare the indicators of psychological distress in university students with and without disabilities who have or do not have PIU, the sample was divided, as explained in the section on design and data analysis, into four groups (G1–G4), created by crossing the dichotomous variables disability versus non-disability and PIU versus non PIU. The average scores of each group are shown in Figure 2.

To identify both the differences between people with and without disabilities and also the differences between people with and without PIU, a general univariate model was used, assessing the possible effect of interaction between these two variables. As can be seen in Table 1, in all cases significant differences were obtained for each main factor and for interaction between the two factors, disability, and PIU interacting with each other to generate significantly different scores on the measured psychological distress indicators.

The percentage of subjects categorized as clinical was then calculated, according to their score in each CORE-OM subscale, in each of the four groups. As can be seen in Table 2, Group 1 (G1), made up of people with neither disabilities nor PIU, showed higher percentages in the "Nonclinical" category for practically all the CORE-OM variables. On the other hand, Group 4 (G4), made up of people with both disabilities and PIU, showed higher percentages in the "clinical" category for almost all the variables. Groups G2 and G3 occupied an intermediate position between groups G1 and G4.

χ^2 tests obtained significant differences in almost all comparisons, especially when group G1 was compared with group G4. ORs were then calculated for each of the CORE-OM factors, comparing groups G2, G3, and G4 with G1. Thus, by way of an example, people from group G4 are up to 14.683 times more likely than people from group G1 to have a clinical score in problems with social relationships (see Table 2).

4 | DISCUSSION

This study set out to identify differences in PIU and its relationship with distress in people with and without disabilities. Given the scarcity of literature on PIU among disabled people, our study is one of the first to provide data that shed light on the impact of ICT on this population.

In this regard, we coincide with Campbell and Ling (2008), Perry et al. (2001), or Chib and Jiang (2014) concerning the way ICTs have really improved the quality of life for disabled people, even more than for non-disabled people. However, it can also be deduced that those university students with disabilities who also display PIU are more vulnerable. These students scored the highest in discomfort and had the highest probability of presenting a clinical score in these factors.

