

TRANSLATION, CULTURAL ADAPTION AND VALIDATION OF CELL PHONE ADDICTION SCALE IN PAKISTAN

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ABSTRACT

OBJECTIVE

The objective of this study is to translate, culturally adapt and validate Cell Phone Addiction Scale (CPAS) for the population of Pakistan.

STUDY DESIGN

Cross sectional study

PLACE AND DURATION OF STUDY

The study was carried out at Aga Khan University from February to March, 2013.

SUBJECTS AND METHODS

The CPAS was translated using the standardized procedure to verify the semantic, technical and conceptual equivalence of each item in order to maintain the originality of the questionnaire. The validation was carried out in two stages. The participants were initially interviewed by trained data collectors using the CPAS. The second stage interview was conducted by a psychiatrist using DSM IV (TR) as gold standard. Cronbach's alpha was used to estimate internal consistency of each item. Phi correlation coefficients was used to evaluate the validity of scale.

RESULTS

Fifty-one participants participated in this validation study. Most of the participants were females, single with an intermediate level of education. The sensitivity was increased to 89% at cut off value of 50 on CPAS. The Phi correlation coefficient for the CPAS against the gold standard assessment was 0.62. Cronbach's alpha of 0.83 was obtained for internal consistency of each item.

CONCLUSION

Cell Phone Addiction Scale (CPAS) can be used to screen cell phone addiction in clinical and community setting with good psychometric properties.

KEYWORDS

Cell phone addiction scale, validation, and cultural adaption.

INTRODUCTION

Cell phone is the most omnipresent communication device.¹ An average person spends nearly seven hours per month using the cell phone.² The number of cell phone subscribers globally were around 1.8 billion in 2008.³ More than half of the world population is currently anticipated to be a cell phone user.⁴ Mobile phone can be used for multiple purposes that include talking, short message service, internet use, money transactions, video games, business negotiations, academic self-facilitation and other entertainment purposes.⁵

The widespread use of cell phone is advocated as biggest non-drug addiction of 21st century.⁶ High mobile phone usage is correlated with problematic cell phone usage.⁷ Cell phone addiction can be defined as "increased attention to mobile, uncontrollable and involuntary use of cell phone by subscribers."⁷ On parallel to other technology addictions, signs and symptoms of mobile addiction include 'losing control and receiving complaints', 'anxiety and craving', 'withdrawal and escape' and 'productivity loss', 'unable to control craving', 'preoccupation to its use and feeling frustrated, angry, anxious and concerned' in situations where access to mobile phone is difficult.⁸ Harmful consequences in life may be disregarded.⁹ They may lie in the domain of occupational dysfunction, academic loss, financial difficulties, physical effects (like radiation) and disruption in social life. Forced cell phone abstention increase anxiety in people who were prone to mobile phone dependence.¹⁰

The standard diagnostic system strictly regards symptoms of repetitive and excessive use as addiction. Gambling is considered as an addiction in DSM-V based on psychopathological evidence. Like wise, internet based activities has shown similar level of dependence. Addiction to such technology may raise the possibility of misclassifying people with cell phone addiction, since there is a fine line between people prone to internet or gaming addiction through cell phones and cell phone addiction independantly.⁹ Though on the contrary, the neurobiological basis of addiction may expand the probability of obsessive nature of preoccupation. It will be pertinent to exclude the disorders of anxiety spectrum.

A survey of the Korean population reports that 73% develops symptoms of irritation when they are unable to access cell phone.¹¹ Around 22% of the Polish and 10% of the Belarusian students met the criteria of cell phone addiction.¹² The gender variation of cell addiction identified in Japan was found to be 5.4% for females and 3.1% for males.¹² Given the scarcity of data, there is a need to explic-

itly define the effect of technologies exposures on different outcomes.

Pakistan is rated among the countries with higher usage of cell phones,¹³ therefore, there is a need to develop a validated scale for detecting cell phone addiction. This is particularly imperative in the context of a dearth of Psychologists and Psychiatrists.

Our study aims to translate, culturally adapt and validate the Cell Phone Addiction Scale (CPAS) for use in a population that understands Urdu.

The study was carried out in two stages. A trained data collector administered the questionnaire in the first stage. Interview by a psychiatrist was used as the gold standard to assess the validity in the second stage.

METHODOLOGY

The inclusion criteria was subjects aged between 18 to 45 years, using cell phone for more than a year, and able to read and write short text messages on cell phone.

We excluded those who had the provision of services or jobs related to cell phones, who had other addictions diagnosed by a consultant psychiatrist. Individuals with physical morbidity which affects the usage of cell phone like deafness and blindness, and any organic disorder or psychiatric disorder which resulted in a person being disoriented in time, place and person were also excluded.

Convenient sampling method was used to recruit healthy subjects from tertiary care hospital in Karachi. The psychiatrist followed the DSM IV (TR) criteria of technology/internet addiction in his interview. The psychiatrist was blinded to the finding of CPAS assessment done by the trained data collector.

