Turkish Version of The Amputee Body Image Scale and Relationship with Quality of Life

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ÖZET:
Türkçe ampute vücut imaj anketi ve yaşam kalitesi ile ilişkisi

Amaç: Alt ekstremite amputasyonu olan hastalarda orijinal ve revize edilmiş Ampute Vücut İmaj Anketi'nin Türkçe uyarlamasını yapmak, geçerlik ve güvenirliğini göstermek.
Yöntem: Alt ekstremite amputasyonu olan ve protez kullanan 91 hastaya Ampute Vücut İmaj Anketi (20 madde, 1-5 arasında puanlama) uygulandı. Bir ay sonra medikal durumunda ve kullandığı protezde değişiklik yapılmayan 37 hastaya tekrar test ve yaşam kalitesi anketi (SF-36) uygulandı. Revize edilmiş Ampute Vücut İmaj Anketi (14 madde, 0–2 arasında puanlama) güvenirliği için ilgili çalışmaya göre yeniden puanlama yapıldı.
Bulgular: Orijinal ve revize edilmiş Ampute Vücut İmaj Anketi'nin Türkçe versiyonu içsel olarak tutarlı ve güvenilir bulundu. Cronbach's Alpha değeri orijinal versiyon için 0.88, revize edilmiş versiyon için 0.86 olarak bulundu. Madde toplam puan arasındaki korelasyon katsayısı orijinal versiyon için 0.25 (madde 3) ile 0.75 (madde 8 ve 14) arasında, revize edilmiş versiyon için 0.33 (madde 3) ile 0.76 (madde 6 ve 8) arasındaydı. Test- tekrar test korelasyon katsayısı orijinal versiyon için 0.78, revize edilmiş versiyon için 0.74 olarak hesaplandı. Yaşam kalitesi anketi (SF–36) alt bölümleri ile Ampute Vücut İmaj Anketi toplam puanları arasında 0.31 (mental sağlık) ile 0.60 (fiziksel fonksiyon) arasında değişen oranda negatif korelasyon saptandı.
Sonuç: Ampute Vücut İmaj Anketi Türkçe versiyonu alt ekstremite amputasyonu olan hastaların vücut imaj algısında bozulmayı değerlendirmek için güvenilir bir ölçüm aracı olarak kullanılabilir.

Anahtar sözcükler: Amputasyon, vücut imajı, yaşam kalitesi

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ABSTRACT:
Turkish version of the amputee body image scale and relationship with quality of life

Objective: To adapt the Amputee Body Image Scale (ABIS) into Turkish and to assess the reliability of the original and revised Amputee Body Image Scale (ABIS-R) in lower limb amputees.
Method: Turkish version of the ABIS (20 items; ratings of 1–5) was administered to 91 lower-limb amputee patients wearing prosthesis. One month later, retest was applied to 37 patients. SF–36 was also administered to 37 patients for validity. The scores have been reevaluated for the reliability of the ABIS-R (14 items; ratings of 0–2).
Results: Turkish version of the ABIS and ABIS-R fitted the unidimensional construct that the scale was intended to measure and demonstrated good reliability. Cronbach's alpha was 0.88 for the ABIS and 0.86 for the ABIS-R. Items-total correlation ranged from 0.25 (item 3) to 0.75 (items 8 and 14) for the ABIS. Items-total correlation ranged from 0.33 (item 3) to 0.76 (items 6 and 8) for the ABIS-R. Test-retest correlation coefficient was 0.78 for the ABIS and 0.74 for the ABIS-R. Negative correlations with SF-36 subscales ranged from 0.33 (mental health) to 0.60 (physical functioning) for the ABIS and ranged from 0.31 (mental health) to 0.60 (physical functioning) for the ABIS-R.
Conclusions: We conclude that the Turkish versions of ABIS and ABIS-R demonstrate good reliability for measuring body image disturbances in individuals with lower-limb amputations. Moreover, the two scales displayed significant correlations with SF–36.