The present work confirms the link between PIU and psychological distress found in other studies focused on nondisabled populations, highlighting problems such as depression, anxiety, and difficulties in social relationships. Although these problems are even more evident in the disabled population (Capilla & Cubo, 2017; Lam-Figueroa et al., 2011; Macías, 2014; Spada, 2014; Torres & Ugalde, 2013), risk is significantly higher for most of the
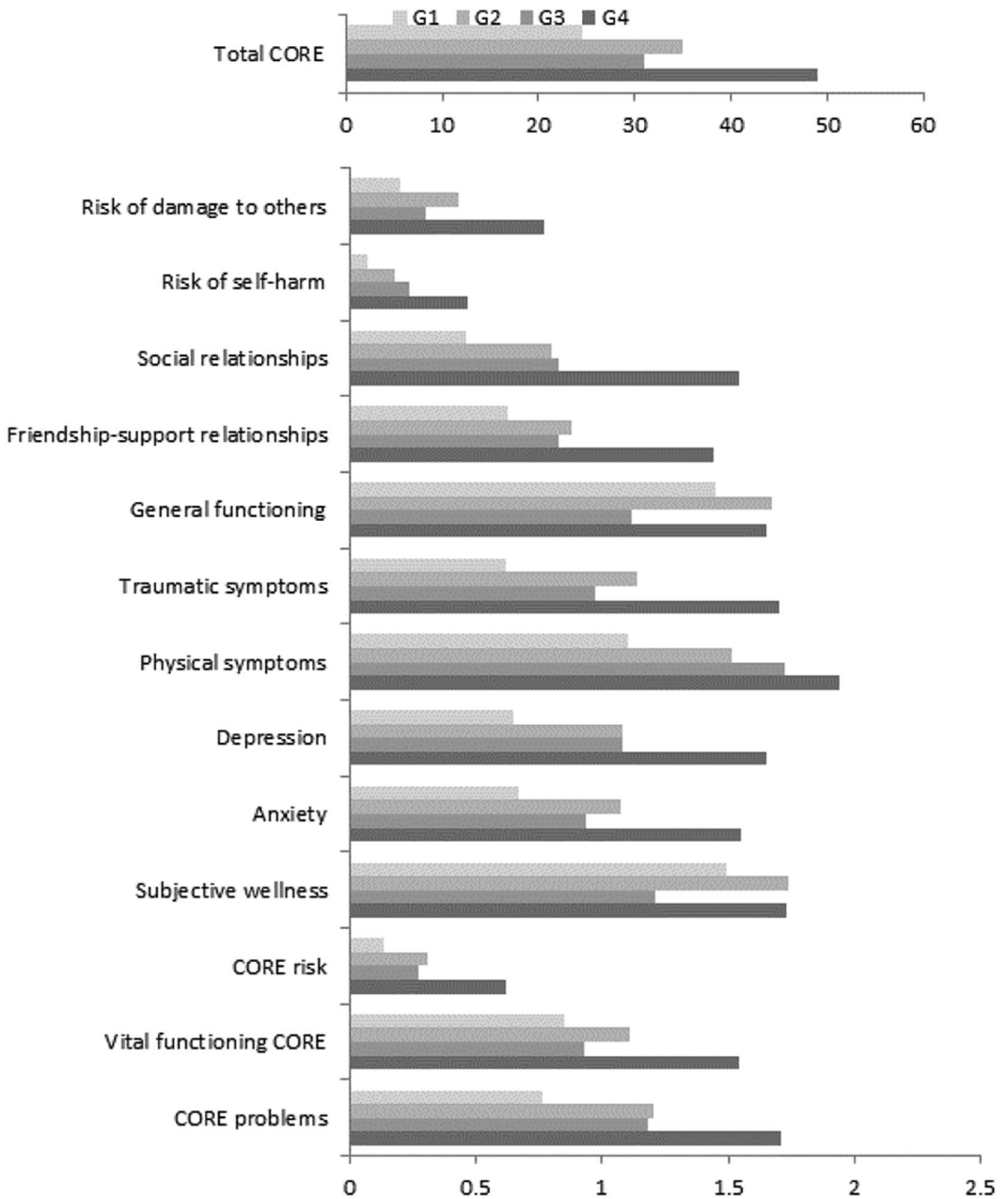
FIGURE 2 Average scores were obtained by groups G1 (people without disabilities and without PIU), G2 (people without disabilities but with PIU), G3 (people with disabilities but without PIU), and G4 (people with disabilities and with PIU) in the CORE-OM factors. CORE-OM, Clinical Outcomes in Routine Evaluation-Outcome Measure; PIU, problematic Internet use

psychological distress factors studied regardless of whether a person is disabled or not. This reinforces the idea of PIU as a real problem worthy of attention, without even entering into the controversy of whether excessive Internet use should be considered an addiction or not (Fineberg et al., 2018; Pino et al., 2021). The figures obtained regarding the risk of self-harm, which is also three times more frequent among those with PIU than among those whose Internet use is normal, make further research in this area even more necessary. All this takes on even more

TABLE 1 Univariate general linear model for the variables of the CORE-OM, using as factors the variables disability/nondisability and PIU/non-PIU

	Model		Intersection		Disab-nondisab		PIU-not PIU	
	F	η^2	F	η^2	F	η^2	F	η^2
Total CORE	65.455*	0.109	2533.413*	0.612	54.222*	0.033	105.666*	0.062
CORE Problems	75.174*	0.120	1812.956*	0.523	68.312*	0.040	73.155*	0.042
Vital functioning CORE	43.354*	0.073	2402.562*	0.594	32.152*	0.019	94.915*	0.055
CORE risk	40.434*	0.068	423.756*	0.202	47.717*	0.028	65.484*	0.038
Subjective wellness	45.768*	0.076	3213.474*	0.658	7.638*	0.005	51.046*	0.030
Anxiety	45.849*	0.076	1137.282*	0.405	35.389*	0.021	64.621*	0.037
Depression	62.802*	0.101	1270.094*	0.432	63.871*	0.037	63.363*	0.037
Physical symptoms	46.333*	0.077	1479.788*	0.469	42.253*	0.025	15.165*	0.009
Traumatic symptoms	53.202*	0.087	879.441*	0.345	37.927*	0.022	71.326*	0.041
General Functioning	28.382*	0.049	1791.466*	0.519	6.182*	0.004	28.995*	0.017
Friendship-support relationships (close relationships)	32.864*	0.056	1142.037*	0.406	44.977*	0.026	58.444*	0.034
Social relationships	69.389*	0.111	1102.016*	0.399	101.905*	0.058	01.992*	0.052
Risk of self-harm	25.409*	0.044	185.062*	0.100	41.223*	0.024	24.728*	0.015
Risk of damage to others	33.305*	0.056	387.592*	0.188	25.541*	0.015	64.839*	0.037

