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Validity and Reliability of Adult ADHD Self-Report Scale Persian Version (ASRS-V1.1-Persian)

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Abstract

Background: Attention-deficit/hyperactivity disorder (ADHD) is a common mental disorder in adults. The objective of this study was to develop a valid Persian version of the 18-question ASRS-V1.1 according to WHO translation protocol and report its psychometric properties.

Methods: In the first step, we translated the original 18-question ASRS-V1.1 version into Persian under the supervision of the WMH-CIDI advisory committee. The process of adaptation was consisting of forward-translation, expert panel evaluation, back translation, cross-cultural adaptation, pre-testing, and final adjustment. In the second step, we conducted a cross-sectional study with 734 students were studied in Shahroud in 2013. A sub-sample of subjects consists of 99 students were clinically interviewed according to DSM-IV-TR criteria by a well-trained physician.

Results: The ASRS-V1.1-P had satisfactory internal consistency (Cronbach's alpha = 0.85). Sensitivity and specificity for the first six questions of ASRS-V1.1-P were 50.0% (95% CI: 30.3-69.6) and 80.5% (95%CI: 70.7-88.3), respectively. Finally, 43 subjects (5.5%) were confirmed for adult ADHD. There was not sex predominance in the prevalence of ADHD.

Conclusions: Totally, it may be concluded that adult ADHD is a common problem among students and prevention of this disorder is crucial to reduce the probable subsequent social, educational, and job problems in future. The 18-question ASRS-V1.1-P is a psychometrically reliable and valid measure for screening ADHD in adults.

Keywords: Attention-deficit/hyperactivity disorder, Screening, Adult, Validity.

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Introduction

Adult attention-deficit/hyperactivity disorder (ADHD) is a psychiatric condition among children and the results of some studies showed that it often can persist into adulthood for some patients.[1,2] ADHD is characterized by improper levels of inattention and/or hyperactivity-impulsivity that lead to clinically significant changes in functional and psychosocial behavior.[3] The symptoms of ADHD in adults are not clear like children, so in many adult cases the disorder may not be distinguishable[4] and only 10% of the population who are suspected to have ADHD were diagnosed and received treatment.[5] In addition, comorbidity of ADHD with other psychiatric conditions makes it difficult for the diagnosis of adult ADHD. The prevalence of ADHD was reported at 1-7%.[6-8] The incidence and prevalence estimation of this disorder

may be biased by various factors, such as background and methodological differences as well as differences in diagnostic criteria and medical classification systems.[7] Age, sex[8] and subtypes of ADHD[9] can effect on prevalence distribution of this condition.

In recent decades, attention has been paid to ADHD and its screening in adults, because ADHD can impact on the social relationships, career, and even the individual quality of life.[10,11] Many adults may have symptoms of the disease but do not receive proper treatment because of the difficulty of diagnosing this disease in adults and adult ADHD remains underdiagnosed. Therefore, it is important to use screening criteria to estimate the prevalence and identification of patients. The available scales for screening are Conners' adult ADHD rating scales-self-report[12] and Adult ADHD self-report scale (ASRS-v1.1) symptom checklist.[13] Conners' adult ADHD rating scales-self-report includes 30 questions with 0 to 3 points. It can be used for assessing the Inattention/memory problem, Restlessness/hyperactivity, Emotional instability/impulsiveness and D: Problems concerning general self-image.[14] Arabgol et al. has been normalized it on 20 students of Shahid Beheshti university of medical sciences, Iran. The reliability of this instrument has been reported acceptable with a Chronbach's alpha coefficient equal to 0.81.[15]

The ASRS-v1.1 can identify adults requiring clinical evaluation for ADHD.[13] This scale consists of 18 questions and developed for clinical and population-based studies. The questions in the ASRS v1.1 are consistent with DSM-IV-TR criteria and address the manifestations of ADHD symptoms in adults.[13] It is a validated tool for assessing current ADHD symptoms in individuals aged 18 years or older, and it has not been translated into Persian. Therefore, the objective of this study was to prepare a valid Persian version of the 18-question ASRS-V1.1 according to WHO translation protocol and finally evaluate the validity and reliability of it on a group of college students.

