

The validity and reliability of the Turkish version of Attitudes Toward Intellectual Disability Questionnaire (ATTID) – Short Form

Zihinsel Yetersizliğe Yönelik Tutumlar Anketi (ZYYTA)-Kısa Form Türkçe uyarlamasının geçerlik ve güvenilirliği

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SUMMARY

Objective: Despite the excessive healthcare needs, persons with Intellectual Disability (ID) experience an inadequate access to healthcare services. Evaluating the attitudes of health personnel and community toward ID is important in terms of determining the factors affecting the social inclusion of persons with ID and the effectiveness of the services provided to these persons. The aim of this study was to adapt the Attitudes Toward Intellectual Disability Questionnaire (ATTID)-Short Form to Turkish, which consists of cognitive, emotional and behavioural dimensions of attitude, and to evaluate its validity and reliability. **Method:** This study is a methodological type of research conducted on 1-6th grade medical faculty students studying in 2019. Exploratory factor analysis, simultaneously applied scale correlation analysis, Cronbach's alpha and test-retest correlation analysis were carried out in data analyses. **Results:** In this study, as a result of the exploratory factor analysis, five factors were determined whose items were compatible with the original items of the questionnaire. The factor loads of the items in the five factors were between 0.33-0.80, and five factors explained 52.49% of the total variance. As a result of the reliability analysis, the Cronbach's alpha coefficient in the factors of the Turkish version of the ATTID-Short Form varied between 0.76-0.87, and it was 0.88 in the whole questionnaire. **Discussion:** Analyses conducted to determine the validity and reliability of the Turkish version of the ATTID-Short Form demonstrated that the questionnaire was accepted as a valid and reliable measurement tool.

Key Words: Attitudes, intellectual disability, validity, reliability, medical students

(Turkish J Clinical Psychiatry 2022;25:270-277)

DOI: 10.5505/kpd.2022.39297

ÖZET

Amaç: Sağlık hizmeti ihtiyaçlarının fazlalığına karşılık Zihinsel Yetersizlik (ZY)'i olan bireyler sağlık hizmetlerine erişimde yetersizlikler yaşamaktadır. Toplumun ve sağlık personelinin ZY'e yönelik tutumlarının değerlendirilmesi, ZY'i olan bireylerin topluma dahil olmasını etkileyen faktörlerin ve bu bireylere verilen hizmetlerin etkinliğinin belirlenmesi açısından önemlidir. Çalışmanın amacı tutumun bilişsel, duygusal, davranışsal boyutlarından oluşan Zihinsel Yetersizliğe Yönelik Tutumlar Anketi (ZYYTA)-Kısa Form'un Türkçeye uyarlanarak geçerlik güvenilirliğinin değerlendirilmesiydi. **Yöntem:** Çalışma 2019 yılında öğrenim gören 1-6. Sınıf tıp fakültesi öğrencilerinde yapılan metodolojik tipte bir araştırmadır. Verilerin analizinde açımlayıcı faktör analizi, eş zamanlı uygulanan ölçek korelasyon analizi, Cronbach alfa ve test-tekrar test korelasyon analizi kullanıldı. **Bulgular:** Çalışmada açımlayıcı faktör analizi sonucunda maddeleri anketin orijinal maddeleriyle uyumlu olan beş faktör belirlenmiştir. Beş faktörde maddelerin faktör yükleri 0.33-0.80 arasında olup, beş alt alan toplam varyansın % 52.49'ini açıklamaktaydı. Yapılan güvenilirlik analizi sonucunda ZYYTA-Kısa Form'un alt alanlarında Cronbach alfa katsayısı 0.76-0.87 arasında değişmekte olup anketin tamamında 0.88 idi. **Sonuç:** Sonuç olarak, ZYYTA-Kısa Form'un geçerlik ve güvenilirliğinin belirlenmesine yönelik yapılan analizlerde, anketin geçerli ve güvenilir bir ölçme aracı olduğu kabul edildi.

