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A cross-national validation of the Internet Severity and Activities Addiction Questionnaire (ISAAQ)

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ABSTRACT

Problematic usage of the internet (PUI) is of increasing concern in a digitalized world. While several screening tools have been developed to assess PUI, few have had their psychometric properties evaluated, and existing scales are also not typically designed to quantify both the severity of PUI and the nature of diverse problematic online activities. The Internet Severity and Activities Addiction Questionnaire (ISAAQ), consisting of a severity scale (ISAAQ Part A) and an online activities scale (ISAAQ part B) was previously developed to address these limitations. This study undertook psychometric validation of ISAAQ Part A using data from three countries. The optimal one-factor structure of ISAAQ Part A was determined in a large dataset from South Africa, then validated against datasets from the United Kingdom and United States. The scale had high Cronbach's alpha ($\geq$0.9 in each country). A working operational cut-off point was determined to distinguish between those with some degree of problematic use and those without (ISAAQ Part A), and insight was given into the types of potentially problematic activities that may encompass PUI (ISAAQ Part B).

1. Introduction

The internet has changed the way that people socialise, absorb knowledge, and handle personal activities. It benefits humankind in many life domains, including education, personal relationships, and the economy. However, epidemiological studies and clinical research increasingly show that internet usage may become problematic for some individuals [42,54]. Problematic usage of the internet (PUI) is an umbrella term to describe abnormal or uncontrollable behaviours that are manifested through the internet [14]. Its core features may include preoccupation with the internet and digital media, the inability to control the amount of time spent interfacing with digital technology [7], a continuation of the behaviour despite interpersonal conflict, a diminishing social life and/or adverse work or academic consequences [12,31].

The literature on PUI has expanded rapidly in recent years yet marked knowledge gaps still exist, with one of the main caveats being limited consensus on the aspects that should be covered by PUI assessment scales [40], partially explaining why PUI rates range so widely. Many instruments have major limitations in the way they capture a wide range of problematic online behaviours [25].

The original IAT has historically demonstrated good psychometric properties including high internal consistency, reliability, construct validity, and criterion-related validity [51,52]. When applied to diverse populations however, it produced inconsistent psychometric results, including an unstable factor structure [36,45]. Many subsequent instruments have tried to capture PUI as an umbrella term, such as the Compulsive Internet Use Scale [30], the Online Cognition Scale [56] and the Problematic Internet Use Questionnaire [44], with good psychometric properties. However, limitations pertaining to the lack of

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external validation of current PUI measures suggest the necessity of further refinement of scales to properly capture the observed problematic online phenomena in all its forms [45]. While there are instruments that capture specific PUI facets individually such as the Problematic Pornography Use Scale [24], many existing general PUI assessment scales disregard measuring the types (or facets) of online activities that are performed. As characterising the impacts of different forms of PUI on health and quality of life has been one of the key research priorities to advance the understanding of PUI [14], it has become a priority to capture those facets via validated assessment tools.

Whilst there are several screening tools to assess PUI, with as many as 45 instruments reported and some showing promising psychometric qualities [22,25], few have been rigorously validated. Furthermore, there is currently no published tool which quantifies overall severity of PUI whilst concurrently quantifying frequency of use of multiple forms of internet-based activities. To address the caveats in assessment scales pertaining to internet use severity and related activities, the Internet Severity and Activities Addiction Questionnaire (ISAAQ, Ioannidis & Chamberlain, data in file 2017) was previously developed. It is the first scale that assesses both the severity of PUI in general, as well as quantifies the different types of problematic online activities. In developing the ISAAQ, the test developers sought out to broaden the domains of interest to capture not only classic addiction but also other potential diagnostic points, and therefore incorporated concepts in existing neurobiological models such as impulsivity and compulsivity in the measurement of PUI using the ISAAQ.

In the current study, we aimed to determine the psychometric properties of- and validate the ISAAQ severity scale across three distinct recruitment sites, namely South Africa (SA), the United Kingdom (UK) and the United States of America (USA). This included the identification of its optimal factor structure and calculation of its reliability and validity metrics. Secondly, we aimed to determine a potential working operational demarcation point indicating the boundary between "normal" and "potentially problematic" internet use, based on established cut-offs from previous work. Our third aim was to provide insight into specific potentially problematic internet activities across the three samples using the ISAAQ Part B.

