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The Protocol Study of Developing and Studying of Psychometric Properties of Psychosocial and Occupational Performance Assessment for Adolescents Internet Users in India

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Abstract

In concern with the emerging issue in problematic use of internet among adolescents, there is an urgent need to develop and validate a tool to measure the occupational performance and psychosocial variables 1) To develop psychosocial and occupational performance assessment for adolescent's internet users in India.2) To establish strong psychometric properties for the developed psychosocial and occupational performance assessment for adolescent's internet users in India. There are three main phases, each of which describes and explains population, sample, sampling technique, setting area, instrument, data collection, and data analysis. Phase I: Concept formation and development of the test – the background analysis is carried out though review of literature and operation definition for construct of the test is framed. Then the test items are generated through focus group discussion and through conduction of semi structured interview from subject matter experts. Phase II: Pilot study to validate the developed tool's content through 1,000 adolescents for preliminary samples analysis. The collected data is analyzed though SPSS IBM 24. There is item reduction and factor analysis. Phase III: Test-retest reliability, internal consistency reliability, concurrent validity, and construct validity are established. The norm for the developed test is also established. The norm for developed test is also established. The study expects the developed tool will be helpful in screening and to assessing the severity level of internet addiction among adolescents. It will lead to development of intervention module for dealing with PIU in adolescents. Conclusion and recommendations, the anticipated conclusion of the study will be a pioneer of develop new tool in the field of occupational therapy professionals. The recommendation to find an intervention role with multiple co-morbid conditions offers great value.

Keywords : Adolescents, Psychosocial, Occupational performance, Internet user, Psychometric properties.

1. Introduction

In terms of technological improvement in mass media, internet users are continuing to increase; such advancement will cause psychological consequences, which may unintentionally and indirectly affect one's work or studies. The amount of time that people have spent on the internet has increased due to the evolution of continuous internet use. This is the root cause that will result in serious complications [1]. Adolescent Problematic Internet Use has gotten much attention in the last decade, and it has the potential to become one of the significant public health concerns in the future. There are clear and robust evidence studies indicating that excessive internet use harm people's physical, mental, and social well-being among adolescents in all Indian states, which is a major public

health concern [2]. Adolescents' refusal, decline, and drop out of school due to internet use highlight the significance of occupational therapy settings. Internet addiction and hypersexuality (Sex addiction) among adolescents have received increased research attention. The current adolescent population requires sufficient intervention and guidance in order to develop healthily. Assessing the severity level or identifying the dominant domains prior to the intervention is critical; hence the current study focuses on developing an assessment of Psychosocial and Occupational Performance Assessment for Adolescent Internet Users [3]. Few tools are available for adolescents that are not focused on the consequences of Psychosocial and Occupational performance. It is crucial to differentiate between regular and Problematic Internet Use (PIU) and stay aware of potential mental health issues while navigating this technological era. Using this basic concept as a starting point, we will develop the Psychosocial & Occupational Performance Assessment for Adolescent Internet Users, which would help screen the severity level [4]. Although there are some internet use assessments that have been validated for the global population, there has yet to be a gold standard test developed, specifically in regard to psychosocial and occupational assessment related to internet use. Developing a tool to measure adolescents' occupational performance and psychosocial characteristics is urgently required to consider the growing problem of PIU among adolescents. This is a requirement for creating high-quality intervention modules [5]. There is a need to develop a new instrument to address the gap in evaluating the psychosocial and occupational impact of internet addiction. To accomplish this, the researcher recommends creating novel assessments and psychometric properties that are suitable for researching the target and validating the quality of the instrument in future research. To establish a high-quality research program at PIU. In modern years, there has remained an increase in the usage of occupational therapy (OT) in the management of drug and behavioral addiction. On the other hand, there hasn't been a lot of research on OT and internet use [1].

2. Materials and Methods

2.1 Study design

Study investigates qualitative research, focusing on adolescents PIU through a descriptive study and observational approach (Questionnaire-Developed Semi-structured interview and developed new tool for measuring psychosocial and occupational Performance assessment for internet users).

2.2 Study area

The study will primarily target adolescents attending English medium schools in urban areas of Coimbatore District, Tamil Nadu state, India.

2.3 Target population

This study included male and female students who were fluent in English and ranged in age from 12-18 years old.

