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Turkish Validity & Reliability of The Quick Inventory of Depressive Symptomatology Adolescent Version (QIDS-A_{17}-SR) In Comparison with The Beck Depression Inventory-II Among Late Adolescents

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ABSTRACT:

Turkish validity & reliability of the quick inventory of depressive symptomatology adolescent version (QIDS-A_{17}-SR) in comparison with the beck depression inventory-II among late adolescents

Introduction: The Quick Inventory of Depressive Symptomatology Adolescent Version QIDS-A_{17}-SR has never been used before as an instrument measuring major depressive disorder symptomatology among Turkish adolescents. Researcher aimed to examine the psychometric properties of the Turkish version of the QIDS-A_{17}-SR.

Methods: This study was conducted among 342 of Cankiri Karatekin University's late adolescent students from the Faculty of Education during the period between December 2014 and January 2015 academic years. The QIDS-A_{17}-SR was translated into Turkish and was administered to students along with the Beck Depression Inventory-II-Turkish scale. The p value ($p<0.05$) was found as statistically significant.

Results: The mean age was 20.1±1.5 (SD) years, and 77.5% of the students were female. The internal consistency coefficient of the QIDS-A_{17}-SR was 0.81. In the confirmatory factor analysis, one factor model fit well. By using a modified model, goodness of fit indices of the scale were improved to the sample.

Conclusions: As the Turkish QIDS-A_{17}-SR showed good psychometric parameters, it could be used confidently for measuring major depressive disorder symptomatology in Turkish adolescents. It is a free, accessible, and practical instrument.

Keywords: QIDS-A17-SR, Turkish, adolescence, major depressive disorder

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INTRODUCTION

Adolescence is a period experienced by human beings between ages 9 to 10 and 21 years that involves changes in body structure, as well as psychological and social function[1,2]. It is divided into three psychosocial developmental phases: early adolescence (11-13 years), middle adolescence (14-16 years), and late adolescence (17-21 years). Adolescence is a time of transitioning from concrete operational thinking to formal logical thinking, including reasoning. Moral thinking is seen as parallel to cognitive evolution[1]. The cognitive triad is also mentioned in the

development of a depressive episode: negative self-evaluation, a pessimistic view of the world, and hopelessness regarding the future[3].

Major depressive disorder (MDD) occurs throughout a human's lifespan including adolescence[4,5,6]. The early detection of depression in adolescents is important for primary care physicians, as depression in adolescents may lead to poor consequences. The peak age range of depressive symptoms is from 15 to 19 years[7]. The prevalence of MDD is about 4-8% in adolescents, with a male-female ratio of 1:2. After puberty, this disease is increased by two to four folds. The cumulative incidence by age 18 is approximately 20%[8].

MDD is diagnosed by five or more of the following symptoms. One of the symptoms must be either a depressed mood or a loss of interest and pleasure over two weeks, followed by: 1) depressed mood most of the day; 2) diminished interest and pleasure in the day; 3) significant weight loss or weight gain (>5% of the body in a month); 4) insomnia or hypersomnia; 5) psychomotor agitation or retardation; 6) fatigue or loss of energy, 7) feeling of worthlessness, guilt; 8) diminished concentration, indecisiveness; or 9) recurrent thoughts of death[9]. The symptoms may cause significant distress or impairment in social, occupational, and other functioning capabilities. This period must not to be caused by effects of a substance or other medical condition.

Other psychiatric diseases that must be distinguished include attention deficit and hyperactivity disorder (ADHD), conduct disorder, developmental disorder, substance use, and adjustment disorder[8]. Approximately 70% of children with a single episode of MDD will experience another depressive year within five years[10]. MDD co-occurs with other diseases, and 40-90% of depressive adolescents have other psychiatric diseases[8]. Approximately 60% of depressed adolescents think about suicide and 30% of them attempt to suicide[1]. A history of suicide attempts and a family history of suicidal behavior and comorbid disorders are essential for detection of depression. Depressed adolescents are also at a high risk for substance use, impaired academic performance, impaired family and peer relationships, and poor adjustment to life stressors[1].