2. Method

2.1. Study design, recruitment, and inclusion criteria

This was a cross-sectional study across three independent jurisdictions. A total of 4507 adults completed an online survey on internet use and mental health, hosted on the Qualtrics platform (https://www.qualtrics.com/uk/). The average time of completion of the online survey was 30–60 min, and the survey was conducted in English. In the SA sample, participants were recruited across several online platforms using convenience and snowballing sampling strategies. Criteria for inclusion was age 18–60 years, ability to undertake the study procedures and with access to the Internet. In the UK and USA samples, participants were recruited through on online platform called Profilic (https://www.prolific.co/), in which subjects participated in paid research. Criteria for inclusion were age 18–30 years, currently residing in the UK or USA, and having access to the internet. No exclusion criteria were applied.

2.2. Assessments

The following assessments were included in the survey:

2.2.1. Internet severity and activities addiction questionnaire (ISAAQ)

The ISAAQ is a two-part screening tool designed to measure severity of PUI in general (ISAAQ Part A) and amount of time spent on specific non-work and non-study related internet activities (ISAAQ Part B) respectively, using a 6-point Likert continuum scale per item (0 = "*Not at all*" to 5 = "*All the time*"). For purposes of this study, ISAAQ Part A was analysed for reliability/validity. ISAAQ Part A consists of 15 items and Part B consists of 10 items. The ISAAQ copyright holders are Samuel R Chamberlain and Konstantinos Ioannidis (2017).

2.2.2. Internet addiction test – 10 item scale (IAT-10)

The newly adapted IAT-10 scale [46], based on the original IAT [55], was employed in the study to determine convergent validity of the ISAAQ Part A, as well as to present a cut-off reference category when determining score that can distinguish between potentially problematic and non-problematic internet users. The tool consists of 10 items and is assessed on a five-point Likert scale (from 1 = "*Rarely*" to 5 = "*Always*"). Validation by Tiego et al. [46] showed the tool to be a good measure of PUI understood unidimensionally at a generalized level, even when applied to two independent samples across different geographical locations, using rigorous psychometric validation including item response theory (Stellenbosch, South Africa, and Chicago, United States). Coupled with favourable psychometric properties reported above, including high reliability (Cronbach's $\alpha = 0.80$), this brief version of the original tool was employed in this study to measure PUI more confidently whilst also mitigating the risk of a higher attrition rate due to the lengthiness of the overall survey.

2.3. Statistical analysis

Statistical procedures were conducted using Statistical *R* Lavaan Package, on a final sample of 4203 adult participants from SA, UK, and USA. Packages used for plotting included "ggplot2" and "tidyverse". Descriptive statistics were computed by means of frequency and percentage distributions, and an analysis of variance was performed to determine if there were quantitative differences of statistical significance and effect size worth noting across the three recruitment sites. The internal consistency of the ISAAQ was assessed using Cronbach's α reliability analysis, with a value of >0.70 considered acceptable. As we obtained the largest sample size in the SA dataset, we performed confirmatory factor analysis (CFA) with diagonally weighted least squares (DWLS) estimation in the SA sample to confirm the unidimensional model fit to the ISAAQ Part A, in line with previous research findings [46]. Factor loadings of >0.30 was deemed acceptable [10]. The model fit was then replicated in the UK and USA datasets. Convergent validity was measured by means of standard Pearson correlation analysis against a similar scale of PUI, namely the IAT-10.

A demarcation point was computed by means of receiver operating characteristics (ROC) analysis and area under the curve (AUC) matrices, to discriminate between patients with the disorder (class 1) and healthy controls (class 2) [15]. We used the IAT-10 as the index test for screening for PUI, based on the previous works of Tiego et al. [45,46]. Based on the authors' dataset, a threshold score of >24 was set as the reference category for determining PUI-positive cases in their sample. This threshold was based on participants scoring in the top 25th percentile who showed at least some meaningful levels PUI (moderate to severe). To test clinical relevance for the proposed threshold applied, the two groups were compared on a clinically relevant outcome variable of PUI, namely quality of life (QOL), using the Brunnsviken Brief Quality of Life Scale [28], an established measure of subjective QOL. Independent samples testing yielded a clear difference in the level of QOL in each group, with the PUI group showing a significantly lower/impaired QOL with medium effect size (Cohen's d = 0.502) than healthy controls, thereby qualifying our rationale for using the proposed threshold of IAT-10 > 24 as the reference category in computing the ISAAQ Part A demarcation point in our sample.

