

Research Paper: Validity and Reliability of the Persian Version of Cyber Pornography Use Inventory-9 Among Iranian Students



Mehdi Darvish Molla¹ Zahra Nikmanesh¹

1. Department of Psychology, School of Education and Psychology, University of Sistan and Baluchestan, Zahedan, Iran



Citation Darvish Molla M, Nikmanesh Z. Validity and Reliability of the Persian Version of Cyber Pornography Use Inventory-9 Among Iranian Students. Journal of Research & Health. 2020; 10(2):69-78 <http://dx.doi.org/10.32598/JRH.10.2.2>.

<http://dx.doi.org/10.32598/JRH.10.2.2>



Article info:

Received: 10 Nov 2019

Accepted: 13 Jan 2020

Publish: 01 Mar 2020

Keywords:

Factor analysis, Internet, Erotica, Students

ABSTRACT

Background: This study aimed to examine the validity and reliability of the Persian version of Cyber Pornography use Inventory-9 (CPUI-9) in the Iranian context.

Methods: The current research is a descriptive cross-sectional study. The study sample included 262 (190 male and 72 female) university students, who were selected by multi-stage cluster sampling method. The psychometric properties of the Persian version of CPUI-9 were assessed in this study.

Results: The descriptive findings indicated that the Mean±SD age of the participants was 21.64 (2.36) years. Psychometric analyses indicated the high validity and reliability of this inventory. The exploratory factor analysis identified three factors that are consistent with the results of previous studies. Besides, confirmatory factor analysis revealed the model goodness of fit. The Cronbach alpha coefficient of CPUI-9 was also found as 0.87. Additionally, the concurrent validity showed that CPUI-9 was significantly and positively related to depression, anxiety, and stress ($P < 0.01$).

Conclusion: Finally, the study results supported the reliability and validity of the Persian version of CPUI-9 among Guilan university students. Moreover, the findings were in line with the results of the original study.

Introduction

Internet access significantly rises around the world. The users can easily access pornography contents [1] so that it has become among the most frequently searched topics on the Internet [2].

Using Internet pornography is increasing in Western societies [3-5]. On average, one-third of Americans watch pornography at least once a month [6-8]. Several similar studies conducted in various countries report the prevalent use of Internet pornography [9, 10]. In a study, about 74% of boys and 35% of girls watched pornography at least once a year in Iran [11]. Pornography should be de-

* Corresponding Author:

Mehdi Darvish Molla, PhD.

Address: Department of Psychology, School of Education and Psychology, University of Sistan and Baluchestan, Zahedan, Iran.

Phone: +98 (936) 6527827

E-mail: darvishmolla@gmail.com

defined accurately since people's perception of pornography affects their responses [12, 13]. In other words, when a standard definition of pornography is not presented, people define it based on the perceptions that make them confused and consequently respond differently.

On the other hand, presenting a definition for pornography may limit it and exclude some kinds of pornography [13]. Ultimately, it must be noted that further studies should be carried out to determine the superiority of a method over another. In the current study, pornography was defined as follows: materials that create sexual thoughts, feelings, or behaviors and contain images or descriptions of sexual actions [14, 15].

Although watching pornography does not harm in most cases and can be even useful [15-17], some people experience compulsive use of pornography and thus try to treat it as a disease [18]. Accordingly, one of its dangerous consequences is the growing pattern of its compulsive and addictive use [3, 19]. Many researchers emphasize on the addictive nature of using Internet pornography [2, 3, 20, 21]. Besides, according to Potenza, behavioral addictions (such as addiction to pornography) can be categorized as substance-related or addictive disorders [22].

Addiction to pornography has not been mentioned in the 5th Edition of Diagnostic and Statistical Manual of Mental Disorders [23]; thus, there are no precise diagnostic criteria for it. Therefore, various definitions are presented for addiction to Internet pornography [8]. The concept of addiction to pornography has been defined in several ways. For instance, Cooper et al. [24] insist on the amount of pornography use. They believe that if a person watches pornography more than 11 hours per week, he or she may be considered as an addict to pornography.

Furthermore, some researchers consider the frequency of pornography use (approximately 90 times in 3 months) as an indicator of addiction to pornography [25]. Several researchers rely on individuals' beliefs on whether they think that they are addicted to pornography or not [26]. Based on another definition, if using pornography creates personal, occupational, or interpersonal problems, the person can be regarded as an addict to pornography [27].