Key words: Amputee, body image, quality of life

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INTRODUCTION

Despite the use of prosthesis, dissatisfaction concerning the perception of the body image remains to be an important issue in the post amputation period. Its prompt recognition and evaluation are crucial during rehabilitation. In this regard, evaluations need to encompass psychosocial adjustment since body image anxiety is significantly related with depression, lower levels of self-esteem, and poor quality of life (1-4).

The Amputee Body Image Scale (ABIS) has been proposed to measure the amputee's perception of his or her body image and it has been shown to have an acceptable content validity, internal consistency, and convergent validity (1). Significant positive correlations were demonstrated between the perception of body image and psychosocial well-being (1). Further, its validity was also supported by Wetterhahn et al. who found significant correlations between six subscales of the Multidimensional Body–Self Relations Questionnaire and the ABIS (2). Recently, through Rasch analysis, it has been reported that the psychometric properties of the ABIS and its revised

form with 14 items (ABIS-R) also demonstrated good psychometric characteristics for measuring body image disturbances in lower-limb amputees (5). To the best of our knowledge, its test-retest reliability and its correlations with Short Form (SF)-36 have not been studied.

The aim of this study was to develop a Turkish version of the ABIS and ABIS-R and to examine their correlations with the SF-36 (a health related quality of life scale) for construct validity.

METHODS

Ninety-one patients with lower limb amputations who had been admitted to the Rehabilitation Center, Amputee Rehabilitation Unit between 2003–2008 were enrolled. The study protocol was approved by the Institutional Review Board. All patients were informed about the procedure and they consented to participate.

Turkish version of the ABIS was applied in all the subjects and repeated one month later in 37 subjects who did not have any of the followings: change in the medical condition, change/repair in the prosthesis. SF–36 was also given to these 37 patients. After gathering all the data with respect to the ABIS, six items were deleted as described elsewhere (5) and recoding was performed according to three levels. ABIS-R items and total scores were recalculated.

Translation into Turkish was carried out according to the forward and backward procedure. A group of physicians then used the two translations to adapt the scale according to cultural, vocabulary suitability and purpose of the items. Finally, the questionnaire was translated back to English by another bilingual person to ensure that the meaning of the items had not been lost during the initial translation.

The ABIS includes 20 items that assess how an amputee perceives and feels about his/her body experiences. Participants are asked to indicate their responses to the questions using a rating scale of 1 (none of the time) to 5 (all of the time). Three questions (3, 12, and 16) are reverse scored. The scale produces scores that range from 20 to 100, where high scores indicate higher body image disturbance. ABIS-R is 14-item and 3-level scale formed after collapsing some categories where 1 is coded as 0 (none of the time); 2 and 3 as 1 (sometimes); 4 and 5 as 2 (most/all of the time) (1,5).

The SF–36 (eight subscales with a total of 36 items) is a commonly used and well documented health-related quality of life index. Some questions are closed-ended, and some are scored on an ordinal scale. Scores are summed, resulting in an individual score for each of the eight subscales and the two domains of physical functioning score and mental functioning score. A higher score indicates better quality of life. Turkish version of the SF-36, and its reliability and validity have been reported before (6-8).

Statistical Analysis

Using SPSS 15.0 for Windows, (SPSS Inc. Chicago IL), internal consistency and homogeneity of the original 20 items and revised 14 items of ABIS were examined as follows: Cronbach's coefficient alpha was calculated to determine internal consistency. It may be a necessary condition for homogeneity or unidimensionality of a scale and Cronbach's alpha should be 0.70 and more (9). Item-total correlations were measured by Spearman rank correlation coefficients. It is expected that an item should correlate with the total score with an $r > 0.20$. Test-retest reliability, a measure of test stability over time, was determined by readministering the scale to the same group of subjects approximately four weeks after its initial completion. Test-retest Spearman rank correlation coefficients were calculated for the total score.