Abbreviations: CORE-OM, Clinical Outcomes in Routine Evaluation-Outcome Measure; PIU, problematic Internet use.
*$p < 0.001$.

importance when considering people with disabilities, because although ICT has improved the living conditions of these people, our data also suggest that PIU is linked to more serious problems in this population, such as problematic social relationships or the risk of self-harm.

In summary, the relationship between, on the one hand, psychological distress, psychological problems, poor social relationships, and anxiety and, on the other, PIU, may indicate that Internet "addiction" could be fulfilling a distress avoidance function through social isolation or experiential avoidance, as suggested in other studies (James & Tunney, 2017). This could in turn be encouraging more isolation and therefore more addiction. The cross-sectional nature of this study, however, makes it difficult to establish whether it is psychological problems that lead to PIU or PIU that lead to psychological problems, or whether the two types of problems are mutually reinforcing. Longitudinal research is therefore needed.

The main limitations of this study stem from the use of the questionnaires. Data collection through self-reporting, although the most direct form of collecting information, may be considered less reliable than other, more standardized, techniques due to the social desirability of responding. The difficulty of incorporating young disabled people into the sample and the lack of earlier research linking PIU to the disabled population have made it difficult to discuss our data. However, it must be said that this sample reflects the real characteristics of the university population with disabilities in Spain: that is to say, disabled people who access university studies at different times in their lives. The age difference between the sample of people with disabilities and people without disabilities imposes caution when interpreting the results. Some evidence, however, such as the fact that the most important differences are between the group of people with disabilities and PIU and the group of people without disabilities or PIU, supports our results. The not-so-important differences obtained between people with and without disabilities who do not have PIU lead us to think that the difference in age between both groups is not as relevant as the

TABLE 2 Percentages of subjects with clinical and nonclinical scores in psychological problems (CORE-OM variables) for groups G1, G2, G3, and G4, χ^2, odds ratio (OR), and confidence interval (CI) for 95% compared with G1

		G1 (n = 886) percentage	OR	G2 (n = 442) percentage	χ^2	OR	CI (95%) low, high	G3 (n = 327) percentage	χ^2	OR	CI (95%) low, high	G4 (n = 51) percentage	χ^2	OR	CI (95%) low, high
Total CORE	Nonclinical	90.2	1	70.3	80.13*	3.88	2.84, 5.28	75.0	44.62*	3.06	2.18, 4.29	44.7	85.79*	11.35	6.12, 21.06
	Clinical	9.8		29.7				25.0				55.3			
CORE Problems	Nonclinical	89.1	1	69.1	78.92*	3.63	2.70, 4.88	71.6	54.32*	3.23	2.34, 4.45	50.0	61.38*	8.14	4.45, 14.89
	Clinical	10.9		30.9				28.4				50.0			
Vital functioning CORE	Nonclinical	84.1	1	66.7	50.91*	2.64	2.01, 3.47	75.6	11.45*	1.71	1.25, 2.34	40.4	57.34*	7.81	4.24, 14.38
	Clinical	15.9		33.3				24.4				59.6			
CORE risk	Nonclinical	87.1	1	71.5	47.77*	2.69	2.02, 3.58	77.2	17.70*	1.99	1.44, 2.76	41.7	72.55*	9.43	5.14, 17.30
	Clinical	12.9		28.5				22.8				58.3			
Subjective wellness	Nonclinical	67.0	1	49.1	39.58*	2.11	1.67, 2.67	72.2	2.94	0.78	0.59, 1.04	47.9	7.43*	2.21	1.23, 3.96
	Clinical	33.0		50.9				27.8				52.1			
Anxiety	Nonclinical	89.1	1	74.4	47.45*	2.81	2.08, 3.80	78.8	21.32*	2.20	1.57, 3.09	58.3	39.30*	5.83	3.16, 10.74
	Clinical	10.9		25.6				21.2				41.7			
Depression	Nonclinical	89.9	1	74.9	51.46*	2.98	2.19, 4.06	71.9	60.30*	3.48	2.51, 4.82	52.2	61.39*	8.19	4.46, 15.03
	Clinical	10.1		25.1				28.1				47.8			
Physical symptoms	Nonclinical	71.5	1	53.7	41.33*	2.17	1.71, 2.75	40.9	95.57*	3.62	2.78, 4.72	25.0	46.12*	7.53	3.86, 14.71
	Clinical	28.5		46.3				59.1				75.0			
Traumatic symptoms	Nonclinical	87.6	1	69.3	65.15*	3.14	2.36, 4.17	74.1	32.45*	2.48	1.80, 3.42	52.1	47.26*	6.52	3.58, 11.90
	Clinical	12.4		30.7				25.9				47.9			

