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Psychometric properties of the Polish version of the brief version of Kutcher Adolescent Depression Scale – assessment of depression among students

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Summary

Aim. Depressive disorders, which remain one of the most common and recurrent mood disorders worldwide, presently affect up to 15% of the population under age 25. Adolescent depression is related to a number of adverse phenomena such as scholastic/academic failure, juvenile delinquency, illicit substance abuse or suicide. Studies show that students are at a high risk of developing this disorder but depression in this population is often misdiagnosed and undertreated. Consequently, it is important to develop reliable diagnostic tools to evaluate symptoms of depression in students. Kutcher Adolescent Depression Scale (brief version) is a commonly used screening test used to identify young people at risk for depression, which consists of six items related to its main symptoms. The aim of the study was to adapt and test reliability and content validity of the Polish version of six – item Kutcher's KADS based on analysis of students using confirmatory factor analysis.

Material and method. A total of 1,589 student aged 18–24 anonymously answered a questionnaire on the risk of depression (KADS) and a demographics survey.

Results. Confirmatory factor analysis showed the good fit of model to empirical data: SB χ^2 (15) = 968.688, $p < .001$, RMSEA = .053, CFI = .958, SRMR = .029. Factor loading ranged from .40 to .80.

The study has not been sponsored.

Conclusions: Validation of Polish version of KADS in a group of students aged 18-24 years has shown its high reliability and content validity. Further studies should be focused on the assessment of the questionnaire criterion validity.

Key words: depressive disorder, questionnaires, screening

Introduction

Depression is a common mental health disorder, which is characterized by depressed mood, psychomotor agitation or retardation, decreased pleasure and blunted affect. It is also frequently accompanied by loss of appetite, weight loss, insomnia or hypersomnia, poor concentration, tearfulness or suicidal thoughts [1-5]. Depressive symptoms are often classified as internalizing disorders [5-7].

Etiopathogenesis of depression is complex [8-11]. After twenty years of research in this area, four factors i.e.: stressful life events, early childhood traumatic events, hypothalamic–pituitary–adrenal (HPA) axis dysregulation and genetic susceptibility have been identified as the most important determinants of depression [10-14]. The aforementioned stressful life events include experiences of loss or excess burden such as: changes in financial situation, interpersonal conflicts, emotional disappointments or losses, marital discords or family conflicts, chronic diseases or death of a loved one. Furthermore, early childhood traumatic events e.g. experiences of sexual molestation, emotional and physical abuse or neglect may trigger onset of depression.

As far as HPA axis dysregulations concerned, nuroendocrinological studies, which play a special role in the research on depression, showed that corticoliberin (CRF) and cortisol mediate the effect of stressful life events, high susceptibility to stress and biological changes observed in depression. To add, recent findings pointed to the crucial role of genetically inherited susceptibility to depression, which determines individual stress response [12-14]. Several authors noted that depression is related to a number of health problems because it is associated with an increased risk of maladaptive behaviours.

It is estimated that depression is prevalent in up to 15% of adolescents and young adults [3, 15]. Adolescent girls are also twice as likely as their male peers to be depressed [16, 17]. First episodes of this mood disorder usually occur between the ages of 12 and 18 [2, 3]. Then, the increasing prevalence can be noted in young individuals over age of 19. Students are at a particularly high risk of developing this disorder [17-20]. It is believed that many cases of depression remain undiagnosed or untreated. This problem is to a large extent caused by a deficit of screening tests to assess depression in this population [3, 5, 15, 19, 20-22]. Consequently, we decided to evaluate the usefulness of Kutcher Adolescent Depression Scale to assess students. KADS, which is an extensively used six-item scale for quantitative measurement of symptoms of depression, has been validated on a population of individuals under age 22 so it does

not include all intramural students because of their age (most often in 19-24 age range). There are versions of the scale that comprise a larger number of items (11 and 16). However, we decided to focus on the brief form in this study due to its superior sensitivity and specificity compared to the 16-item version and high convergence with Beck Depression Inventory [23-25]. This study was carried out in a group of students and the test was validated in respondents up to age 24. We did not expect to find any distinct differences between 22- and 24-year-olds. Furthermore, as students remain a homogenous group of young individuals who are learning, they should be assessed using the same psychometric tool. Using this brief test may facilitate early diagnostics decisions and allow for more timely and thus adequate therapeutic intervention [23, 24, 26-32]. Having multiple tests of the same construct can also provide alternative measures for individuals who have already been tested with some other depression scale multiple times [33]. In sum, the goal of this paper was to present the construct validity of the Polish version of KADS for students.