Kaiser Meyer Olkin measure was used for sampling adequacy (both global and for each item). The level of homogeneity of the matrix of item scores was investigated through comparison of the magnitudes of the correlation coefficients observed with those of the partial correlation coefficients. Kaiser Meyer Olkin values less than 0.6 indicate that one or more items should not be included in the factor analysis, because they do not belong to the same universe shared by the other variables (10).

RESULTS

All patients were men who had undergone lower limb amputations due to trauma. Mean (SD) age of the patients was 27.70 (5.57) years (range: 19-51). Mean (SD) length of time since amputation was 57.02 (61.51) months (range: 3-356). Level of amputation was ankle-foot or below in 17 (18.7%) subjects, transtibial in 56 (61.5%), and knee or transfemoral in 18 (19.8%) subjects.

Table 1: Item-total correlation of the ABIS and ABIS-R

	ABIS		ABIS-R	
	Item-Total Correlation	Cronbach's Alpha if Item Deleted ‡	Item-Total Correlation	Cronbach's Alpha if Item Deleted ‡
Item 1	0.53 **		0.53**	
Item 2	0.64 **			
Item 3	0.25*	0.886	0.33**	0.869
Item 4	0.49**		0.49**	
Item 5	0.69**		0.65**	
Item 6	0.70**		0.76**	
Item 7	0.25*	0.885		
Item 8	0.75**		0.76**	
Item 9	0.65**		0.62**	
Item 10	0.78**		0.72**	
Item 11	0.58**			
Item 12	0.40**	0.883	0.40**	0.866
Item 13	0.55**		0.55**	
Item 14	0.75**		0.71**	
Item 15	0.62**		0.63**	
Item 16	0.29**	0.887		
Item 17	0.64**			
Item 18	0.56**		0.59**	
Item 19	0.27*	0.883		
Item 20	0.69**		0.66**	

** Correlation is significant at 0.01 levels
* Correlation is significant at 0.05 levels
‡ Given if the value increased
ABIS: Amputee Body Image Scale
ABIS-R: Revised Amputee Body Image Scale

Turkish Version of the ABIS:

Cronbach's coefficient alpha of the ABIS was 0.882. The item-total correlation coefficients ranged from 0.25 to 0.78 (Table 1). Analysis of the correlation matrix generated by factor analysis did not demonstrate any singularity (i.e., the scale was multicollinear). The overall Kaiser Meyer Olkin measure of sampling adequacy was 0.82. The Kaiser Meyer Olkin statistics for each individual item found on the diagonal of the antiimage correlation matrix were (except item 19= 0.59) all greater than 0.6. Test-retest Spearman rank correlation coefficient of ABIS was 0.78 ($p \leq 0.01$).

Turkish Version of the ABIS-R

The Cronbach's coefficient alpha of the ABIS-R was 0.863. The item-total correlation coefficients ranged from 0.33 to 0.76 (Table 1). Analysis of the correlation matrix generated by factor analysis did not demonstrate any singularity (i.e., the scale was multicollinear). The overall Kaiser Meyer Olkin measure of sampling adequacy was 0.80. The Kaiser Meyer Olkin statistics for each individual

Table 2: Correlations between the SF-36 and the ABIS, the ABIS-R

SF–36	ABIS	ABIS-R
Physical Functioning	- 0.60 **	- 0.59 **
Role-Physical	- 0.40 *	- 0.33 *
Bodily Pain	- 0.57 **	- 0.50 **
General Health	- 0.49 **	- 0.48 **
Vitality	- 0.56 **	- 0.51 **
Social Functioning	- 0.44 **	- 0.37 *
Role-Emotional	- 0.44 **	- 0.39 *
Mental Health	- 0.33 *	- 0.31
Physical Component Summary	- 0.57 **	- 0.53 **
Mental Component Summary	- 0.39 *	- 0.34 *

**Correlation is significant at 0.01 levels.
* Correlation is significant at 0.05 levels.
ABIS: Amputee Body Image Scale
ABIS-R: Revised Amputee Body Image Scale
SF- 36: Short Form-36

item found on the diagonal of the antiimage correlation matrix were all greater than 0.6. Test-retest Spearman rank correlation coefficient of ABIS-R was 0.74 ($p \leq 0.01$).