While there is still no consensus on the definition of addiction to pornography, some valid tools are designed to evaluate this addiction [12]. The Cyber Pornography Use Inventory (CPUI) was developed by Grubbs and associates [28]. This inventory, which includes three dimensions, i.e., addictive patterns, guilt regarding online

pornography use, and social online sexual behavior, assesses the addiction to Internet pornography. Grubbs et al. [21] reduced the number of items and developed a short form with 9 items. In the short form, the dimensions of addictive patterns were divided into two classes, and the third dimension was omitted. Hence, the short form of inventory for the perceived addiction to pornography includes three dimensions: perceived compulsivity, access efforts, and emotional distress. In general, it should be noted that perceived addiction to Internet pornography refers to the people's tendency to label themselves as addicted to pornography. In other words, this concept refers to an individual's subjective experience of pornography use [21].

Compared with the amount of using Internet pornography, perceived addiction to Internet pornography is a stronger predictor of anxiety, depression, and stress [21, 29-31]. Therefore, mental distress may originate not only from pornography usage but also from individuals' attitudes towards pornography use, its perception, and considering themselves as addicts to pornography [12]. Considering the levels of depression, a significant difference exists between those addicted to pornography and those not [32].

Currently, in Persian-speaking countries, no valid tool is available for assessing addiction to pornography, so there are no studies on addiction to Internet pornography in these countries. Accordingly, a valid measurement tool is required to evaluate the addiction to pornography in such countries. Moreover, in previous studies, the relationship between the use of pornography with anxiety, depression, and stress has not been investigated. This study examined the validity and reliability of the Persian version of CPUI-9. The other aim of this study was to investigate the relationship between the perceived addiction to Internet pornography with anxiety, depression, and stress.

Methods

Study procedure and participants

The current study is analytical cross-sectional research. This study used a correlational method with exploratory factor analysis. The statistical population included all students at the University of Guilan (Iran-Rasht) in 2016, and the target community was the users of pornography (within the past six months). The sample size was determined as 374 using the Cochran sample size formula. The students were selected using the random sampling method (multistage cluster sampling method). In the first

sampling step, three schools (Humanities, Engineering, and Basic Sciences) were randomly selected. Then, five classes were randomly chosen from each school. The students of each class were chosen randomly according to the class list. The main objectives of the present study were explained to the participants, and their consent was obtained. The students answered the questions voluntarily and were assured that their demographic information would be confidential, and they could leave the research whenever they want.

Out of 400 distributed questionnaires, 387 questionnaires were completely filled. However, due to the study aim, the analyses were restricted to the participants who reported watching pornography within the past 6 months. Therefore, other participants were excluded from the analysis. Finally, the final sample consisted of 262 people.

Study measures

Depression, Anxiety, and Stress Scale (DASS-21)

DASS-21 is the short form of DASS-42 and was developed by Lovibond and Lovinond [33]. This inventory includes 21 items, which assesses anxiety, depression, and stress. Each dimension of this inventory has 7 items. The total Cronbach alpha coefficient for this inventory was 0.93, and the Cronbach alpha coefficients for depression, anxiety, and stress were respectively 0.88, 0.82, and 0.90 [34]. This inventory has been translated to Persian by Sahebi, Asghari, and Salari [35]. They stated that the reliability and validity of the Persian version of this inventory among the Iranian population were desirable. Moreover, the Cronbach alpha coefficients of depression, anxiety, and stress in the Persian version were respectively 0.77, 0.79, and 0.78.

IP (Internet Pornography) use

The actual (intentional) use of pornography was evaluated by a question about the amount of time (in hours) that participants spent on watching pornography within the past 6 months [36]. The participants determined their answers on a scale ranging from 0 to 12 hours. In this way, on average, every 0.1 value indicated 6 minutes of daily pornography use. Finally, given the main objective of the current study, only those who spent more than 0 hour in the past six months (N=262) were included in the analysis.

Cyber Pornography Use Inventory-9 (CPUI-9)

The CPUI-9 was developed to examine the perceived addiction to Internet pornography [21]. This inventory evaluates the perceived addiction by considering three subscales, i.e. perceived compulsivity, access efforts, and emotional distress. Three items assess each of these subscales. Participants answered each item based on a 7-point Likert-type scale ranging from 1 (not at all) to 7 (always). Scores of each subscale were ranged from 3 to 21, and the total score was between 9 and 63. Grubbs et al. confirmed the validity and reliability of this inventory and reported its Cronbach alpha coefficient as 0.81 [21].