Material and method

A total of 1,589 respondents (72.3% of participants were women) who studied at University of Medical Sciences or at Adam Mickiewicz University in Poznan, Poland participated in this study. The study was carried out in the academic year 2011-2012. The volunteers were 18-24 years olds (M = 20.9; SD = 1.5). Missing data (< 1%) were determined to be completely at random via Little's MCAR chi-square test, χ^2 (19) = 7.332, $p > 0.05$, and were imputed using Expectation-Maximization algorithm in SPSS 21.

Preparation of KADS in Polish

The questionnaire, which is commonly used in North America, came from Stephen Kutcher, with whom all assumptions of the paper were discussed and who also gave his consent to use the questionnaire in this study. On the basis of the agreement with the author of the test, a ready-made version of translation by a bilingual person was used, whose linguistic correctness was verified. Then, in order to assess correctness and adequacy of the translation, the Polish version of the KADS was translated back into English by a translator who did not know the original version. The obtained translation was equivalent to the original contents of the test (see Appendix A). Next, to assess comprehensibility of the test, the final version was presented to five competent judges. Also, the graphic form of the English version was retained in the questionnaire form. Finally, the questionnaire was administered to students. [23, 32].

Procedure

Subjects were administered Kutcher Adolescents Depression Scale (KADS), which is an extensively used screening test for risk of depression in young individuals [32] and consists of six statements on: (1) sadness, (2) hopelessness, (3) tiredness, (4) difficulties of life, (5) worry and (6) suicidal symptoms and self-harm (see Appendix A – the final version of polish language questionnaire).

Respondents selected the most suitable answer on the 0–3 scale [0 – hardly ever, 1 – sometimes, 2 – most of the time, 3 – all the time]. Score of 6 points or higher indicated the risk of depression. Respondents also completed a demographics survey.

The study was performed in the presence of a person who could answer respondents' questions related to the test (physician, psychologist or nurse). Volunteers were also informed they could withdraw from the study at any moment.

Statistical Analysis

Statistical analysis was carried out with mPlus 7.11 using maximum likelihood estimator with Satorra-Bentler scaled chi-square (MLM) that is robust to multivariate non-normality in the distribution of the questionnaire items scores [33]. The fit of the model was evaluated with root mean square of approximation (RMSEA) together with 90% confidential interval of RMSEA, comparative fit index (CFI) and standardized root mean square residual (SRMR). A model fits empirical data well if RMSEA < .06, SRMR < .06, and CFI > .95. According to theoretical assumptions items of this questionnaire form a single factor structure [34].

Results

Construct validity and reliability

Descriptive statistics of test items are shown in Table 1.

Table 1. **Descriptive statistics of KADS items**

	Item					
	1	2	3	4	5	6
M	1.28	1.20	1.42	1.17	1.44	1.02
SD	0.57	0.49	0.63	0.46	0.62	0.20

M – mean; SD – standard deviation

Women (M = 1.37, SD = 1.95) were more depressed than men (M = 1.07, SD = 1.82), t (653.28) = 2.55, p < .01. Age was inversely related to depression, Pear-

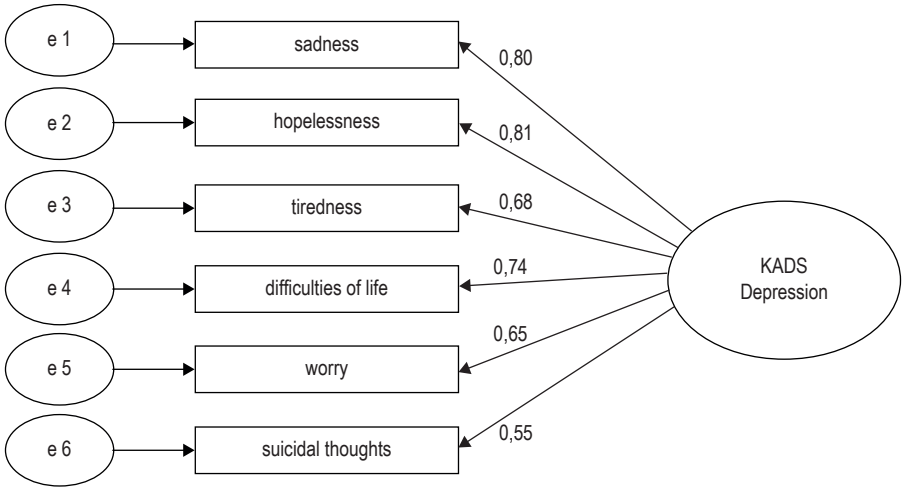

Figure 1. **Factor model for KADS [23, 25]**

son's $r = -0.16$ ($p < 0.05$). Confirmatory factor analysis showed a good fit of the single factor model to empirical data: SB χ^2 (15) = 968.688, $p < 0.001$, RMSEA = 0.053, CFI = 0.958, SRMR = 0.029 (see Figure 1). Standardized factor loadings ranged from 0.40 to 0.80 and were all significant, $p < 0.001$.Parameters in our model were similar to those in the English version [24]. Internal consistency of this scale as measured by Cronbach's α was α = 0.82.