Anahtar Sözcükler: Tutumlar, zihinsel yetersizlik, geçerlik, güvenilirlik, tıp fakültesi öğrencileri

INTRODUCTION

World Health Organization (WHO) defines Intellectual Disability (ID) as a disability characterized by significant limitations in both intellectual functioning and in adaptive behaviour, which covers many everyday social and practical skills (1). American Association on Intellectual and Developmental Disabilities (AAIDD) defines ID as a significantly reduced ability to understand new or complex information and to learn and apply new skills. This results in a reduced ability to cope independently, and begins before adulthood, with a lasting effect on development (2).

Terminology for what is now referred to as ID has varied historically and one of them has been mental retardation. The term ID is increasingly preferred to mental retardation because it reflects changing construct of disability described by the AAIDD and WHO, is more consistent with current professional practices that focus on functional behaviours and contextual factors, provides a logical basis for providing individualized supports because it is based on a social-ecological framework, is less offensive to persons with the disability, and is more consistent with international terminology (3).

Social inclusion of persons with disabilities is one of the main principles of the United Nations Convention on the Rights of Persons with Disabilities (4). Attitudes toward ID play an important role in the social inclusion of persons with ID, who are the most disadvantaged group of the persons with disabilities (5-8). Evaluating the attitudes toward ID is important in determining the factors that influence the social inclusion of persons with ID and the effectiveness of services provided to them (9-12).

The excess of health problems and risk factors, and the insufficiency of the health services provided, have a negative impact on the social inclusion of persons with disabilities (9). Persons with ID are one of the sensitive groups exposed to health inequalities (11). The main determinants of health inequalities among people with ID can be listed as exposure to social determinants of poorer health, increased risk of health problems related to specific

genetic and biological causes of ID, communication difficulties and reduced health literacy, personal health risks and behaviours, and deficiencies relating to access to healthcare provision (13).

Attitudes of health personnel are important in reducing health inequalities of persons with ID (12). Handling the attitude with its dimensions provides a better understanding of the barriers to social inclusion of persons with ID and facilitates the implementation of intervention studies aimed at changing specific dimensions of attitudes (14). There are several scales in the literature that evaluate attitudes toward ID (15-18). The importance of using scales appropriate for the multidimensional structure of attitude has been emphasised in attitude assessment (19,20). In the literature, the Attitudes Toward Intellectual Disability Questionnaire (ATTID) and the ATTID-Short Form, the shorter form of this questionnaire, evaluates attitude with its affective, cognitive, and behavioural dimensions (14,21).

In recent years, studies have been increasingly conducted in the literature to reduce health inequalities among individuals with ID and to measure medical students' attitudes toward ID (22-25). However, no previous study on medical students' attitudes was found in Turkey. There are a few scales that measure attitudes toward ID (26,27). However, these scales are not adaptations that allow cross-cultural and international comparisons. And there is no valid and reliable scale that includes cognitive, affective and behavioural dimensions of attitude. There is a need for an internationally recognised measurement tool that will guide future studies to improve attitudes toward ID.

The aim of this study was to adapt the ATTID-Short Form into Turkish and evaluate its validity and reliability.

METHOD

Participants

The validity and reliability study of the Turkish ver-

sion of the ATTID-Short Form in medical students was conducted on 1-6th Grade students at Osmangazi University, Faculty of Medicine in 2019. Based on the rule that the ratio of participants to the number of items should be at least 5:1 and a ratio of 10:1 is optimal (28,29), it was decided to include about 350 students in the study. The number of students to be taken from each class was determined according to the quota weighting of the classes. After the students were informed about the topic and purpose of the study, a total of 366 students who agreed to participate in the study and gave their consent formed the study group. Ethical approval and administrative permission were obtained to conduct the study.

Questionnaires

The questionnaire used in the study consisted of questions about students' sociodemographic characteristics, perceived relationship to the person with ID, ATTID-Short Form and Beliefs toward Mental Illness Scale (BTMIS).

ATTID was first developed by Morin et al. by considering attitude in a multidimensional model with its affective, cognitive, and behavioural dimensions (14). The questionnaire was developed from various measurement tools in the literature. The additional items on the rights of persons with ID have been reported to be related to the Montreal Declaration on Intellectual Disabilities. The questionnaire consists of a total of 67 items and five dimensions (14).