Materials and Methods

In this study, ASRS-v1.1 was translated to Persian and psychometric properties in the screening of ADHD were evaluated in 734 Iranian students over 18 years old in 2013. The study was approved by the ethics committee of the Shahroud university of medical sciences (code number; 920/36). All subjects provided a verbal informed consent prior to study participation and for clinical interviewing a written informed consent form was signed.

The participants were fulfilled two questionnaires including ASRS-V1.1-P and clinical interview checklist adapted on DSM-IV-TR criteria. The ASRS-V1.1 is one of several scales that were constructed in cooperation with the WHO-world mental health (WMH) survey initiative. The 18-question ASRS-V1.1 is a symptom checklist with two separate part (part A and B) that consisted of 18 ADHD symptoms asked how often the symptom occurred over the past 6 month's period. part A consists of 6 items and these six questions are the basis for the ASRS screener. Part B of the scale contains the remaining twelve items. Each item has a 5-point scale in which 0 = never, 1 = seldom, 2 = sometimes, 3 = often, 4 = very often. Its reliability and validity were demonstrated in the English version. The total score of this instrument ranged from 0 to 72.[13]

Translation of the instrument followed the standard WHO-CIDI protocol after obtaining permission from the copyright holder and finally accepted as official by the WHO-world mental health-CIDI advisory committee. In short, 6 steps were followed for the translations to be approved:

1. Original forward translation: in this section, the instrument along with instructions was translated to Persian by a Ph.D. of English language teaching and psychologist separately. In this process, the following tips were considered: translators should always aim at the conceptual equivalent of a word or phrase; it should strive to be simple; clear and concise; the target language should aim for the most common audience; translators should avoid the use of any jargon.

2. Expert panel: A 7-person group consisting of two translators, a psychiatric, a general practitioner as well as two epidemiologists as survey methodologist were reviewed the primary translated versions. The result of a panel expert's analysis produced a complete translated version of the instrument. The goal of expert panel analysis was to identify and detoxify the inadequate expressions of the translation, as well as any disagreement between the forward translations.

3. Back-translation: The instrument was translated back to English by an independent translator (Ph.D. in English language teaching).

4. International harmonization: At this important step, the final Persian version of ASRS and back-translated version distributed to the external expert panels in separate countries. This step was done by WHO-world mental health-CIDI advisory committee.

5. Pre-testing and cognitive interviewing: In this step, we distributed the primary prepared ASRS-Persian to 10 persons (over 18 years old). We ask the subjects to describe what they understood the question to be asking, the ability to revival the item in their own words, what imagined when they heard a question, and to discuss how they choose their response. These questions repeated for each item. This information accomplished by in-depth personal interviews by a well-trained physician. Some minor modification was done during the pre-testing of the questionnaire.

6. Final version: The final version of the instrument was completed after all the iterations described above and finally approved by WHO-world mental health-CIDI advisory committee

To evaluate the validity and reliability of this scale we conducted a cross-sectional study on a group of college students. In this study, 734 Iranian students were participated ranged in age from 18 to 50 years (mean age = 23.5 years, SD = 2.9) and 403 of them (54%) were females. Students were randomly selected using a multi-stage sampling method. The clusters were 27 educational majors. Students with psychosomatic comorbidities such as anxiety, depression and so on were excluded by completing a medical history taking.

To investigate the psychometric properties of the ASRS we compared the ASRS screening results with a clinical interview with a group of screened subjects. Internal consistency was assessed using Cronbach's alpha coefficient. Criteria validity was evaluated by calculating sensitivity, specificity of screening results comparing with clinical interview.