The authors of the current study translated the English version of CPUI-9 to Persian. Next, without being aware of the original version of the questionnaire, a bilingual person translated it back to English. Then, the translated questionnaire was compared with the original questionnaire to design the final version by matching these questionnaires. To avoid ambiguity, five senior experts in psychology evaluated the final version of the questionnaire. Also, in this study, to determine the content validity of the tool, the questionnaires were confirmed by university professors (seven faculty professors of psychology from the University of Sistan and Baluchestan and eight faculty professors of psychology from the University of Guilan). After collecting expert opinions, the required changes were made to the tool. Finally, the Content Validity Ratio and Content Validity Index (CVR and CVI) were calculated to ensure the selection of the most relevant content and design a tool to measure content in the best way.

Statistical analyses

All statistical analyses were performed in SPSS V. 22 and AMOS V. 22. The demographic characteristics of the participants were reported using Mean±SD, number, and percentage. The internal consistency of CPUI-9 was assessed through the Cronbach alpha coefficient. To investigate the construct validity of CPUI-9, we used the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The Principal Component Analysis (PCA) with varimax rotation (orthogonal) was applied for exploratory factor analysis. Moreover, to examine the confirmatory factor analysis, the model fit indices (the Chi-square goodness of fit test (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Normed Fit Index (NNFI), and non-normed fit index (NNFI) were calculated [37]. Additionally, the concurrent

validity of CPUI-9 was evaluated using the Pearson correlation coefficient for CPUI-9 and DASS-21.

Results

Demographic characteristics of the participants

Out of 387 students who responded to the questionnaire completely, 262 students (67%) reported the use of Internet pornography in the past 6 months. Therefore, those who did not report using Internet pornography were excluded from the study. The majority of the participants were male (72.5%) and single (74.6%). The Mean±SD age of the participants was 21.64 (SD=2.36) years. Table 1 presents the demographic characteristics of the study participants.

Internal consistency

To investigate the internal consistency of CPUI-9, we calculated the Cronbach alpha coefficient. The Persian version of CPUI-9 had a high internal consistency because the Cronbach alpha coefficient for the whole scale was 0.87. The subscales of the Persian version of CPUI-9 had moderate inter-correlations, and all the correlations were significant at the level of 0.01 (Table 2).

The results of the Pearson test showed a significant positive correlation between perceived compulsivity and access efforts ($r= 0.52, P<0.01$), perceived compulsivity, and emotional distress ($r= 0.40, P<0.01$) and also between the access efforts and emotional distress ($r= 0.44, P<0.01$).

Concurrent validity

Table 2 presents the correlations between the subscales and the total score of perceived addiction to Internet pornography with daily pornography use, anxiety, depression, and stress. The total score of perceived addiction to Internet pornography had a good and positive correlation with everyday pornography use, anxiety, depression, and stress ($P<0.01$).

Exploratory factor analysis

To assess the construct validity (factor structure) of CPUI-9, we employed the exploratory factor analysis by applying the Principal Component Analysis (PCA) with varimax rotation. The value of Kaiser-Meyer-Olkin (KMO), which measures the sampling adequacy was 0.84, and the value of Bartlett's test was 1372.36 ($P<0.001$). Therefore, the sample size was adequate and eligible for using factor analysis. As shown in Figure 1, the shape of the scree plot suggested a three-factor

Table 1. The demographic characteristics of the study participants (n=262)

Variable	Participants	No. (%)
Gender	Male	190 (72.5)
	Female	72 (27.5)
Ethnicity	Fars	91 (34.7)
	Gilak	75 (28.6)
	Turk	52 (19.8)
	Other	44 (16.8)
Educational level	Bachelor's degree	204 (77.9)
	Master's degree	58 (22.1)
Marital status	Single	195 (74.6)
	Other	67 (25.4)
Religion	Shia	219 (83.6)
	Suuni	30 (11.5)
	Other	13 (4.9)



Table 2. The correlation of the subscales and the total score of perceived addiction to Internet pornography with daily pornography use, anxiety, depression, and stress

Variables	α	1	2	3	4	5	6	7	8
1. Perceived compulsivity	0.87	-	0.52*	0.40**	0.78*	0.14	0.15	0.09	0.15
2. Access efforts	0.86		-	0.44*	0.80*	0.25*	0.33*	0.28*	0.41*
3. Emotional distress	0.86			-	0.81*	0.42*	0.15**	0.29*	0.16
4. Total score	0.87				-	0.30*	0.28*	0.27*	0.33*
5. Depression	0.81					-	0.55*	0.69*	0.25*
6. Anxiety	0.81						-	0.66*	0.16
7. Stress	0.78							-	0.20**
8. Daily pornography use									-

α =The Cronbach alpha;

* $P < 0.01$; ** $P < 0.05$

structure with initial eigenvalues more than one. The exploratory factor analysis identified three interpretable factors, which all together explained 80.27% of the total variance. Additionally, all the items of the questionnaire were positively loaded on these three factors (Table 3).