MDD includes familial, genetic, and environmental attributes. Impaired parenting, dysfunctional families, parent figure changes, loss of parents, physical and sexual abuse, neglecting, social isolation, lack of social supports, being exposed to domestic and community violence, and low socioeconomic status are major risk factors[1].

Clinicians should screen all adolescents for depression symptoms, as these children could have symptoms most of the time, affecting their functioning. Diagnostic tools and instruments measuring the severity of MDD are mostly effective for diagnosing and facilitating effective patient care. There are many valid and reliable instruments which are available for determining a diagnosis and symptom severity, as well as monitoring treatment. The instruments designed for adults could be used efficiently among adolescents.

The QIDS-A_{17}-SR scale has been applied for the first time to adolescents in Turkey. The concurrent validity of the QIDS-A_{17} with the previously validated Beck Depression Inventory-II (BDI-II) will produce a new, free instrument for detecting depression among Turkish adolescents, because some depression scales for adolescents are high priced. The QIDS-A_{17}-SR can be also performed in 5 to 7 minutes, more rapidly than other scales (e.g. administration time of child depression inventory (CDI), 30 minutes), so it is very practical and contains only 17 questions.

In this present study, we aimed to conduct this Turkish validity and reliability study of the Quick Inventory of Depressive Symptomology Self-Report (QIDS-SR16), which forms the basis of the QIDS, Adolescent Version Self-Report (A17-SR).

MATERIAL AND METHODS

Participants

This study was conducted among 342 of Cankiri Karatekin University's adolescent students from the Faculty of Education during the December 2014

and January 2015 academic years. An ethics board approval has been provided by the university ethics board. The Turkish version of the QIDS-A_{17} and BDI-II, of which the latter has been previously validated in Turkey, are applied to the late adolescent aged university students.

QIDS-A_{17}-SR scale

The QIDS-A_{17}-SR was constructed by Bernstein et al. [11], and it was derived from the QIDS-SR[16], which was also constructed by this team and Rush et al[12,13]. The QIDS-SR[16] was also derived from an Inventory of Depressive Symptomology (IDS)-30 study conducted by Rush et al.[14]. This scale has nine criterion symptom domains (sleep, sad mood, appetite/ weight, concentration/ decision making, self-view, thoughts of death or suicide, general interest, energy level, and restlessness/ irritability), while other criterion domains are especially added to the scale for adolescents by the scale's owner. These items are sleep disturbance (items 1 to 4), depressed (sad) mood (item 5 or item 6), change in appetite or weight (items 7 to 10), concentration/ decision making (item 11), self-view (item 12), suicidal ideation (item 13), general interest (item 14), energy/fatigue (item15), psychomotor agitation/retardation (items 16), and restlessness/ irritability (item 17). Each item is scored from 0 to 3 regarding the amounts of depressive symptomatology. After administration, the maximum scores of items 1 to 4, items 5 and 6, items 7 to 10, item 11, item 12, item 13, item 14, item 15, and items 16 and 17 are added for a total score of 30, and administration time is 5-7 minutes.

Beck Depression Inventory-II

The BDI-II was published by Beck et al.[11,12], and the Turkish version of the BDI-II was validated by Tegin[15]. It is one of the most implemented depression scales in Turkey. This scale is composed of 21 questions, which depression scores less than 10 are accepted as normal, totaling 10-16 are accepted as mild depression, 17-29 as moderate, 30-39 as severe depression, and greater than 39 as very severe depression. Administration of this scale lasts 7-10 minutes[12,13].

Translation process of QIDS-A_{17}-SR

The QIDS-A_{17}-SR was translated by a translation team consisting of one translator who resides in the USA and two translators who are proficient in English. Then, it was back-translated and the ambiguities are resolved by determining a consensus among the translation team.

Sociodemographic data form and personal consent form

A sociodemographic data form was implemented with the QIDS-A_{17}-SR and the BDI-II, incorporating questions related to gender, age, division, family monthly income, previous depression and family depression history, number of siblings, smoking and alcohol consumption, and mother's and father's educational levels. A volunteer consent form was completed for all subjects.