Discussion

Depression, particularly early-onset depression, is one of the most common recurrent mood disorders and a civilization disease. It is associated with a number of adverse psychosocial phenomena [1-18, 30]. Still, early signs of this mood disorder in young individuals often remain unnoticed or misinterpreted (i.e. interpreted as youth rebellion). Consequently, these youngsters are not provided with accurate diagnosis and therapy. Students are at a particularly high risk of negative outcomes of depression because they do not achieve their developmental potential [19-33]. Screening tests such as KADS, which can identify specific signs of early depression play a significant role in diagnosis of depression [23]. KADS includes six statements, which are related to significant symptoms of depression and can be used to assess intensity of depression in young individuals under age 22. This brief questionnaire has been used both in individual diagnostics and in research e.g. it has already been successfully applied to assess efficacy of pharmacological treatment of depression [29, 34].

This study was carried out in a group of students. We thought that since students remain a homogenous group of young individuals who are learning, they should be assessed using the same psychometric tool. Consequently, the goal of the paper was to validate and assess psychometric properties of the Polish version of the test in a group of students. Confirmatory factor analysis indicated that Polish version of KADS was characterized by good construct validity as shown by a good fit of empirical data to the single factor model postulated by the authors of the scale. The sixth of tested items concerned with suicide and self-harm, received the lowest factor loadings. This suggests, that KADS can be less sensitive to the detection of suicidal or self-harm ideations, intentions and behaviours than other symptoms of depression. In general, the obtained parameters were similar to those of the English version [23, 24]. Still, the results of the Polish version of the KADS should be interpreted with caution for several reasons. The mean age of the Polish respondents was higher than the mean age of the respondents of the original study, which was carried out in a group of high school students [23]. Also, our sample included university students, so any generalizations should be limited to individuals with higher education level. Furthermore, in the original study the final score equal or higher than six points may indicate a risk of depression [23, 32]. Noteworthy, as we did not evaluate criterion validity of the scale, due to cultural differences this threshold can be different. The cut-off score and remaining criterion validity parameters should be confirmed in further studies on the Polish population. The Polish version of KADS can be used by psychologists or psychiatrists for a brief quantitative assessment of depressive symptoms in university students.

Conclusions

Polish version of Kutcher Adolescents Depression Scale (KADS):

1. is characterized by good construct validity and high reliability;
2. is a psychometric tool, which can be recommended for further research purposes and suggested as a supplementary tool in the clinical practice. It is recommended to administer the test in the presence of a competent person who can answer subjects' questions related to the test;
3. may facilitate quick assessment of symptoms of depression, in students, who are at high risk of developing this disorder.
4. may enrich the diagnostic process with alternative tests of depression.

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Appendix A.

Contents of the six items of the Polish version of KADS as suggested by the authors of the study

JAKIE MIAŁEŚ/MIAŁAŚ NAJCZĘŚCIEJ ODCZUCIA
W ZESZŁYM TYGODNIU?

1. Smutek, ponury nastrój, przygnębienie, depresję, ogólne zniechęcenie.
   ❑ ❑ ❑ ❑
   a) Prawie nigdy b) Dość często c) Przeważnie d) Zawsze

2. Brak wiary w siebie, złe samopoczucie, poczucie bezużyteczności i beznadziejności; wrażenie, że rozczarowujesz innych lub nie jesteś dobrym człowiekiem.
   ❑ ❑ ❑ ❑
   a) Prawie nigdy b) Dość często c) Przeważnie d) Zawsze

3. Wyczerpanie fizyczne, zmęczenie, brak energii, brak motywacji, poczucie, że nie radzisz sobie ze sprawami, które dotąd nie sprawiały Tobie kłopotów, chęć odpoczynku lub pozostania w łóżku.
   ❑ ❑ ❑ ❑
   a) Prawie nigdy b) Dość często c) Przeważnie d) Zawsze

4. Poczucie, że życie jest ciężkie, brak dobrego samopoczucia w sytuacjach, w których wcześniej zwykle czułeś/czułaś się dobrze, brak przyjemności w sytuacjach, w których dotąd odczuwałeś/odczuwałaś szczęście.
   ❑ ❑ ❑ ❑
   a) Prawie nigdy b) Dość często c) Przeważnie d) Zawsze

5. Uczucie zmartwienia, zdenerwowania, paniki, napięcia, poirytowania, niepokoju.
   ❑ ❑ ❑ ❑

a) Prawie nigdy b) Dość często c) Przeważnie d) Zawsze

6. Czy myślałeś, planowałeś lub robiłeś coś związanego z samobójstwem lub samookaleczeniem.

❑ ❑ ❑ ❑

a) Prawie nigdy b) Dość często c) Przeważnie d) Zawsze