(Continues)

TABLE 2 (Continued)

		G1 (n = 886) percentage	OR	G2 (n = 442) percentage	χ²	OR	CI (95%) low, high	G3 (n = 327) percentage	χ²	OR	CI (95%) low, high	G4 (n = 51) percentage	χ²	OR	CI (95%) low, high
General functioning	Nonclinical	50.8	1	37.9	19.35*	1.69	1.34, 2.14	65.7	21.32*	0.54	0.41, 0.70	43.8	0.91	1.33	0.74, 2.38
	Clinical	49.2		62.1				34.3				56.2			
Friendship-support relationships (close relationships)	Nonclinical	89.6	1	78.5	29.42*	2.35	1.71, 3.21	78.1	26.73*	2.41	1.71, 3.39	52.1	59.03*	7.90	4.31, 14.48
	Clinical	10.4		21.5				21.9				47.9			
Social relationships	Nonclinical	92.8	1	80.0	47.17*	3.23	2.28, 4.57	79.3	44.64*	3.37	2.32, 4.88	46.8	109.58*	14.68	7.84, 27.50
	Clinical	7.2		20.0				20.7				53.2			
Risk of self-harm	Nonclinical	94.2	1	85.1	30.43*	2.86	1.94, 4.21	81.2	48.06*	3.79	2.55, 5.63	62.5	66.87*	9.80	5.12, 18.76
	Clinical	5.8		14.9				18.8				37.5			
Risk of damage to others	Nonclinical	74.8	1	56.2	47.09*	2.31	1.82, 2.95	64.2	13.14*	1.65	1.26, 2.17	35.4	35.57*	5.41	2.94, 9.96
	Clinical	25.2		43.8				35.8				64.6			

Abbreviations: CORE-OM, Clinical Outcomes in Routine Evaluation-Outcome Measure; PIU, problematic Internet use.

*$p < 0.001$. G1, people without disabilities and without PIU; G2, people without disabilities and with PIU; G3, people with disabilities and without PIU; G4, people with disabilities and with PIU. χ^2 and OR compare G2, G3, and G4 with G1.

existence of PIU. On the other hand, the lower PIU obtained in the sample of persons with disabilities may be due in part to the age difference between the groups. This contrasts with the results obtained in other, previous studies (Lathouwers et al., 2009; Suriá, 2015), although it is also true that more problems were found among people with PIU, as previously reported in studies where such age differences were not appreciated (Capilla & Cubo, 2017; Caplan et al., 2009; Castro et al., 2018; González & Estévez, 2017; Marín-Díaz et al., 2017; Parra-Sierra et al., 2016).