The student's *t*-test was used to determine whether the mean differences between PUI and non-PUI groups in terms of the types of internet activities individuals may engage in were statistically significant, and distribution scores were illustrated to provide input into the nature of potentially problematic online behaviours observed in the sample.

2.4. Ethical considerations

This study was approved by the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences at Stellenbosch University prior to commencement (Reference: S20/11/301) for SA recruitment and by the Cambridge Psychology Research Ethics Committee (Reference: PRE.2020.141) for UK and USA recruitment. Informed consent was obtained from participants online, which highlighted the aim and objectives of the intended study, as well as potential benefits and risks of participating. All data collected were kept on a secure server to maintain confidentiality, curated to remove personal identifiable data and no individual responses were accessible beyond the research team.

3. Results

3.1. Descriptive statistics

Table 1 depicts the demographic profile of study participants across all samples. Of all the participants included in the study, the majority were White/Caucasian and female, with the groups' mean ages ranging from 23 to 25 years (SA: M = 24, SD = 8.27; UK: M = 24, SD = 3.49; USA: M = 23, SD = 3.71). The education levels of the participants ranged from high school grade qualifications to postgraduate studies. Tests of invariance indicated that whilst there was no significant statistical difference across the groups in terms of gender (X^2 (1, $N = 4474$) = 3.8, $p = 0.15$), however one or more groups showed variance in terms of age (F (2, 4465) = 4.51, $p = 0.01$) as well as relationship status (X^2 (4, $N = 4508$) = 85.64, $p < 0.01$), ethnicity (X^2 (10, $N = 4508$) = 1263.07, p < 0.01) and education levels (X^2 (6, N = 4508) = 551.96, p < 0.01) (Bonferroni corrected). In terms of age, the SA and USA groups presented as similar ($p = 0.13$), whilst the UK and USA groups differed slightly across the reported range of 23–25 years (p < 0.01), with a medium effect size (Cohen's $d = 0.42$). In terms of ethnicity, the SA group portrayed a diverse ethnic group with a much higher percentage of Black Africans compared to the UK and USA cohorts.

3.2. Internal consistency and item characteristics

The ISAAQ Part A showed very high internal consistencies in all three samples, with the strongest scale reliability in the SA dataset (α = 0.92). See Table 2 for summaries.

Table 1
Descriptive statistics.

	South African (SA) sample		United Kingdom (UK) sample		Unites States (USA) sample	
	(*N* = 3344)	%	(*N* = 569)	%	(*N* = 290)	%
Gender						
Male	1160	35%	209	37%	86	30%
Female	2169	65%	353	62%	196	68%
Other	15	0%	7	1%	8	2%
Ethnicity						
Black	1151	34%	21	4%	31	11%
Coloured / Mixed race	474	14%	21	4%	9	3%
Indian	250	7%		–		–
White / Caucasian	1429	43%	443	78%	181	62%
Other (incl. Asian)	40	1%	84	14%	69	24%
Level of Education						
Less than high school	4	0%	41	7%	1	1%
High school graduate	1312	39%	176	31%	56	19%
Some college / university	900	27%	8	1%	99	34%
College / university graduate	1128	34%	324	60%	134	46%

3.3. Construct validity

3.3.1. Identifying and confirming an optimal factorial solution in the SA cohort

Confirmatory factor analysis (CFA) with DWLS estimation was used to verify whether the ISAAQ Part A is a unidimensional scale, in line with the theoretical conceptualization of PUI as a unidimensional quasi-trait [46]. The fit indices indicated an acceptable model fit, with RMSEA = 0.069 (acceptable fit is RMSEA <0.8), NNFI = 0.99 (>0.96), CFI = 0.99 (>0.96) and SRMR = 0.05 (<0.09). Construct reliability (CR = 0.94) and the average variance extracted (AVE = 0.51) indicated good item loadings. All loadings were significant ($p < 0.001$) and ranged between 0.56 and 0.83. Factor loadings are presented in Table 3.