CELL PHONE ADDICTION SCALE

This Cell Phone Addiction Scale (CPAS) was originally developed in Korea.¹⁴ CPAS captures the psychological effect of cell phone usage, in particular excessive cell phone usage which may put a person at risk of cell phone addiction. This scale collects information on twenty different dimensions of cell phone usage with the responses graded on the Likert scale.

This questionnaire inquires about three different constructs that include 'withdrawal/tolerance', 'life dysfunction' and 'compulsion or persistence'. The construct on withdrawal/tolerance and 'compulsion or persistence' has seven items each, and 'life dysfunction' has six items. All items were rated on a five point scale ranging from 1= 'not at all' to 5= 'always.'

TRANSLATION

Translation was carried out using a standardized procedure. Two individuals with bilingual proficiency did (two

forward translations from English to Urdu, to ensure semantic, technical and conceptual equivalence with the originally designed questionnaire. Semantic equivalence was meant to ensure a similarity of meaning in the original and translated version. Technical and conceptual equivalence was used to ensure similar grammatical and conceptual features.

Deliberation between the research team resulted in formulating the first draft of the questionnaire, which was attuned to the cultural nuances. Two other bilinguals then back translated the questionnaire from Urdu to English. The research team met repeatedly to tease out the difficult terms and items in order to finalize the questionnaire following the methodology of the nominal group discussion (See Appendix 01).

STATISTICAL ANALYSIS

To check the correlation between excessive cell phone usages against gold standard, Phi correlation coefficient was computed. Sensitivity and specificity of CPAS was also calculated against the gold standard. Cronbach's Alpha was used to determine the internal consistency of each item. Analysis also looked at the impact of deleting items on the scale.

RESULTS

Fifty-one participants were recruited for the purpose of this study. Most of the participants (69%) in this study were female. Urdu was the most common language of the participants while Punjabi the second most common language. The mean age of participants was 21 years. Most of the participants were single (80%), intermediate (72%) and un-employed (68%). (Table 01)

Out of all the participants, 37% were identified to have cell phone addiction. At a cut off value of 63, CPAS had a higher specificity (93.8%) as compare to sensitivity (63.2%). The sensitivity was increased to 89.5% at cut off value of 50. The Phi correlation coefficient for the CPAS against the psychiatrist's examination was 0.62 (p- value <0.01). (Table 02)

Three constructs were assessed independently for its specificity and sensitivity, and correlated against gold standard. The construct on 'withdrawal/tolerance' had a specificity of 15.6 compared to sensitivity of 94.7. The 'life dysfunction' had specificity of 28.1 and a sensitivity of 100. The 'compulsion or persistence' was positive for all the participants, therefore specificity of this construct cannot be determined.

The Cronbach's Alpha of each item is shown in appendix:1. Internal consistency of 0.83 was ascertained. The deletion of items resulted in a lower value for Cronbach's Alpha.

Table1: Demographics

Variable	
Age in years Mean(SD)	21.6 (2.6)
Gender N (%age)	
Male	16 (31%)
Female	35 (69%)
Ethnicity N (%age)	
Urdu	28 (54.9%)
Sindhi	6 (11.8%)
Punjabi	11 (21.6%)
Others	6 (11.8%)
Relationship Status N (%age)	
Single	41 (80%)
In a relationship	3 (5.9%)
Engaged	2 (3.9%)
Married	5 (9.8%)
Education N (%age)	
Intermediate	37 (72.5%)
Matric	1 (2%)
Graduate	8 (15.7%)
Post graduate	3 (5.9%)
Diploma	2 (3.9%)
Employment Status N (%age)	
Unemployed	35 (68.6%)
Employed	16 (31.4%)

N= number ; %age =percentage

Table2: Sensitivity and Specificity of CPAS against Gold Standard

Overall tools against Gold standard and a cut of 63 on CPAS	
Sensitivity % (95%CI)	63.2 (44.9-71.7)
Specificity % (95%CI)	93.8 (82.9-98.9)
PPV % (95%CI)	85.7 (60.9-97.4)
NPV % (95%CI)	81.1 (71.7-)
Kappa	60.1 (29.3-74.6)
Overall tools against Gold standard and a cut of 50 on CPAS	
Sensitivity % (95%CI)	89.5 (70.2-98.1)
Specificity % (95%CI)	71.9 (60.4-77.0)
PPV % (95%CI)	65.4 (51.3-71.7)
NPV % (95%CI)	92.0 (77.3-98.5)
Kappa	57.1 (28.4-69.8)

DISCUSSION

This is the first study in Pakistan, which has translated, culturally adapted and validated the Cell Phone Addiction Scale for use in a population that understands Urdu. We found a high specificity at a cut off value of 63 and a higher sensitivity at a cut off value of 50. Thus we propose that this tool can be used to estimate the prevalence of cell phone addiction in Pakistan. The two mentioned cut off values of CPAS could further be utilized to identify individuals having cell phone addiction or individuals without cell phone addiction.