In conclusion, this study emphasizes the importance of making good use of ICT to avoid the appearance or aggravation of potential problems associated with inappropriate Internet use. This takes on special relevance in students with disabilities, for whom the risk of such problems is especially serious due to the living conditions and associated problems they often have to endure. It is therefore considered necessary to have PIU prevention programs that include both the disabled and the nondisabled population, with particular emphasis on the former. Results like those obtained in this study can be incorporated into prevention and treatment guidelines for professionals and families, to allow early diagnosis of PIU and associated psychological problems in people with and without disabilities. Further research still needs to be carried out to try to replicate the results obtained in samples with more homogeneous distributions in terms of socio-demographic variables like age, and also other variables not addressed in this study, such as the geographical area of origin of the participants. Comparison with the non-university population could also be considered.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ORCID

Carlos Herruzo http://orcid.org/0000-0002-9555-7930
Antonio F. Raya Trenas https://orcid.org/0000-0001-6706-4883
Rosario Ruiz-Olivares http://orcid.org/0000-0001-7580-575X
Valentina Lucena http://orcid.org/0000-0002-7011-6661
Javier Herruzo Cabrera https://orcid.org/0000-0001-6940-1222
María J. Pino https://orcid.org/0000-0003-2740-2395

PEER REVIEW

The peer review history for this article is available at https://publons.com/publon/10.1002/jcop.22746

REFERENCES

ADECCO. (2016). Informe 2016. Infoempleo-ADECCO. Redes sociales y mercado de trabajo. https://www.adeccogroup.es/wpcontent/uploads/2017/11/Informe-2017-Empleoy-Redes.-Infoempleo-Adecco.pdf

Aponte, D., Castillo, P., & González, J. (2017). Prevalence of internet addiction and its relationship with family dysfunction in adolescents. *Clinical Journal of Family Medicine*, 10(3), 179–186.

Botella, L. (2006). Routine evaluation in psychotherapy service: The use of CORE System data. *European Journal of Psychotherapy and Counselling*, 8, 235–241.

Campbell, S. W., & Ling, R. (2008). Effects of mobile media. In J. Bryant, & M. Oliver (Eds.), *Media effects: Advances in theory and research* (3rd ed., pp. 592–606). Lawrence Erlbaum. Associates.

Capilla, E., & Cubo, S. (2017). Phubbing. Wing network connected and disconnected from reality. An analysis in relation to psychological well-being. *Journal of Media and Education*, *50*(1), 173–185. https://doi.org/10.12795/pixelbit.2017.i50.12

Caplan, S., Williams, D., & Yee, N. (2009). Problematic Internet use and psychosocial wellbeing among MMO players. *Computers in Human Behavior*, *25*(6), 1312–1319. https://doi.org/10.1016/j.chb.2009.06.006

Carbonell, X., Fúster, H., Chamarro, A., & Oberst, U. (2012). Internet and mobile phone addiction: A review of Spanish empirical studies. *Papeles del Psicólogo*, *33*(2), 82–89.

Castro, J., Vinaccia, S., & Ballester-Arnal, R. (2018). Ansiedad social, adicción a internet y el cibersexo: Su relación con la percepción de la salud. *Terapia Psicológica*, *36*(6), 134–143.

Chauhan, S., Agarwal, N., & Kar, A. K. (2016). Addressing big data challenges in smart cities: A systematic literature review. *Info*, *18*(4), 73–90. https://doi.org/10.1108/info-03-2016-0012

Cheatham, L. P. (2012). Effects of internet use on well-being among adults with physical disabilities: A review. *Disability and rehabilitation. Assistive Technolog*y, *7*, 181–188.

Chib, A., & Jiang, Q. (2014). Investigating modern-day Talaria: mobile phones and the mobility-impaired in Singapore. *Journal of Computer-Mediated Communication*, *19*(3), 695–711. https://doi.org/10.1111/jcc4.12070

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Earlbaum Associates.

Connell, J., Barkham, M., Stiles, W. B., Twigg, E., Singleton, N., Evans, O., & Miles, J. N. V. (2007). Distribution of CORE-OM scores in a general population, clinical cut-off points and comparison with the CIS –R. *British Journal of Psychiatry*, *190*, 69–74.

Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., & Audin, K. (2002). Towards a standardised brief outcome measure: Psychometric properties and utility of the CORE-OM. *British Journal of Psychiatry*, *180*, 51–60.