Morin et al. developed the ATTID-Short Form by reducing the number of items to make ATTID more efficient due to the reasons such as reducing time and the resource constraints and increasing the response rate by reducing the load (21). ATTID-Short Form was developed using the study sample and data set used to develop ATTID. ATTID-Short Form consists of 35 items on a 5-point Likert-type scale ranging from (1) completely agree to (5) completely disagree. ATTID-Short Form has a five-factor structure that determines the tripartite attitude model. The factors "Knowledge of capacity and rights" (8 items) and "Knowledge of causes" (6 items) are belong to the

cognitive dimension. The factors "Discomfort" (8 items) and "Sensitivity or tenderness" (6 items) factors belong to the affective dimension. The behavioural dimension is represented by the factor "Interaction" (7 items) (21).

Some of the items of the ATTID-Short Form that measure the affective and behavioural dimensions of attitude are exemplified in two case vignettes. The first vignette describes a person with mild limitations in intellectual and adaptive capacity, and the second case describes a person with severe limitations. The questions on the case vignettes allow the researchers to identify differences between attitudes according to the severity of the ID. ATTID-Short Forms' 14 items are scored in reverse and it is assumed that the higher the score in the factor, the more negative the attitude toward the relevant dimension. In the study on the development of ATTID-Short Form, it was reported that the Cronbach's alpha coefficients of the factors varied between 0.671 to 0.866 (21).

To evaluate the concurrent validity of Discomfort, Interaction, Sensitivity or tenderness factors of the Turkish version of ATTID-Short Form, BTMIS and the responses for the question that assessed the level of perceived relationship with persons with ID were used. For the responses to the question that assessed the perceived level of relationship with persons with ID, 1 point was assigned for good, 2 points for neutral, and 3 points for poor.

The BTMIS, which was used as a parallel scale to evaluate concurrent validity, was developed by Hirai & Clum (2000) (30), and the Turkish validity and reliability study was conducted by Bilge & Cam (2008) (31). BTMIS consists of 21 items that include negative beliefs about mental illness. BTMIS is a 6-point Likert scale scored as 0-completely disagree and 5-completely agree. It is assumed that as the score on the scale increases, the level of negative beliefs toward mental illness increases (31).

Translation and Content Validity

Permission was obtained from the author who developed the ATTID-Short Form to conduct

Turkish validity and reliability study of the questionnaire. Since the questionnaire was adapted from different languages and cultures, it was translated into Turkish by two language experts in accordance with the translation-back translation method for language validity. The created Turkish form was translated back into English by another language expert. The Turkish form of the questionnaire was created by comparing all the forms. The Turkish version of the ATTID-Short Form questionnaire was created by checking the in terms of Turkish grammar.

The Turkish version of the ATTID -Short Form was submitted to a group of academics consisting of three public health specialists, two psychiatrists, one neurologist, and three special education specialists to evaluate content validity. The experts were asked to rate the appropriateness and intelligibility of each scale item. They rated each item as essential, useful but not essential, not necessary according to Lawshe method (32). Content validity index (CVI) was calculated for each factor, and the factor-CVI values were 1.00, 0.92, 0.94, 0.89, and 0.96.

Data Analyses

The data obtained were analysed using SPSS 15.0. Descriptive statistics were reported as mean and standard deviation for numerical variables, and as number and percentage for categorical variables. After the descriptive statistics, the Turkish version of the ATTID-Short Form was examined for validity and reliability. Spearman correlation analysis was performed on the correlations of the data that did not conform the normal distribution.

Validity Analyses

In this study, the validity of the Turkish version of the ATTID -Short Form was evaluated through analyses of construct validity and concurrent validity.

Exploratory Factor Analysis (EFA) was used to determine the construct validity of the Turkish version of the ATTID-Short Form. In the study, the

Kaiser-Meyer-Olkin (KMO) sample adequacy measure and Bartlett's test for sphericity were used to evaluate the suitability of the data set for factor analysis. Principal component analysis was used as the factor extraction method, and the Varimax method was used for factor rotation.

To evaluate the concurrent validity of the factors of Discomfort, Interaction, Sensitivity or tenderness of the Turkish version of ATTID-Short Form, BTMIS and the responses to the question assessing the level of perceived relationship with persons with ID were used. The relationship between the above factors of the Turkish version of ATTID-Short Form and BTMIS and the perceived level of relationship with the person wit ID were evaluated using Spearman correlation analysis.