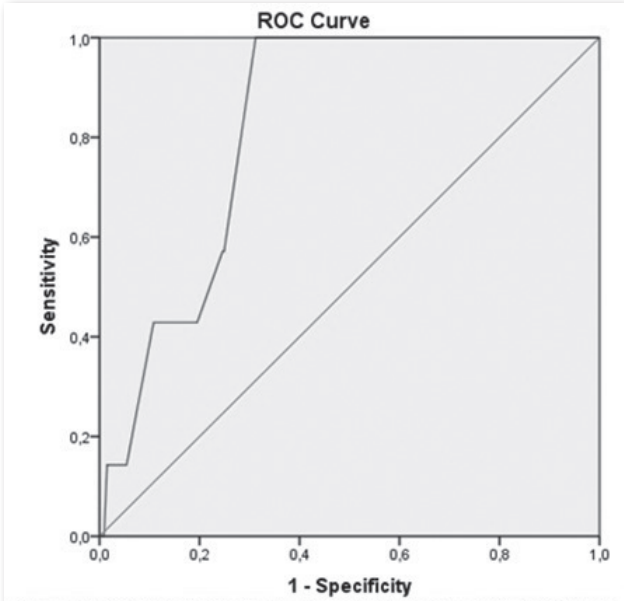
The items' means, standard deviations, and item-total correlations (r_{it}), the scale mean, standard deviation, and Cronbach's alpha internal reliability coefficient and a Receiver Operating Characteristic (ROC) analysis were conducted, and a significant p value was found ($p<0.05$).

RESULTS

The mean age was 20.1±1.5 (SD) years. In total, 264 of the students (77.5%) were female, while 78 of the students (22.5%) were male. 221 students (64.6%) were younger than 20 years old, while 121 (35.4%) were older than or equal to 20 years old. The monthly incomes of the families of the students were under 950 TL ($375) among 82 students (24%), 950-1900TL ($375-$833) among 170 students (49.7%), 1900-3879TL ($834-$1458) among 60 students (17.5%), 3880-5500TL ($1459-$2083) among 20 students (5.8%), and more than or equal to 5,500 TL ($2083) among 10 students (2.9%). Furthermore, 61 students (17.8%) declared that he or she previously had a depressive episode, while

Table 1: Sociodemographic characteristics of the participants

	n	%
Division		
Sociology	214	62.6
Philosophy	60	17.5
History	68	19.9
Grade		
Grade 1	202	59.1
Grade 2	68	19.9
Grade 3	72	21.0
Number of siblings		
<3 siblings	215	62.9
3-5 siblings	75	21.9
≥5 siblings	52	15.2
Smoking		
No	292	85.4
<10 cigarettes/day	21	6.1
10-20 cigarettes/day	27	7.9
≥20 cigarettes/day	2	0.6
Alcohol drinking		
No	312	91.2
1-2 times a week	6	1.8
1-2 times a month	13	3.8
<1 time a month	11	3.2
Mother's education		
<High School	294	86,3
>High School	48	13,7
Father's education		
<High School	248	72.5
> High School	94	27.5



Area Under the Curve

Test Result Variable(s): Tot_QIDSA17,2

Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
,823	,044	,003	,737	,910

Figure 1: ROC curve analysis of the Turkish version of QIDS-A17-SR- in comparison with the Turkish version of BDI-II-. The area under the curve is 0.823. = 0.003.

69 students (20.2%) declared a previous history of depression in their families (Table 1).

The scale mean (standard error) was 1.73 (.44), and the internal consistency coefficient α was 0.81. Item means ranged from 0.65 for domain 6 (thoughts of death or suicide) to 2.26 for domain 1 (sleep). Domain 8 (energy level) had the highest item-total correlation (r_{it}) at 0.58, followed closely by domains 5 (self-view), 7 (general interest), and 2 (sad mood) at 0.58, 0.57, and 0.55, respectively. Domain 3 had the lowest r_{it} at 0.33.