3.3.2. Confirming the unidimensional model fit in the UK cohort

The ISAAQ Part A scale which was implemented in the UK cohort showed good composite reliability (Cronbach's α = 0.93). Based on the findings presented in the SA cohort, we opted to compute CFA with DWLS estimation to determine whether a one-factor structure could be replicated in the UK sample. Results indicated good fitness metrics for a one-factor structure presented in the ISAAQ Part A scale using the UK sample ($N = 569$; $\chi2 = 419.84$, df = 90, $p < 0.001$; CFI = 0.984; TLI = 0.998; RMSEA = 0.080 [0.073–0.088] Cfit >0.90; SRMR = 0.06), and the component explained 46% of the variance (Table 4).

3.3.3. Confirming the unidimensional model fit in the USA cohort

The ISAAQ Part A scale which was implemented in the USA cohort showed good composite reliability (α = 0.92). Again, we opted to compute CFA with DWLS estimation to determine whether a one-factor structure could be replicated in the USA sample. Results showed good fit for a one-factor model in the observed data ($N = 290$; $\chi2 = 361.85$, df = 90, p < 0.001; CFI = 0.971; TLI = 0.966; RMSEA = 0.103 [0.092–0.114] Cfit >0.90; SRMR = 0.08), and the component explained 44% of the variance.

3.4. Convergent validity

The IAT-10 was used for comparability purposes. The tool showed good internal consistency when applied across all three sites combined (Cronbach's α = 0.86). Standard Pearson correlation analysis was computed to determine convergent validity of the ISAAQ Part A in the sample. A strong positive correlation was found when comparing the ISAAQ Part A to the IAT-10 (Pearson's $r = 0.91$; $p < 0.01$) and correcting for unreliability of both measures via correction of attenuation. Convergent validity of the ISAAQ Part A was further verified by means of acceptable construct reliability (CR = 0.94) and Average Variance Extracted (AVE = 0.51).

3.5. Calculating a working operational threshold for ISAAQ part A

To determine a working operational demarcation point to distinguish between PUI and healthy internet usage using the ISAAQ Part A, ROC AUC was computed on the data from all three sites combined (see

Table 2
Item characteristics of the ISAAQ Part A in SA, UK and USA samples.

	Reliability (α)	Corrected inter-item correlations	Average inter-item correlation
SA sample	0.92	0.48–0.77	0.52
UK sample	0.91	0.47–0.71	0.40
US sample	0.90	0.45–0.72	0.38

Table 3
Factor Loadings for the One-Factor Model of the ISAAQ Part A in the SA Cohort.

Item	Factor Loading
1	**0.76**
2	**0.74**
3	**0.75**
4	**0.83**
5	**0.56**
6	**0.58**
7	**0.76**
8	**0.60**
9	**0.61**
10	**0.65**
11	**0.82**
12	**0.79**
13	**0.74**
14	**0.73**
15	**0.74**

Note. $N = 3344$. CFA with direct oblimin rotation. Significant factor loadings (all items) are presented in **bold.**

Table 4
Goodness of Fit Indices of Model of the ISAAQ Part A.

Model	χ^2	*df*	SRMR	CFI	TLI	GFI	RMSEA
Single Factor***	1542.03	90	0.05	0.991	0.990	0.994	0.069

***$p < 0.0001$, 95% Confidence interval.

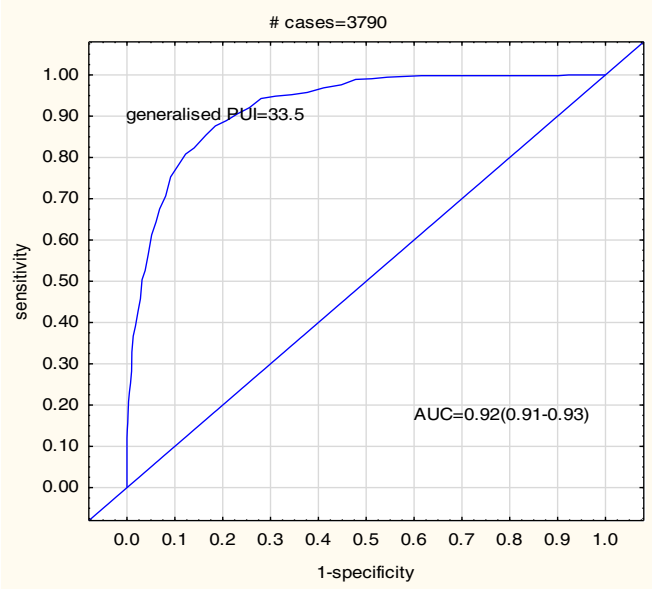

Fig. 1. Receiver operating characteristics curve based on ISAAQ Part A data.