Since no scale with Turkish validity and reliability could be found for the "Knowledge of capacity and rights" and "Knowledge of causes" factors, which form the cognitive dimension of the ATTID-Short Form, concurrent validity could not be evaluated for these factors.

Reliability Analyses

The internal consistency of the Turkish version of the ATTID-Short Form was calculated using the item-total score correlation and the Cronbach's alpha coefficient.

To evaluate the test-retest correlation of the Turkish version of the ATTID-Short Form, the Turkish version of the ATTID-Short Form was administered again to 26 participants three weeks later who had been previously surveyed. Since it is recommended to choose a time interval between 15 days and 3 months for the scales in such a way that the memory effect of the subject is minimized and the actual value is not changed (33), a time interval of 3 weeks was decided. The relationship between participants' test-retest scores was evaluated using Spearman correlation analysis.

RESULTS

The age of the 366 students in the study group

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Table 1. The factor loads of the items in the Turkish version of ATTID-Short Form, item-total correlations, Cronbach's alpha, the Cronbach's alpha if the item is deleted, and variance values explained by factors

	Factor Load	Item-total correlation	Cronbach's alpha if the item is deleted	Cronbach's alpha	
Discomfort (% variance: 14.21)					
Feel insecure (Murat)	0.80	0.71	0.85	0.87	
Feel insecure (Mert)	0.80	0.73	0.85		
Experience anxiety (Murat)	0.79	0.70	0.85		
Experience anxiety (Mert)	0.76	0.73	0.85		
Feel afraid (Mert)	0.69	0.68	0.85		
Feel afraid (Murat)	0.72	0.56	0.87		
Be wary (Murat)	0.49	0.49	0.87		
Be wary (Mert)	0.48	0.48	0.87		
Knowledge of capacity and rights					
<i>(% variance: 10.66)</i>					
Should have the right to have children	0.79	0.57	0.72	0.76	
Should have the right to get married	0.73	0.54	0.73		
Should have the right to vote	0.70	0.50	0.73		
Should have the right to have sex	0.66	0.49	0.74		
To handle money	0.49	0.44	0.74		
To make decisions	0.46	0.42	0.75		
To carry on a conversation	0.45	0.43	0.75		
To hold down a job	0.33	0.33	0.76		
Interaction (% variance: 10.10)					
Would you agree to supervise Murat at your work?	0.77	0.64	0.77		0.81
Would you agree to supervise Mert at your work?	0.73	0.58	0.78		
Would you accept Mert as your son or daughter's friend?	0.61	0.59	0.78		
Would you accept being advised by Murat in an electronics store?	0.66	0.51	0.79		
Would you accept Murat as your son or daughter's friend?	0.64	0.57	0.78		
Would you accept being advised by Murat in a clothing store?	0.59	0.55	0.79		
Feel comfortable talking to him (Mert)	0.47	0.43	0.81		
Sensitivity or tenderness (% variance: 8.98)					
Feel touched, moved? (Mert)	0.69	0.53	0.82	0.83	
Feel sad (Mert)	0.79	0.73	0.78		
Feel touched, moved? (Murat)	0.69	0.48	0.83		
Feel sad (Murat)	0.77	0.72	0.78		
Feel pity (Mert)	0.46	0.59	0.81		
Feel pity (Murat)	0.52	0.58	0.81		
Knowledge of causes (% variance: 8.54)					
Consumption of drugs or alcohol by the mother during pregnancy	0.77	0.69	0.79	0.83	
Chemicals in the environment	0.73	0.61	0.80		
Malnutrition in the mother	0.71	0.59	0.80		
Serious head injury in a child	0.70	0.60	0.80		
Problems during birth	0.68	0.62	0.80		
Lack of stimulation during childhood	0.63	0.51	0.82		
Whole questionnaire (Cumulative % variance: 52.49)					
					0.88

ranged from 18 to 30 years, and their mean (SD) was 21.7 (2.2) years. Of the students, 197 (53.8%) were male, 58 (15.9%) were in 1st grade, 67 (18.3%) in 2nd grade, 62 (16.9%) in 3rd grade, 59 (16.1%) in 4th grade, 57 (15.6%) in 5th grade, and 63 (17.2%) in 6th grade.