Confirmatory factor analysis

To test the three-factor hypothesis derived from the Persian version of CPUI-9, the model fit indices were used through applying the confirmatory factor analysis. The proposed three-factor model showed a good fit ($\chi^2=51.2$, $df=24$, $P=0.001$; $GFI=0.96$; $AGFI=0.92$; $CFI=0.980$,

$TLI=0.970$; $RMSEA=0.066$; $NFI=0.963$; $RMR=0.113$). Accordingly, the model fit indices supported the proposed model. Figure 2 shows the standardized loadings for the correlated three-factor model.

CVR and CVI

Table 3 summarizes the results for CVI and CVR by each question. The range of CVR was 0.8–1, while that of CVI was 0.87–1. Therefore, it was found that all the questions were valid [38].

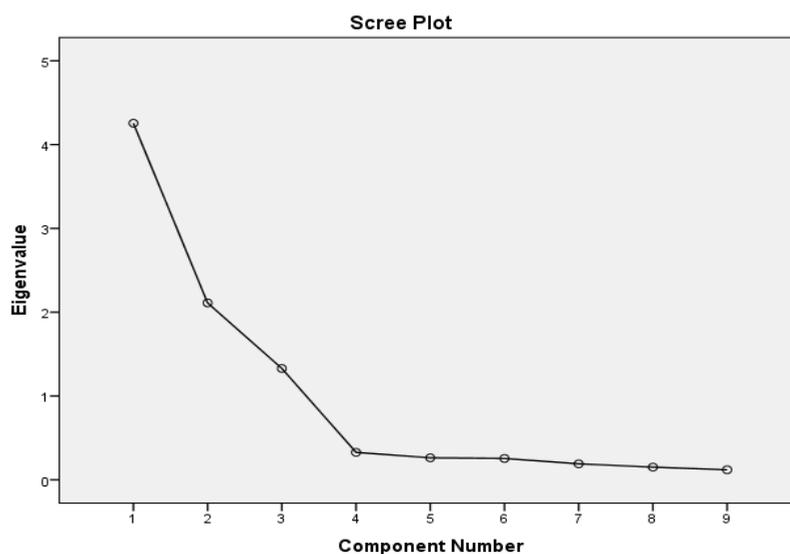
**Figure 1.** Scree plot for extracted factors of the perceived addiction to Internet pornography

Table 3. The explained variances and factor loadings of the items related to each factor of CPUI-9

Items	Mean±SD	CVR	CVI	1	2	3
Compulsivity (27.63% variance)						
1. I believe I am addicted to Internet pornography.	2.26±1.51	0.80	0.90	0.87		
2. I feel unable to stop my use of online pornography.	2.24±1.56	0.87	0.87	0.84		
3. Even when I do not want to view pornography online, I feel drawn to it.	2.13±1.45	0.80	0.90	0.85		
Efforts(27.14% variance)						
4. At times, I try to arrange my schedule so that I will be able to be alone to view pornography.	2.32±1.65	0.80	0.90		0.78	
5. I have refused to go out with friends or attend certain social functions to have the opportunity to view pornography.	1.99±1.59	0.87	0.87		0.85	
6. I have put off important priorities to view pornography.	1.89±1.48	1	1		0.84	
Distress (25.50% variance)						
7. I feel ashamed after viewing pornography online.	2.88±1.98	0.80	0.90			0.83
8. I feel depressed after viewing pornography online.	2.63±1.86	1	1			0.86
9. I feel sick after viewing pornography online.	2.82±2.01	1	1			0.90



SD: Standard Deviation; EFA: Exploratory Factor Analysis using principal component analysis and varimax with Kaiser normalization rotation method