Results

The validated Persian version of ASRS-v1.1- is available online:

https://www.hcp.med.harvard.edu/ncs/ftpdir/adhd/18Q_Persian_FINAL.pdf

Reliability: The internal consistency of the ASRS-v1.1-P using Cronbach's α was 0.85 for the entire scale.

Prevalence of ADHD: Using 6 items of part A, we screened 104 students (14%) with symptoms highly consistent with ADHD. These are who responded with 4 or more checkmarks in the darkly shaded area of part A. The results of the study showed that there are no gender differences in the ASRS-v1.1-P accounted prevalence (female = 13.0% and male = 16.9%; χ^2 = 2.1, Pvalue = 0.15).

For further investigation, for all 104 screened students the other 12 items of ASRS-v1.1-P (part B) were assessed by the physician. Finally, 43 subjects (5.5%) were confirmed for adult ADHD. There was not sex predominance in the prevalence of ADHD.

Criteria validity of ASRS-V1.1-P:

The criteria validity was assessed by calculating the sensitivity and specificity from the results of the clinical psychiatric interview. A clinical interview using a semi-structured interview according to the symptoms from the ADHD criteria in the DSM-IV-TR was done for 99 students. These students were selected randomly from all students who responded with 2 or more checkmarks in the dark area of part A related to the ASRS-v1.1-P scale. Finally, 22 students (22/99) were confirmed as ADHD using clinical interviews as the gold standard (hyperactive = 7, attention deficit = 9 and mix = 6). Sensitivity and specificity for the first six questions of ASRS-V1.1-P were 50.0% (95%CI: 30.3-69.6) and 80.5% (95%CI: 70.7-88.3), respectively (table 1).

Table 1. Comparison between results of clinical interview and ASRS-V1.1-P screening scale in 99 students

Test	Clinical interview ADHD	Not ADHD
ASRS screening scale		
−Positive	11	15
−Negative	11	62
Total	22	77

Discussion

The goal of this study was to prepare a valid Persian version of the ASRS-V1.1 scale and in the second step to assess the validity and reliability of the18-question ASRS-V1.1-P for screening adult ADHD. The internal consistency using Cronbach's coefficient was 0.85 which shows good internal consistency for this questionnaire. The internal consistency of the Japanese, Korean and Thai version of ASRS was over 0.70.[16-18]

The sensitivity and specificity of ASRS-V1.1-P in our study were 0.50 and 0.80, respectively. This is in line with the results of the Japanese validation study (sensitivity = 0.67 and specificity = 0.84).[18]

The estimated prevalence of ADHD in our report was 5.5% which is more prevalent than other studies.[19] There were no sex differences in the prevalence of ADHD according to the ASRS screening scale. This result is contrary to the results of a meta-analysis[19] which found male predominant but is in line with findings of studies conducted in Korea and Australia.[17,20] This difference can be interpreted by the fact that we estimated ADHD prevalence based on self-reported symptoms. In adults, unlike children, the sex ratio tends to be more identical.[17]

Conducting this study on the student population is the main limitation of our study. Another limitation of this study is needed for adaptation of this scale to DSM-5 criteria. The new changes for the scale are available online at https://www.hcp.med.harvard.edu/ncs/ftpdir/adhd/ASRS-5_Guidelines.pdf.

Comparing the results of screening with the clinical investigation in the sub-sample of students as well as good observation in the adaptation process such as forward and backward translation are in the strength lists of this study.

Totally, according to the obtained results in this study, it may be concluded that adult ADHD is a common problem among students and prevention of this disorder is crucial to reduce the probable subsequent social, educational, and job problems in future. The 18-question ASRS-V1.1-P is a psychometrically reliable and valid measure for screening ADHD in adults. Using 6-item part A is suitable for screening and diagnosis of ADHD needs further investigation like a review of entire symptoms (part B) and taking a good social, family and medical history. For assessing the effectiveness of this instrument in screening of ADHD further investigation is necessary.

Acknowledgement

Conflict of Interest

The authors declare that they have no conflict of interest.

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