Table 2 summarizes the correlations between ABIS, ABIS-R and SF-36. There were significant and negative correlations between some of the SF-36 subscales and both ABIS and ABIS-R. ABIS and ABIS-R were not found to correlate with age, length and level of amputation.

DISCUSSION

The internal consistencies and test-retest reliabilities of the Turkish versions of both ABIS and ABIS-R were found to be good. Correlations between SF–36, ABIS and ABIS-R were moderate.

In the study by Gallagher et al (5), psychometric properties of ABIS and ABIS-R have been studied by Rasch Analysis. Regarding the rating-scale diagnostics, ABIS showed some disordered thresholds. Category diagnostics evidenced the inability of respondents to appreciably discern between categories 2 (rarely) and 3 (some of the time) and between categories 4 (most of the time) and 5 (all of the time). Appropriateness of collapsing them into two single categories indicating "sometimes" and "most/all of the time" was also confirmed. They accordingly suggested the elimination of the four "misfitting" and one "overfitting" items for statistical and content reasons (items 2, 17, 16, 19, 11). Because majority of people with an amputation experience phantom limb pain, they considered that item 7 was unlikely to distinguish between people who are and are not experiencing body image disturbance. Concerning the Turkish version of the ABIS, Kaiser Meyer Olkin statistics for item 19 found on the diagonal of the antiimage correlation matrix was found to be 0.59. The items, deletion of which increased Cronbach's Alpha coefficient, were 3, 7, 12, 16, and 19; however the correlation coefficient increase ranged

between 0.001-0.005. Differing from the aforementioned study, item-total correlations for items 3 and 12 in ABIS-R were found to be low. The items, deletion of which increased Cronbach's Alpha coefficient, were 3, 12; whereas the correlation coefficient increase ranged between 0.003-0.006. Additionally, item-total correlations for these items were statistically significant. Threfore, we decided that these items should not be deleted.

The ABIS comprises items that relate to affective, cognitive and behavioral components of the body image as outlined by Breakey (1). Previously, body image anxiety has been reported to be significantly related to depression (1,3), perceived quality of life (1,3), levels of self-esteem (1), levels of general anxiety (11), levels of prosthesis satisfaction (1) and levels of participation in physical activity (2). In this regard, the correlations between the ABIS, the ABIS-R and the subscales of SF–36 (more predominant in physical component) found in this current study were not surprising.

In conclusion, we conclude that the Turkish versions of ABIS and ABIS-R demonstrate good reliability for measuring body image disturbances in individuals with lower-limb amputations. Additionally, the two scales displayed significant correlations with SF–36.

References:

1. Breakey JW. Body image: the lower-limb amputee. J Prosthet Orthot 1997; 9: 58-66.

2. Wetterhahn KA, Hanson C, Levy CE. Effect of participation in physical activity on body image of amputees. Am J Phys Med Rehabil 2002; 81: 194-201.

3. Rybarczyk B, Nyenhuis DL, Nicholas JJ, Cash SM, Kaiser J. Body image, perceived social stigma, and the prediction of psychosocial adjustment to leg amputation. Rehabil Psychol 1995; 49: 95-110.

4. Gallagher P, MacLachlan M. Trinity Amputation and Prosthesis Experience Scales (TAPES) and quality of life in people with a lower limb amputation. Arch Phys Med Rehabil 2004; 85: 730-736.

5. Gallagher P, Horgan O, Franchignoni F, Giordano A, MacLachlan M. Body image in people with lower-limb amputation: a Rasch analysis of the amputee body image scale. Am J Phys Med Rehabil 2007; 86: 205-215.

6. Pinar R. Reliability and construct validity of the SF-36 in Turkish cancer patients. Qual Life Res 2005; 14: 259-264.

7. Kocyigit H, Aydemir O, Fisek G, Olmez N, Memis A. Validity and reliability of Turkish version of Short form 36: A study of patients with romatoid disorder. J Drug Ther 1999; 12: 102–106.