The adherence to scientific method outlined for the translation of questionnaire added scientific rigor to the Urdu version of Cell

Appendix 1

ITEM IN URDU	Cronbach's Alpha if item is deleted
۱۔ جب میں موبائل فون استعمال نہیں کرتا تو مجھے بوکھلا ہٹ ہوتی ہے۔	.814
۲۔ جب میرے پاس موبائل فون نہیں ہوتا تو مجھے چرچراہٹ ہوتی ہے۔	.819
۳۔ جب میرے پاس موبائل فون نہیں ہوتا میں پریشان ہوتا ہوں کہ میں ضروری کالز ریسیو نہیں کر پاؤں گا یا مینج نہیں پڑھ پاؤں گا۔	.830
۴۔ جب میرے موبائل فون کی بیٹری کم ہو جاتی ہے تو میں گھبرا جاتا ہوں۔	.830
۵۔ میرے ارد گرد کے لوگ میرے زیادہ موبائل فون استعمال کرنے کی شکایت کرتے ہیں۔	.820
۶۔ ماضی میں میں نے موبائل فون کم استعمال کرنے کی کوشش کی مگر میں ناکام ہو گیا۔	.827
۷۔ موبائل کے استعمال، بات کرتے ہوئے، مینج کرتے ہوئے، گیمز کھیلتے ہوئے، ٹیلیویژن دیکھتے ہوئے وغیرہ، کے دوران اپنے آپ سے کہتا ہوں 'تھوڑی دیر اور'۔	.823
۸۔ میرے موبائل فون کے استعمال کی وجہ سے میری پڑھائی کا حرج ہوتا ہے۔	.830
۹۔ میں نیا موبائل خریدنے اور اسے سجانے کے لئے بہت پیسے خرچ کرتا ہوں۔	.844
۱۰۔ موبائل فون کے استعمال کی وجہ سے میرے سر، آنکھوں، آنکھوں اور ہاتھوں میں درد ہوتا ہے۔	.836
۱۱۔ مجھے موبائل فون کے اخراجات کی فکر رہتی ہے۔	.838
۱۲۔ میں مینج بھیجنے اور گیمز کھیلنے کی وجہ سے پڑھائی پر دھیان نہیں دے پاتا ہوں۔	.833
۱۳۔ موبائل فون کے استعمال پر اساتذہ / سینئر ز اور والدین سے تنازع رہتا ہے۔	.819
۱۴۔ میں پورے دن میں کبھی بھی موبائل فون بند نہیں کرتا ہوں۔	.836
۱۵۔ میں ہمیشہ موبائل فون اپنے ساتھ رکھتا ہوں۔	.832
۱۶۔ میں بلا تاخیر کال یا مینج کا جواب دیتا ہوں۔	.830
۱۷۔ میں اکثر مس کال یا مینج کے لئے اپنا موبائل فون نزدیک رکھتا ہوں۔	.829
۱۸۔ جب بھی میں اپنا موبائل فون استعمال کر سکتا ہوں، کرتا ہوں۔	.821
۱۹۔ میں دوسروں سے بات کرتے ہوئے، یا کھانا کھاتے وقت موبائل فون استعمال کرتا ہوں۔	.821
۲۰۔ جب کوئی کال نہیں بھی آ رہی ہوتی تب بھی مجھے اپنا فون بجتا ہوا یا واٹس ایپ ہونا ہوا محسوس ہوتا ہے۔	.828

Phone Addiction Scale (CPAS). Positive predictive value of this scale was higher at the cut off value of 63, therefore psychiatrists can use this tool in a clinical or community setting to identify patients with cell phone addiction.

The constructs of 'withdrawal/tolerance', 'life dysfunction' and 'compulsion or persistence' identified through factor analysis in Korean study holds true in our setting.¹⁴ The construct of 'life dysfunction' had highest sensitivity of 100.0 and specificity of 28, which is in opposition to other constructs. However, the sensitivity, specificity and positive predictive value of the 'individual items' of scale in isolation need to be explored through further research.

The wide range of behavior relying on communication, gaming and online activities are mostly seen in adolescents and students. It is pertinent to report that most of our targeted population was also young adults. Previous studies support our finding of problematic use of cell phone in this age group.^{4,14} However, it was difficult to assess this in our study since many students may upload flash cards and hand books in their cell phone for easy accessibility.

There are a number of limitations in our study. The targeted population was of a similar age bracket. Broader testing should include divergence sample population. The scale should be explored in the context of demographic variables, personality, clinical characteristics and social factors associated with addiction to technology. Another limitation was that the test-retest reliability was not estimated to determine the consistency of the scale across time.

CONCLUSION

This study is significant in being the first such research where the Cell Phone Addiction Scale (CPAS) was translated, culturally adapted and validated in Pakistan. It can be used in clinical and community settings with good psychometric properties.

CONFLICT OF INTEREST

The authors report no conflict of interest

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