Validity

Construct Validity

First, the suitability of the questionnaire for EFA was evaluated with the KMO value and Bartlett's test. KMO values above 0.60 can be factored (34). As a result of the analysis, the data were suitable for factor analysis (KMO = 0.831, $\chi^2 = 6001.72$; $p < 0.001$). EFA identified eight factors with eigenvalues above one. To ensure the compatibility of the questionnaire with the original form, factor analysis was performed again by fixing the number of factors to five. As a result of the factor analysis, five factors with eigenvalues above one were determined, namely the Discomfort, Knowledge of capacity and rights, Interaction, Sensitivity or tenderness, and the Knowledge of causes whose items

Table 2. The results of the correlation analysis among the scores obtained from the factors of the Turkish version of ATTID-Short Form (Discomfort, Interaction, Sensitivity or tenderness) and BTMIS and the perceived relationship level with persons with ID scores

Turkish version of ATTID-Short Form factor score	Beliefs Toward Mental Illness Scale score		Perceived relationship level with persons with ID score	
	r	p*	r	p*
Discomfort	0.270	<0.001	0.352	<0.001
Interaction	0.315	<0.001	0.310	<0.001
Sensitivity or tenderness	0.241	<0.001	0.196	<0.001

*Spearman correlation analysis

ATTID-Short Form: Attitudes toward Intellectual Disability Questionnaire-Short Form ID: Intellectual disability

were compatible with the original items of the questionnaire. The factor loadings of the items in the five factors varied between 0.33-0.80, and the five factors explained 52.49% of the total variance (Table 1).

Concurrent Validity

In the study, there was a weak correlation between the scores of the factors Discomfort, Interaction, Sensitivity or tenderness and BTMIS scores. Similarly, there was a weak correlation between the above factors and the perceived level of relationship level with the persons with ID scores ($p < 0.001$ for each factor) (Table 2).

Reliability

Internal consistency

Reliability analysis showed that the Cronbach's alpha coefficient for the factors of the Turkish version of the ATTID -Short Form varied between 0.76-0.87 and was 0.88 for the whole questionnaire. The item-total correlation coefficients of the questionnaire varied between 0.33-0.73. The Cronbach's alpha values if the item was deleted varied between 0.72-0.87. The item-total correlations of the Turkish version of ATTID-Short Form, Cronbach's alpha and Cronbach's alpha values if the item was deleted are given in Table 1.

Table 3. Test-retest correlation coefficients of the Turkish version of ATTIDShort Form factors

Turkish version of ATTID-Short Form factors	Test-retest correlation coefficients	
	r	p*
Discomfort	0.606	0.001
Knowledge of capacity and rights	0.721	<0.001
Interaction	0.770	<0.001
Sensitivity or tenderness	0.732	<0.001
Knowledge of causes	0.528	0.006

*Spearman correlation analysis

ATTID-Short Form: Attitudes toward Intellectual Disability Questionnaire-Short Form

Test-retest reliability

When the test and retest score correlations of the Turkish version of the ATTID-Short Form factors were compared, there was a moderate-strong correlation between the correlation coefficients of all factors (Table 3).

DISCUSSION

The community and the health personnel attitudes are important in preventing the health inequalities of persons with ID (9,11,12). In studies that aim to positively change attitudes, it is important to assess existing attitudes and the factors that influence attitudes. In this context, to evaluate attitudes towards ID, a scale with Turkish validity and reliability is needed, which is included in the international literature. In this study, the ATTID-Short Form, a current assessment instrument that evaluates attitude with its dimensions, was adapted into Turkish and the validity and reliability analyses were conducted.

In the study, the EFA was used to determine the construct validity of the Turkish version of the ATTID-Short Form. The data was suitable for EFA with a KMO above 0.60 (34). In this study, similar to the original study of ATTID-Short Form, EFA revealed five factors. Five factors explained 52.48% of the total variance. The measurement tools should explain at least 50% of the variance (35). On the other hand, it is considered sufficient for the variance explained in social sciences to be between 0.40-0.60 (33). In the original study by Morin et al. on the development of ATTID, five factors explained 39.36% of the total variance (14). In the study in which the ATTID-Short Form was developed, five factors explained 47.6% of the total variance (21). The total variance explained by the factors of the Turkish version of the ATTID-Short Form was reasonable, and the variance values were close to the variance values of the original short and long forms of the questionnaire.