8. Demiral Y, Ergor G, Unal B, Semin S, Akvardar Y, Kivircik B, Alptekin K. Normative data and discriminative properties of short form 36 (SF-36) in Turkish urban population. BMC Public Health 2006 9; 6: 247.

9. Clark LA, Watson D. Constructing validity: basic issues in objective scale development. Psychol Assess 1995; 7: 309-319.

10. Pett MA, Lackey NR, Sullivan JJ. Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research. Thousand Oaks, CA, Sage Publications, 2003

11. Fisher K, Hanspal R. Body image and patients with amputations: does the prosthesis maintain the balance? Int J Rehabil Res 1998; 21: 355-363.

APPENDIX

TÜRKÇE AMPUTE VÜCUT İMAJ ÖLÇEĞİ

Ampute Vücut İmaj Skalasının (AVİS) orijinal formu 20 maddeden oluşmaktadır. 5 basamaklı ordinal skala (1= hiçbir zaman, 2= nadiren, 3= bazen, 4= çoğu zaman, 5= her zaman) ile puanlanır. 3 soru (3,12 ve 16) ters puanlanır. Revizyon sonrası kısaltılan (AVİS-R) formu 14 maddeden (**kalın** olarak işaretli) oluşur ve yeni 3 basamaklı ordinal skala (0= hiçbir zaman, 1= bazen, 2= çoğu / her zaman) ile puanlanır

1. **Amputasyonlu olduğum için, fiziksel görünümüm hakkında sosyal ortamlarda yalnız olduğum zamanlardan daha fazla huzursuz oluyorum.**

2. Protezim görülebileceği için toplum içine şort giyerek çıkmaktan kaçınıyorum.

3. **Protezimi taktığım zaman tüm fiziksel görünümümü beğeniyorum.**

4. **Bir uzvumun olmamasının, çeşitli günlük faaliyetlerim esnasında vücudumun fonksiyonel yeteneklerini azalttığını düşünüyorum.**

5. **Protezimi görmemek için boy aynasına bakmaktan kaçınıyorum.**

6. **Amputasyonlu olduğum için, fiziksel görünümüm beni her gün huzursuz ediyor.**

7. Fantom hissim var. (uzvumu varmış gibi hissediyorum)

8. **Uzvumu kaybettiğim zamandan beri toplumun ideal görünüş biçiminde olmamak beni rahatsız ediyor.**

9. **Uzvumu kaybetmiş olmam nedeniyle kendimi tehlikelerden koruma yeteneğimin azalmış olması beni rahatsız ediyor.**

10. **Protezimi takmadığım zamanlarda fiziksel görünümümün başkaları tarafından değerlendirilebileceği ortamlardan kaçınıyorum. (sosyal ortamlar, plaj, yüzme havuzu gibi ortamlardan kaçınmak)**

11. Uzvumu kaybetmiş olmak kendimi 'engelli, özürlü' olarak düşünmeme neden oluyor.

12. **Protezimi takmadığım zamanlarda fiziksel görünümümü beğeniyorum.**

13. **İnsanlar yürürken topalladığımı fark ediyorlar**

14. **Protezimi taktığım zamanlarda fiziksel görünümümün başkaları tarafından değerlendirilebileceği ortamlardan kaçınıyorum. (herhangi bir sosyal ortam ve/veya yüzme havuzu, plaj gibi ortamlardan kaçınmak)**

15. **İnsanlar bana 'engelli, özürlü' gibi davranıyor.**

16. Güdüğümün görünümünü beğeniyorum

17. Protezimi gizleyebilmek için bol giysiler giyiyorum

18. **Fiziksel olarak çekici olabilmek için dört uzvumun da normal olması gerektiğini hissediyorum.**

19. Protezimi taktığım zaman protezli bacağımla sağlam bacağımın aynı boyutlarda olması önemli

20. **Güdüğümün anatomisini görmemek için boy aynasına bakmaktan kaçınıyorum**