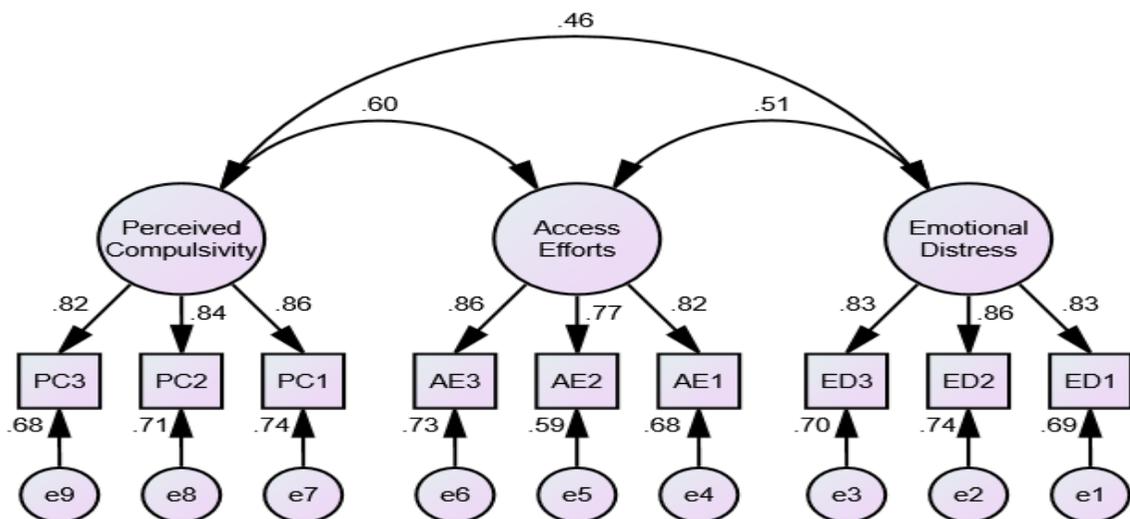


Figure 2. Correlated three-factor solution for the perceived addiction to Internet pornography; the factor loadings are standardized loadings

Discussion

The results of the current study revealed that the Persian version of CPUI-9 had good validity. The Cronbach alpha coefficient for all items was good, and the sub-scales were strongly and positively related to the total score of CPUI-9. Thus, the perceived compulsivity, access efforts, emotional distress, and total score are associated with each other. These results are consistent with those of Grubbs et al. results [21].

In the current study, the concurrent validity coefficients of CPUI-9 with daily use of pornography, anxiety, depression, and stress were significant. These findings support the results of previous studies [21, 29-32]. Furthermore, the results of the current study demonstrated that the relationship between perceived addiction to Internet pornography with anxiety, depression, and stress was stronger than the relationship between daily pornography use with anxiety, depression, and anxiety. These findings are consistent with the results of previous studies [12, 21, 29].

The results of examining the construct validity for the Persian version of CPUI-9 through applying the exploratory factor analysis indicated that this inventory included three factors, i.e., perceived compulsivity, access efforts, and emotional distress, and the distribution of the items was similar to that of the original inventory [21]. Therefore, the Persian version of CPUI-9 has 3 factors and 9 items.

In the current study, the results of the confirmatory factor analysis confirmed the results of the exploratory factor analysis indicating the three-factor model of CPUI-9. All the coefficients were significant, and all the model fit indices were desirable. The current study showed that CPUI-9 had desirable reliability and validity among the Iranian population. Accordingly, this inventory as a reliable and short tool would be effective in examining perceived addiction to Internet pornography in the Iranian context.

Conclusion

This study indicated that the Persian version of CPUI-9 had desirable psychometric properties among the Iranian population. Hence, the Persian version of CPUI-9 is a valid and reliable tool to assess the addiction to Internet pornography among the Iranian population. We recommend that the researchers use this scale in their future studies to determine the diagnostic validity of a clinical sample. Besides, studying the relationship between CPUI-9 and other kinds of mental distress is suggested.

This study had several limitations. All the participants were university students. Therefore, the findings of the present study cannot be generalized to other populations. Moreover, in the current study, the efficiency of CPUI-9 was studied on non-clinical subjects. Accordingly, further studies are suggested to conduct on clinical samples. Additionally, this study was carried out based on self-report data, which is prone to bias.

Ethical Considerations

Compliance with ethical guidelines

Ethical considerations, including obtaining the full consent of the participants and maintaining data confidentiality, were strictly observed. Also, the Zahedan Faculty approved this study of Psychology and Educational Sciences Ethics Committee (Code:18651).

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions

Design study, analysis and collection data: Mehdi Darvish Molla; Preparation manuscript: Zahra Nikmanesh; reading and approve the final version of manuscript: All authors have.

Conflict of interest

The authors declared no conflict of interest.

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