According to a ROC analysis, in comparison with the Turkish BDI-II inventory, a total QIDS-A_{17}-SR score below 7 indicates no depressive symptomatology, 7-11 indicates mild depression, 11-14 indicates moderate depression, and ≥14 indicates severe depression (Figure 1). The sensitivity of the QIDS-A_{17}-SR was 82.6% and specificity 84.3%. According to this classification, 161 students (47.1%) had no depressive symptomatology, 94 students (27.5%) had mild depression, 48 students (14%) had moderate depression, and 39 students (11.4%) had severe depression. However, a clinical investigation is always superior to a scale; hence, we seek only symptoms of depression in the scale. Depression symptomatology had been found at 19.6% (n=67) among female students and at 6.1% (n=21) among male students. Increasing of female student participation (77.5%) in the study may be a reason for this outcome.

Students having a lower family monthly income had a higher depressive symptomatology score (p=0.002), students declaring a former depression history had a higher depressive symptomatology score (p<0.0001), and students declaring a former family depression history had a higher depressive symptomatology score (p<0.0001). Students older than 20 years old consume much more alcohol than students younger than 20 years old do (p=0.022). Students older than 20 years old consume many more cigarettes than students younger than 20 years old do (p=0.042). In addition,

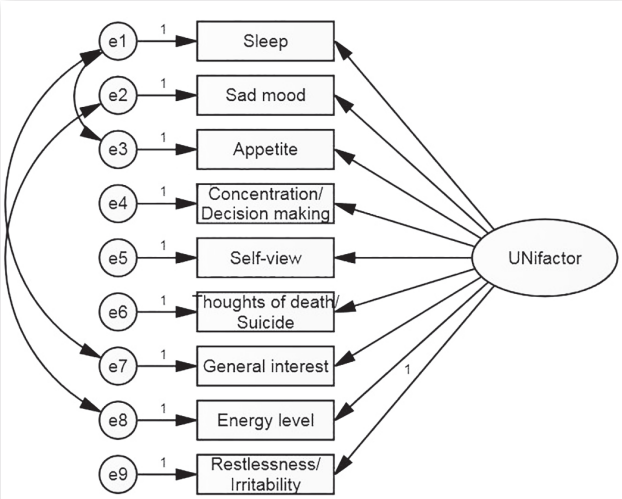


Figure 2: Model 2: Confirmatory factor analysis of the Turkish QIDS-A_{17}-SR. There are 9 observed variables (sleep, sad mood, appetite-weight, concentration-decision making, self-view, thoughts of death/suicide, general appetite, energy level, and restlessness/irritability). There is one latent variable reflecting that the scale has one factor. The numbers over boxes are regression weights. The scale has prefect goodness-of-fit indices. Model 2 had a CFI of 0.96, which is suggestive of a good fit, and an RMSEA of 0.08, which is less so.

male students consume many more cigarettes than females (p=0.001), and male students consume much more alcohol than females do (p<0.0001).

In the confirmatory factor analysis, one factor model has been found fit: the model 1 parameter $\chi^2(27)=32.45$, χ^2/df (chi-square/degree of freedom)=1.21 , GFI (Goodness-of-fit index)=0.97, NFI(Normed fit index)=0.93, RMSEA (Root Mean Square Error of Approximation)=0.024. These results reflect an acceptable fitness of the scale to the adolescent sample. The second model (Model 2) was used and this gave us a better fitness of the scale: $\chi^2(24)=15.7$, $\chi^2/df=0.66$, GFI=0.99, NFI=0.97, RMSEA= 0.000 (Figure 2).

DISCUSSION

The early detection of depression in adolescents is important for primary care physicians, as depression in adolescents could lead to poor consequences. In a study which primary care providers participated in the screening, assessment, and treatment of adolescent depression (SAT-D) education, providers screened depression in adolescents almost 2.78 times higher than normal depression rate in the period of 2 to 8 months. This number reached 3.17 times higher in a period of 18 to 24 months. Supporting these initiations compels the poor consequences of adolescent depression16.

The original study of the QIDS-A_{17}-SR performed in Dallas includes patients of early adolescence, while this Turkish study was directed to students of late adolescence. The mean age of the original study is 13.8±2.4 years, while the mean age of this study is 20.1±1.5 years. This study has a greater proportion of females than the original study (77.5% vs. 51%), though the internal consistency of the two QIDS-A_{17}-SR studies was similar (0.78 vs. 0.81)[15].