Faraci, P., Craparo, G., Messina, R., & Severino, S. (2013). Internet Addiction Test (IAT): Which is the best factorial solution? *Journal of Medical Internet Research*, *15*(10), 225. https://doi.org/10.2196/jmir.2935

Fernández-Villa, T., Molina, A. J., García-Martín, M., Llorca, J., Delgado-Rodríguez, M., & Martín, V. (2015). Validation and psychometric analysis of the Internet Addiction Test in Spanish among college students. *BMC Public Health*, *15*, 953–963. http://hdl.handle.net/10481/38533

Fernández-Villa, T., Ojeda, J. A., Gómez, A. A., Carral, J. M. C., Delgado-Rodríguez, M., García-Martín, M., & Valero-Juan, L. F. (2015). Problematic use of Internet in university students: Associated factors and gender differences. *Adicciones*, *27*(4), 265-275. https://pubmed.ncbi.nlm.nih.gov/26706809/

Fineberg, N., Demetrovics, Z., Stein, D., Ioannidis, K., Potenza, M., Grünblatt, E., Brand, M., Billieux, J., Carmi, L., King, D., Grant, J., Yücel, M., Dell'Osso, B., Rumpf, H., Hall, N., Hollander, E., Goudriaan, A., Menchon, J., Zohar, J., … Chamberlain, S. (2018). Manifesto for a European research network into problematic usage of the internet. *European Neuropsychopharmacology*, *28*, 1232–1246. https://doi.org/10.1016/j.euroneuro.2018.08.004

Fontemachi, M. (2014). Prevention of technological addictions in Argentinean adolescents (master's thesis). University of Valencia. https://core.ac.uk/download/pdf/71027907.pdf

Gómez, P., Rial, A., Braña, T., Golpe, S., & Varela, J. (2017). Screening of problematic internet use among spanish adolescents: Prevalence and related variables. *Cyberpsychology, Behavior and Social Networking*, *20*(4), 259–267.

González, N., & Estévez, A. (2017). Perceived social support moderated between problematic internet use and depressive symptomatology in young adults. *Health and Addictions: Health and Drugs*, *17*, 53–62.

International Telecommunication Union. (2021). *Digital trends in Europe 2021*. https://www.itu.int/en/myitu/Publications/2021/02/05/14/28/Digital-trends-in-Europe-2021

James, R. J., & Tunney, R. J. (2017). The need for a behavioural analysis of behavioural addictions. *Clinical Psychology Review*, *52*, 69–76. https://doi.org/10.1016/j.cpr.2016.11.010

Jelenchick, L. A., Becker, T., & Moreno, M. A. (2012). Assessing the psychometric properties of the Internet Addiction Test (IAT) in US college students. *Psychiatry Research*, *196*(2-3), 296–301. https://doi.org/10.1016/j.psychres.2011.09.007

Kuss, D. J., Griffiths, M. D., Karila, L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design*, *20*(25), 4026–4052. https://doi.org/10.2174/13816128113199990617

Lam-Figueroa, N., Contreras-Pulache, H., Mori-Quispe, E., Nizama-Valladolid, M., Gutiérrez, C., Hinostroza-Camposano, W., Torrejón Reyes, E., Hinostroza-Camposano, R., Coaquira-Condori, E., & Hinostroza-Camposano, W. D. (2011). Adicción a internet: Desarrollo y validación de un instrumento en escolares adolescentes de Lima. *Revista Peruana Med Exp Salud Pública*, *28*(3), 462–469.

Lathouwers, K., de Moor, J., & Didden, R. (2009). Access to and use of Internet by adolescents who have a physical disability: A comparative study. *Research in Developmental Disabilities*, *30*(4), 702–711. https://doi.org/10.1016/j.ridd.2008.09.003

Lee, H. E., & Cho, J. (2019). Social Media use and well-being in people with physical disabilities: Influence of SNS and online community uses on social support, depression, and psychological disposition. *Health Communication*, *34*, 1043–1052.

Macías, M. I. (2014). Mobile phone addiction and its repercussions on the health of the young population of Navarre (end of degree work). Pamplona: Public University of Navarra.