The factor loadings of the items in the assessment tool on the factor must be at least 0.30 (36). In the study, the factor loadings of the items on the factors was found to be at least 0.33. In the study on the development of ATTID, the lowest factor load-

ing was 0.46, and in the study on the development of ATTID-Short Form, the lowest factor loading was 0.52 (14,21). Although the lowest factor loading of the items in the Turkish version of the ATTID-Short form was lower than the lowest factor loading in the original short and long forms of the questionnaire, it was sufficient to explain the structure to which they belong.

The BTMIS scores and perceived relationship level with the persons with ID scores used for concurrent validity with the Discomfort, Interaction, Sensitivity or tenderness factors of the Turkish version of ATTID-Short Form demonstrated weak correlations. Although the correlation levels were significant, the reason for their weakness may result from the fact that the scale and question used for the concurrent criterion were measuring similar to ID but were not identical. Since there was no scale in Turkish with the validity and the reliability, which evaluates "Knowledge of capacity and rights" and "Knowledge of causes" factors constituting the cognitive dimension of the ATTID-Short Form, concurrent criterion validity for these factors could not be evaluated. Since this is the first study in our country that evaluated the attitudes toward ID in the medical literature, it has the limitations of the absence of another scale that evaluates attitudes toward ID.

In general, an internal consistency coefficient of at least 0.70 is recommended for an assessment tool to be considered reliable (37). In the study, the Cronbach's alpha coefficient varied between 0.76-0.87 for the factors of the Turkish version of the ATTID-Short Form, and was 0.88 for the whole questionnaire. The Cronbach's alpha if item is deleted values of the questionnaire, remained between 0.72 and 0.87, and since the values did not increase, all items were retained and no item was removed. In the study that Morin et al. developed the ATTID, the Cronbach's alpha coefficient varied between 0.59-0.89 in the factors and 0.92 in the whole questionnaire (14). In the study on the validity and reliability of the Korean form of the ATTID, three factors were obtained and the Cronbach's alpha of the questionnaire was 0.928 (38). In the study in which the ATTID-Short Form was developed, the Cronbach's alpha coefficient varied between 0.67-0.87 in the factors, but the

Cronbach's alpha value in the whole questionnaire was not reported (21). Consequently, the reliability values of all factors in the Turkish version of the ATTID -Short Form were as high as in the original study of the questionnaire.

In the study the stability of the questionnaire over time was tested with test-retest correlation by conducting the Turkish version of the ATTID-Short Form again three weeks later. After three weeks, the moderate-high correlation coefficients of the test-retest scores in the factors of the Turkish version of the ATTID-Short Form revealed that the questionnaire had no variability over time.

Turkish version of ATTID-Short Form addresses the cognitive, affective, and behavioural dimensions of the attitude with the factors of Discomfort, Knowledge of capacity and rights, Interaction, Sensitivity or tenderness, and Knowledge of causes. This is the first adapted questionnaire in Turkey that can be used in studies to identify the factors that influence attitudes toward ID and to observe the change in attitudes over time. This questionnaire can also be used in intervention studies aimed at changing attitudes toward ID. The multidimensional structure of the questionnaire makes it possible to determine which dimension of attitude is more prominent in negative attitudes in the population in which the study is conducted. Similarly, in intervention studies, it allows the development of programs for the factor that is at the forefront of negative attitudes.

Another important feature of the Turkish version of the ATTID-Short Form is that some of the items measuring the affective and behavioural dimen-

sions of attitude include the same questions evaluating the attitude toward ID in two case vignettes with two different levels of intellectual and adaptive capacity. Future studies may assess differences in attitudes according to the severity of ID. This feature of the questionnaire is also directive for intervention studies.

Turkish version of the ATTID-Short Form, which is an up-to-date and internationally recognized questionnaire, will also allow international comparisons.

CONCLUSION

Analyses conducted to determine the validity and reliability of the Turkish version of the ATTID-Short Form demonstrated that the questionnaire was accepted as a valid and reliable measurement tool. In future research the validity and reliability of the questionnaire can be tested in different samples.

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