Fig. 1). As noted previously, a threshold score of >24 on the IAT-10 was utilized as the reference category (cf. [46]) . Results suggested a demarcation point of 33.5 for the ISAAQ Part A total (AUC = 0.92 [0.91–0.93]; CFI = 95%), with 85.4% sensitivity and 83.5% specificity. Based on this, the combined dataset could be split into two classes: 3102 participants (74%) below the threshold (i.e., likely without PUI) and 1101 participants over the threshold (28%) (i.e., with PUI). See Table 5 for summary statistics pertaining to each recruitment site.

Table 5
ROC-AUC summary statistics.

Country	M	SD	cut-off score	Reference category	Sensitivity	Specificity
Total	25.52	13.5	≥34	IAT-10 > 24	85.4%	83.5%
SA	24.25	13.42	≥34	IAT-10 > 24	83%	86%
UK	29.92	12.74	≥34	IAT-10 > 24	96%	76%
USA	31.5	12.46	≥34	IAT-10 > 24	89%	73%

Note. Confidence Interval (CFI) = 95%.

3.6. *Nature of specific potentially problematic internet activities*

Items of the ISAAQ Part B assess the amount of time on specific internet activities including cyberbullying, cyberchondria, gambling, gaming, general surfing, pornography, shopping, social networking, streaming, and skills games/time wasters. Student's *t*-test was computed on 4203 cases across SA, UK and USA, using the ISAAQ Part A cut-off score of ≥34 to class the sample into two groups (PUI and non-PUI). Results indicated that the PUI group showed more time spent across all 10 online activities than the non-PUI group, with cyberchondria, gambling, gaming, general surfing, pornography, shopping, social networking, streaming and time wasters showing a stronger significance ($p < 0.001$) than cyberbullying ($p < 0.01$).

Results indicated that social networking, followed by streaming and general surfing were the online activities most often spent time on, in both PUI and non-PUI groups, with the mean frequency scores in the PUI group being significantly higher than the non-PUI group for these activities ($p < 0.01$). Cyberbullying and gambling activities presented as the activities that both PUI and non-PUI participants spent the least time on, again with the PUI group showing increased levels of engagement ($p < 0.01$). See Figs. 2 and 3 for a histogram and exploratory plot illustrations.

4. Discussion

This study aimed to validate the recently developed ISAAQ and to determine its psychometric properties. The initial validation of the ISAAQ Part A was done in an SA adult cohort, and the solution was replicated in independent UK and USA samples to confirm an optimal solution. Our findings confirmed a one factor solution of the ISAAQ Part A. We also determined a working operational demarcation point for PUI and non-PUI groups, using the established IAT-10 as a reference scale. The convergent validity of the ISAAQ Part A was established. Our findings also provided insight into the nature of potentially problematic internet activities that may encompass PUI using ISAAQ Part B.

Given that the ISAAQ Part A was designed to be a severity measure of generalized PUI based on the conceptualization of the IAT that PUI is a unidimensional quasi-trait construct, we expected PUI to be explained by a single factor. Based on the findings of our study, a clear one-factor model of PUI presented with good fitness metrics in all independent samples tested. This is consistent with previous studies which confirmed a one-factor IAT model fit in culture-specific groups, and captures a wider range of PUI features [5,13,16,20,21,32,33,48,53]. Similar to the findings presented by Tiego et al. [46], the items presented in the ISAAQ Part A describes PUI as a construct characterized by symptoms of preoccupation with the internet, impulsivity, compulsivity, defensiveness, secretiveness, motives of escapism and mood regulation, and negative outcomes. These symptoms are consistent with other findings from previous literature exploring the conceptualization and measurement of PUI [8,12,18,26,30,31,38,45,47], suggesting that the ISAAQ Part A is useful in measuring PUI holistically across different categories of symptoms, instead of just accounting for addiction symptomatology.