2.4 Sample size determination

The Coefficient alpha or Cronbach's alpha number of samples was calculated using Microsoft Excel 2016. Based on the formula provided, the formulation was created by Bonett [6].

$$n = \left\{\left(\frac{2k}{k-1}\right)\left(Z_{\frac{\propto}{2}} + Z_{\beta}\right)^2 \Big| \ln(\overline{\delta})^2\right\}+2 \quad \text{..... (a)}$$

Where, $\delta = \frac{1-CA0}{1-CA1}$ .....(b)

The Sample size remained estimated with a power of 0.90 (90%) (Power = 1–β =1.282) whereas the probability of type I error (α) was fixed at 0.05 at all times. Three effects need to be measured when formative the sample size for Cronbach's alpha test: the number of pieces or raters (k), the worth of Cronbach's alpha at null hypothesis (CA0), and the predictable value of Cronbach's alpha (CA1). The rate for CA0 and CA1 could be any value ranging from −1 to 1. Rule is set at 90% and the rate of alpha is at 0.05. The least sample size essential centered on formulas (a) and (b) is as shown below:

Calculations: where, α = 0.05 (95%) =1.96, β = 0.1 (90%) =1.282, k =35, CA0 = 0.60, CA1 = 0.65

$$\delta = \frac{1-0.60}{1-0.65} = \ln(1.14)^2 = (0.131)^2 = 0.017$$

$$n = \left\{\left(\frac{2*35}{35-1}\right)(1.96+1.282)^2 \middle| 0.017\right\} + 2$$

$$= \left\{\left(\frac{70}{34}\right)10.49 \middle| 0.017\right\} + 2$$

$$= \{(2.059)10.49|0.017\} + 2 = \{21.598|0.017\} + 2 = 1270 + 2$$

$$\cong 1272$$

2.5 Sampling techniques

A non-probability sampling method based on convenience random sampling technique only those people who are easily available to the researcher. The adolescents are in schools, which makes it easy to collect data on the targeted population.

2.6 Measurement

The methods for the pilot study that were initially developed are as follows: The pilot study will use semi-structured interviews. In contrast, the main study will implement a newly developed tool for assessing psychosocial and occupational performance in internet users.

2.7 Tool development procedure

The procedure for developing an assessment for psychosocial and occupational performance consequences for adolescent internet users is divided into three phases, each with its own set of steps [7].

Phase I: Development of concept & assessment instrument

Step-1. Analysis the literature: The investigator reviewed the numerous literature (Siste et al., 2021) [8]. MOHO (Model of Human Occupation), OTPF-AOTA (Occupational Therapy Practice Framework-American Occupational Therapy Association) 2020 file, IRT (Item Response Theory), and assessment item expansion steps are all correlated to psychosocial and occupational characteristics for adolescent internet consumers. The literature search covers the psychosocial and occupational aspects of internet use in adolescents, tools, measures, and valuation of internet addiction or problematical internet users, and apprises in measuring unnecessary internet user problems. Specific objectives are being planned, which include the content nature, type of instruction, sampling method, preliminary administration arrangement, test length and time limit, and statistical procedures to be utilized.

Step-2. Expert suggestion for semi-structured questionnaire review: The investigator will construct a semi-structured questionnaire to analysis internet usage trends better. This questionnaire will cover subjects such as device access, internet routine hours, recurrent visits to internet sites, and any psychological or occupational effects of internet use. Ten occupational therapy professionals with at tiniest ten years of practice will be given the questionnaire. They will check the questionnaire's content for appropriateness and typographical mistakes before validating it [9].

Step-3. Focus group discussion (FGD): It will be held, chaired by experts in occupational therapy, psychiatry, psychology, biostatistics, and software development. Each of the five expert groups will be chosen by a committee member with at least 10 years of experience in their respective field, selected from a pool of 25 experts. A total of five FGDs will be conducted [9].

Step-4. Item generation: The creation of items will be centered on literature reviews, semi-structured questionnaires, and FGD. These matters will be categorized according to specific scopes, such as the Psychosocial and Occupational effects experienced by adolescent internet users.

Step-5. Finalizing the response assessment tool: A instrument will be developed for evaluating responses in FGD, utilizing the assessment items and possibly implementing the Likert scale. The tool aims to provide an effective assessment method.

Step-6. Data analysis for preliminary testing: The data will be analysed using SPSS IBM 24. We will attempt to analyze the factors that influence internet usage by utilizing semi-structured questionnaires and assessment tool responses. Based on the results of the initial administration, the assessment tool items will be kept. The variables that have been tabulated consist of category, percentage, and frequency. The study finally turned its attention to validating the assessment tool.