Marín-Díaz, V., Sampedro Requena, B. E., & Vega Gea, E. (2017). Psychometric study of the application of the Internet Addiction Test with Spanish university students. Educational contexts. *Journal of Education*, *2*(2), 147. https://doi.org/10.18172/con.3067

Palmieri, G., Evans, C., Hansen, V., Brancaleoni G., Ferrari S., Porcelli P., Reitano F., Rigatelli M. (2009). Validation of the Italian version of the clinical outcomes in routine evaluation outcome measure (CORE-OM). *Clinical Psychology and Psychotherapy*, *16*(5), 444-449. https://doi.org/10.1002/cpp.646

Parra-Sierra, V., Vargas Martínez, J. I., Zamorano González, B., Peña Cárdenas, F., Velázquez Narváez, Y., Ruiz Ramos, L., & Monreal Aranda, O. (2016). Adicción y factores determinantes en el uso problemático del Internet en una muestra de jóvenes universitarios. *Edutec. Revista Electrónica de Tecnología Educativa*, *2*(56), 60–73.

Perry, M., O'hara, K., Sellen, A., Brown, B., & Harper, R. (2001). Dealing with mobility: Understanding access anytime, anywhere. *ACM Transactions on Computer-Human Interaction (TOCHI)*, *8*(4), 323–347.

Pino, M. J., Herruzo, J., Raya, A., Ruiz-Olivares, R., & Herruzo, C. (2021). Development of IAT-12, a reduced Spanish version of the internet addiction test. *Current Psychology*. https://doi.org/10.1007/s12144-020-01167-4

Smedema, S. M., & McKenzie, A. R. (2010). The relationship among frequency and type of internet use, perceived social support, and sense of well-being in individuals with visual impairments. *Disability and Rehabilitation*, *32*, 317–325.

Spada, M. M. (2014). An overview of problematic Internet use. *Addictive Behaviors*, *39*(1), 3–6. https://doi.org/10.1016/j.addbeh.2013.09.007

Suriá, R. (2012). Redes sociales online y su utilización para mejorar las habilidades sociales en jóvenes discapacitadas. *Escritos de Psicología*, *5*, 16–23. http://scielo.isciii.es/pdf/ep/v5n3/original_3.pdf

Suriá, R. (2015). Disability in young people, increases the risk of excessive internet use? *Health and Addictions*, *15*, 15–24. http://hdl.handle.net/10045/44528

Szulc, K., & Duplaga, M. (2019). The impact of Internet use on mental wellbeing and health behaviours among persons with disability. *European Journal of Public Health*, *185*(29 Suppl_4):S425. https://doi.org/10.1093/eurpub/ckz185.425

Torres, M. G., & Ugalde, D. P. (2013). Prevalence of ICT addiction and mood disorders in students of the Faculty of Medical Sciences of the University of Cuenca (unpublished doctoral thesis). Ecuador: University of Cuenca.

Trujillo, A., Feixas, G., Bados, A., García-Grau, E., Salla, M., Medina, J. C., Montesano, A., Soriano, J., Medeiros-Ferreira, L., Cañete, J., Corbella, S., Grau, A., Lana, F., & Evans, C. (2016). Psychometric properties of the Spanish version of the clinical outcomes in routine evaluation: Outcome measure. *Neuropsychiatric Disease and Treatment*, *12*, 1457–1466.

Van der Eijk, C., & Rose, J. (2015). Risky business: Factor analysis of survey data: Assessing the probability of incorrect dimensionalisation. *PLoS One*, *10*(3), 0118900. https://doi.org/10.1371/journal.pone.0118900

Volkova, I. P., Koroleva, N. N., Bogdanovskaya, I. M., Ikonnikova, G., Yu, & Mashkova, A. V. (2019). Problematic Internet usage by adolescents with disabilities. *The Education and Science Journal*, *9*(21), 98–121. https://doi.org/10.17853/1994-5639-2019-9-98-121

Yan, J., Zhang, A., Zhou, L., Huang, Z., Zhang, P., & Yang, G. (2017). Development and effectiveness of a mobile phone application conducting health behavioral intervention among men who have sex with men, a randomized controlled trial: Study protocol. *BMC Public Health*, *17*(1), 1–8. https://doi.org/10.1186/s12889-017-4235-6

Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. *Cyberpsychology and Behavior*, *1*, 237–244.

Young, K. S. (2012). *Clinical assessment of internet-addicted clients, Internet addiction: A handbook and guide to evaluation and treatment*. John Wiley, Sons.