Based on the ROC analysis, a score of ≥34 on the ISAAQ Part A indicates a working operational demarcation point of those with at least some degree of potential PUI versus those without. Thus, it represents

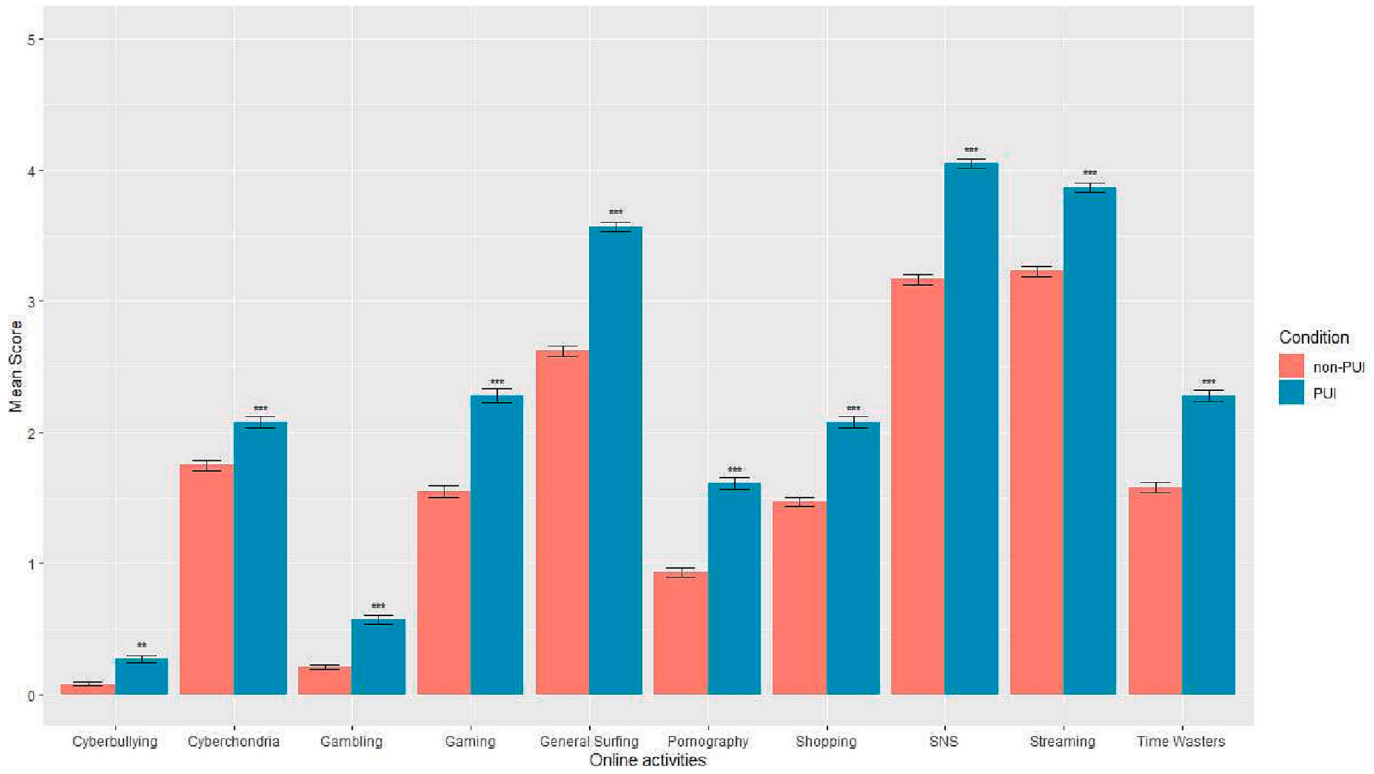

Fig. 2. ISAAQ Part B scores for time spent on different online activities.
Note: Mean scores of Internet Severity and Activities Questionnaire, Part B; PUI defined as having total ISAAQ Part A score ≥ 34. SNS = Social Network Site use. PUI = Problematic usage of the internet. Error bars are standard errors. Significance **: $p < 0.01$; ***: $p < 0.001$, student *t*-test, p-corrected (Bonferroni 10×). $N = 4203$ from three sites (SA, UK, USA).