Phase II: Pilot study

Step-1. Content validity (Subject matter expert rating): The experts' panel and subject matter experts will receive the generating items. (Wendy & Carl, 2010) [10]. Occupational therapists, psychologists, psychiatrists, and biostatisticians (each with two experts) worked together to create a list of items to be included in the assessment tool. Relevance of the content, typographical errors, instructional procedure, and addition and deletion of items will all receive expert ratings.

Step-2. Data collection (Main Study): After obtaining informed consent from parents and teachers of schoolchildren of either gender between the ages of 12 and 18 who meet the inclusion criteria. Email, Google forms, or direct distribution will all be used to distribute the created assessment tool. Based on the results of the pilot study, participants were given a "Personal Information Blank" with socio-demographic information, and the developed assessment tool Psychometric Properties of Psychosocial and Occupational Performance Assessment for Adolescents Internet Users will be administered on an appropriate sample size (1000 tentative sample size). Descriptive statistics, Cronbach's Alpha, correlation, ANOVA, and factor analysis will be used for statistical analysis. **(**Sisteet.al, 2021) [8].

Step-3. Data analysis (main study):
After gathering the data, the investigator will input it into SPSS IBM 24 for analysis. The socio-demographic details will be explored using descriptive statistics like frequencies and percentages. The investigator will perform exploratory factor analysis, Cronbach's Alpha, and descriptive statistics if an item is excluded.

Phase III: Psychometric properties
Based on Ginty's (2020) research, the investigation will have several phases. Some important factors to consider are item refinement, test-retest reliability, concurrent validity, internal consistency reliability, factor analysis (construct validity) using the IBM SPSS version 24.0, and developing an assessment manual [11].

Step-1. Item refinement: The items will be refined by the investigator based on suggestions from subject matter experts. Item refinement removes undesirable items from an advanced assessment tool based on expert advice. This will assist in enhancing the developed Psychosocial and Occupational Performance Assessment for Adolescent Internet Users" tool.

Step-2. Test-retest reliability: Reliability is the test's self-correlation, which indicates the consistency of the test's scores. The test-retest reliability will be determined by administering the developed assessment to the same group of individuals (N=100) twice within a period of 1 to 2 weeks (Terwee et al., 2007) [12]. The test's internal consistency or stability over time can be evaluated by correlating the scores from time-1 and time-2. Using categories, frequency, percentage, mean, median, mode, and standard deviation, and tabulating descriptive statistics based on expert ratings.

Step-3. Internal consistency reliability: On 100 samples, a developed assessment tool will be used. To assess the internal consistency reliability of the samples, we will be utilizing Cronbach's Alpha. These samples comprise individuals aged between 12 to18 years.

Step-4. Concurrent validity: The developed assessment tool and internet addiction test (IAT) will be administered to 100 male and female samples aged 12-18 years old. To establish concurrent validity, we will compute the Pearson product-moment correlation.

Step-5. Factor Analysis (Construct Validity): The instrument scale should have a minimum of ten subjects per item, along with item analysis and exploratory factor analysis. The finalised items will be loaded into the Varimax Rotated Component matrix for factor analysis. Based on factor loadings, the dimensions for the developed Psychometric Properties of Psychosocial and Occupational Performance Assessments for Adolescents Internet Users will be generated. The exploratory analysis will be carried out to ensure that the developed assessment tool has construct validity.

Step-6 Manual development: The structured manual will be developed using a systematic procedure based on all three phases. The psychometric properties, statistical analysis, age, education, and norms will be stated clearly.

Ethical consideration

Chiang Mai University in Thailand approved the research proposal on May 27th, 2022. The Institutional Ethics Committee also granted permission to continue the study in Tamil Nadu, India on August 1, 2022. The reference number for approval is 012/08/2022/IEC/SMCH. The study will be conducted at Saveetha Medical College & Hospital at Saveetha Institute of Medical Sciences and Technology- chennai, Tamilnadu, India.

3. Result

Based on Phase I: Development of concept and assessment tool, Phase II: Pilot study, Phase III: Psychometric properties, expected to be useful in the developed tool will be screening and assessing the psychosocial and occupational performance consequences severity level of internet addiction among adolescents.

Recommendations

The study projected conclusion would be a pioneer in developing new tools in the field of occupational therapy professionals. The suggestion to find an intervention role with numerous co-morbid disorders is quite valuable.

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