In a study that examined the influence of physical activity on depression scores at mid-adolescence, higher levels of physical activity are associated with lower levels of depression[17]. These data were obtained from a Canadian National Longitudinal Study, in which boys had lower depression scores than girls had[17].

In Brazil, depression was screened in 743, 10-19-year-old adolescents by the Patient Health Questionnaire-9. The prevalence of minor depression was 17%, which is higher in girls than in boys. The authors stated that minor depression was determined by two or more symptoms, of which one must be anhedonia or a depressive mood. Depression was found to be higher in the group of 14-15-year-olds, females, ethnic minorities, smokers, and individuals who have lived with a depressed individual18.

In the Norwegian HUNT study, it was found that both parents' anxiety and depression levels affect adolescents. This study is implemented in 5,732 adolescents aged 13-18 years old and in 3,229 parents. The effect of both parents' anxiety and depression levels was studied in relation to the self-esteem and physical activation levels of the adolescents. It was found that the associations between parents are related to adolescents' anxiety and depression levels. Self-esteem was partly found to change the associations between anxiety/ depression in parents and their adolescent offspring. No gender differences were

found. However, physical activity affects positively with direct associations between anxiety/ depression in mothers and adolescents. No such effect was evident regarding paternal (father's) anxiety/ depression. To resolve this problem, increasing self-esteem and physical activity is important[19].

In the comparison review of four adolescence depression instruments (Children's Depression Inventory [CDI], Center for Epidemiological Studies-Depression [CES-DC], Beck Depression Inventory-Youth [BDI-Youth] subscale, and Reynold's Adolescent Depression Scale [RADS]-short form), it can be determined that those four scales have good reliability and validity. According to this review, the internal consistency coefficient α of these four scales ranged from 0.88 to 0.96 (BDI-Youth: 0.96, CES-DC: 0.89–0.93, CDI: 0.83–0.86, and RADS: 0.88-0.90). The BDI-Youth has negative statements, while the CED-DC has positive and negative statements. However, the CES-DC is free to use, as opposed to the CDI, BDI-Youth, and RADS. Our scale is also free of charge and internet-downloadable, and it has good reliability and validity values[20,21].

In the Polish Kutcher Adolescent Depression Scale (KADS) study, 1,589 students aged 18-24 years participated[22]. Our χ^2/df, CFI, RMSEA, and Cronbach α values appear similar to those of a study on the original American QIDS-A_{17}-SR, conducted by Bernstein et al., and that of the Polish KADS[11,22]. A further analysis of the KADS and QIDS-A_{17}-SR can be performed in the near future.

In another study of the KADS in rural Australia[23], 18% of rural adolescents had depression, 41% had a low mood much of the time or often, and 20% had occasional or more frequent self-harm and suicidal thoughts. In this study, only 4.1% had thoughts of death and suicide several times a week for several minutes. In the KADS study, depressive symptomatology was found to be higher in females (23%) than in males (11.2%). In this study, clinical depressive symptomatology was found in 25.2% of female students and in 26% of male students. Apparent higher depressive symptomatology scores were found among male students in this trial, but there was no statistical significance. A free accessible QIDS-A_{17}-SR scale would be useful to screen depressive symptomatology in Turkish adolescents. Nationally, it is believed that using this scale would be helpful for the clinical diagnosis and would provide a free screening of depression symptomatology for adolescents. However, we should not forget the fact that that the psychiatric scales are not superior to a clinical diagnosis. Clinical investigation is the supreme method of diagnosing, rather than scales measuring symptomatology. Especially, the detection of depressive symptomatology in adolescents is more important for primary care physicians, as they will be able to refer patients to more specific psychiatry teams.

The limitations of this study were the age group selection (late adolescent group), the female dominance of the sample, and the lack of a larger sample.

Turkish QIDS-A_{17}-SR scale has been used among Turkish adolescents. This scale has also clinician-rated and parent-rated subscales. Turkish adaptation of all of QIDS-A_{17} will provide a new option in the detection of depression among Turkish adolescents.

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