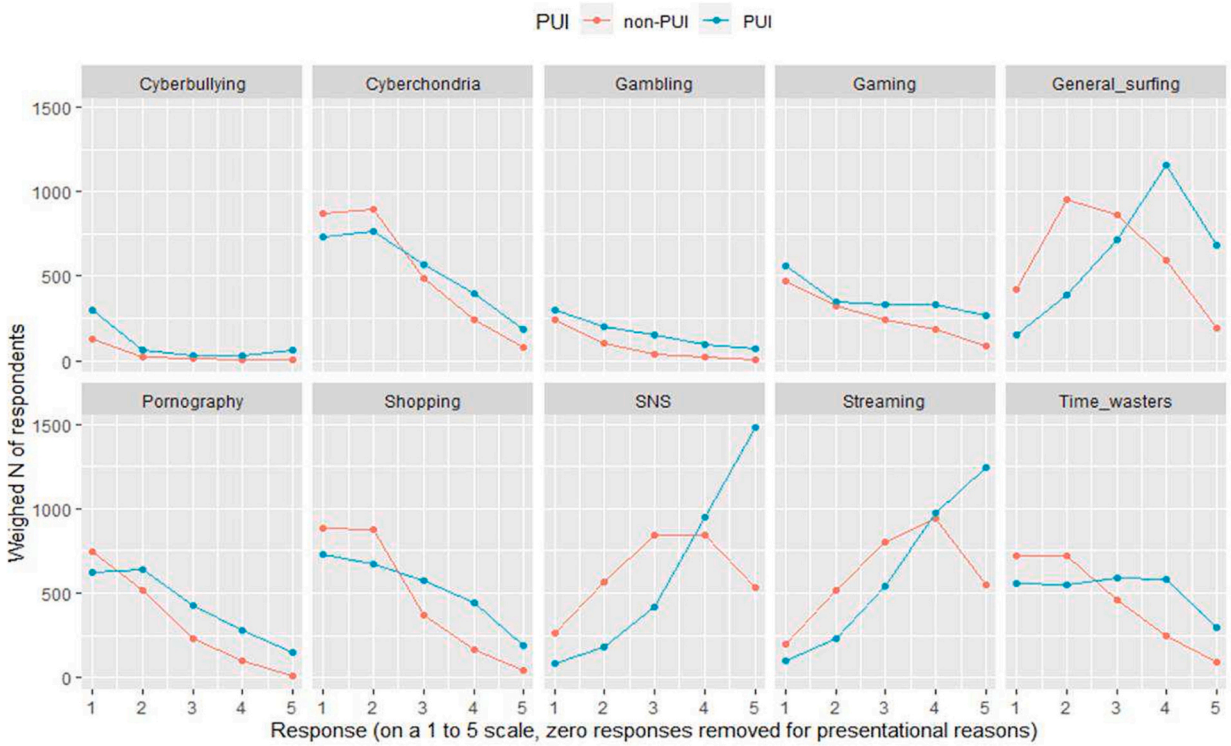

Fig. 3. Exploratory plot - Likert scores (count) of Internet Severity and Activities Questionnaire Part B.
Note: PUI defined as having total ISAAQ Part A score ≥ 34. SNS = Social Network Site use. PUI = Problematic usage of the Internet. N = 4203 from three sites (SA, UK, USA). PUI $N = 1101$, non-PUI $N = 3102$; PUI participants were oversampled to illustrate differences in responses between groups.

the start or lower end of a meaningful continuum of a smaller group of internet users in the sample. It is important to note that at this point, this threshold is not a clinical definition and does not demarcate a clinical entity; rather it reflects a score above which there is likely to be notable PUI, thereby alerting one to the possibility of PUI. The 3102 participants below the threshold are thus likely to have no meaningful variance in internet use problems whereas the remaining 1101participants over the threshold likely have a significant and varying degrees of internet usage problems. However, it should be noted that in the PUI group, only a small portion of participants would be expected to reach clinical significance, based on symptom severity, and accompanying impairment and distress [46].

A critical aspect to construct validity is the ability of a test to relate to other established and validated tests which measures the same construct [9]. Our results suggest that the ISAAQ Part A concurs with the IAT-10 in its ability to measure PIUI severity at a generalized level in a SA context. Furthermore, construct reliability and average variance extracted scores add favourably to the ISAAQ Part A's convergent validity [39], thereby further enhancing external validity of the scale.

The usefulness of ISAAQ extends beyond ascertaining presence of PUI by also quantifying the types of internet activities individuals may engage in, whether in a potentially problematic or unproblematic manner. To illustrate the tool's value, we used data from the ISAAQ Part B to provide insight into the types of internet activities (and time spent on such activities) that PUI and non-PUI groups engaged in, using the ISAAQ Part A demarcation point of >34. Results indicated that social networking/social media use, followed by media streaming and general surfing were the online activities most often engaged in by both PUI and non-PUI groups, and the PUI group showed more excessive engagement in these activities and the non-PUI group. This finding is consistent with previous literature and provides supporting evidence for the importance of considering the time spent on different types of internet-behaviours, in advancing research in the field. For instance, social media use, or the use of online platforms to build social networks and relationships, albeit a regular practice all over the world, has the potential to become problematic if the behaviour is uncontrolled [2,35]. For example, there is evidence for social networking addiction to become spurred on by individual psychosocial differences and social cognition [49], and also to negatively impact executive functioning in more severe cases [50]. Similarly, general internet *surfing*, the universal term used to describe general scrolling on the internet with no specific intention, also has the potential to become problematic [1,19]. For example, according to an internet-based survey study in 2018 comprising two samples from SA and the USA, respectively, general internet surfing proved to bear a stronger relationship with maladaptive use of the internet than gaming disorder ($r = 0.48$), and thereafter online shopping and pornography, therefore supporting the diagnostic classification of PUI as a multifaceted disorder [19]. By the same token, findings from a cyber-awareness programme conducted in students in Delhi indicated that 19% of the sample showed signs of PUI, and that recreational surfing was associated with problematic internet behaviours amongst the affected [4]. These examples highlight the importance of distinguishing between generalized PUI and specific problematic online behaviours. Allowing researchers to gain holistic insight into types of internet-related behaviours that may negatively impact individuals' health statuses may give way to better policy making and treatment options for the affected. Whilst there is an abundance of screening tools to assess PUI, the ISAAQ offers the opportunity to measure both the presence of PUI as well as the different types of potentially problematic internet engagements all in a single tool, taking into account behavioral addiction symptomatology as well as other categories of symptoms such as impulsive and compulsive traits, which is a commendable stride in improvement from existing tools which do not provide this holistic functionality and consideration.

Some limitations of the study should be emphasized. Firstly, there are shortcomings in the sampling strategy. The sample was collected via a self-reporting online survey, which may spur on associated biases such as social desirability biases, making it challenging to hone in to the target group. No children and adolescents were included in the study which are known to be vulnerable or at-risk groups. Further analysis should include these groups to further establish structural validity of the ISAAQ. Second, we adopted a CFA approach with heavy reliance on goodness of fit metrics which are known to have differing guidelines for good-fit. As this is a newly developed tool which takes into account various theoretical frameworks of PUI, exploratory factor analysis may be useful to determine all possible factor structures, and more advanced approaches such as Item Response Theory (IRT) may be helpful in modelling the ability of individual scale items to measure latent traits proposed in the scale. Inference of results in this study must be handled appropriately. Third, the demarcation point for distinguishing potentially problematic and non-problematic internet is by no means a clinically significant cut-off score to be used for diagnostic and classification purposes of PUI at this stage. Future work should focus on specific thresholds of PUI severity and how these are defined. Future work should also focus on the structural validity of ISAAQ Part B instrument.

In conclusion, the aim of this study was to perform an initial validation study of the ISAAQ Part A which measures generalized PUI severity and to provide insights into the nature of specific types of problematic online activities using the ISAAQ Part B. Our results indicate that the ISAAQ Part A is a psychometrically sound measure of PUI across a unidimensional continuum, and it may serve as a useful tool for measuring PUI at a generalized and internet activity-specific level. ISAAQ Part B further improves the functionality of the tool by allowing the measurement of specific online activities engaged in, all in a single tool.

Disclosures

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Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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