Original Article

Translation of Trinity Amputation and Prosthesis Experience Scales- Revised (TAPES-R)

Sarah Fatima Dogar[1*] and Mussarat Jabeen Khan[1]

[1]Department of Psychology, International Islamic University, Islamabad, Pakistan

ARTICLE INFO

*Corresponding Author:
Sarah Fatima Dogar
Department of Psychology, International Islamic University, Islamabad, Pakistan
psychologist.iiui@yahoo.com

ABSTRACT

The translation and adaptation of a tool measuring a certain concept in a specific culture has a room in the field of psychological testing. For measuring a psychological concept, a uniform experiment is done. **Objectives:** To translate the English Trinity Amputation and Prosthesis Experience Scale-Revised (TAPES-R) into Urdu. **Methods:** For this purpose, the back-translation method was used for conversion of the scale from English to Urdu language. Prosthetic population was approached. The study encompassed two phases, first is the translation phase and the second is creating psychometric properties of converted scale. For the cross-language validation, sample of n=10; males= 8, females=2, multi-lingual males and females through purposive sampling method was collected from diverse cities of the country. A sample of n=20 of males, n= 17; and females, n= 3, age ranged from 20 to 60 years, was drawn through snowball sampling technique to establish the psychological characteristics. **Results:** The linguistic connection amongst English to Urdu, Urdu to English, Urdu to Urdu and English to English indicated that the cross-language validation was greatly substantial (p<.01). **Conclusions:** This is a trustworthy and effective way to calculate diverse aspects connected with amputation and prosthesis in Pakistani population. The significant amount of the Pakistani population is not enough literate and hence, Urdu being both native and national language is more easily comprehendible.

INTRODUCTION

When conducting cross-cultural research on any novel psychological or social phenomenon, adaptation, translation, and cross-language validation are essential and fundamental steps. Because the construct must be consistent and valid with a standard tool in order to effectively contribute to the literature and measure the phenomenon in a specific population. According to researches inventories written in the target population's native language yield more accurate and genuine results than those written in a foreign language [1]. Due to the tool's indigenization and support from psychometric properties, the validation process and determination of psychometric properties are essential steps for translational studies [2]. Urdu is the native language of almost everyone in Pakistan, regardless of literacy rate, while English is regarded as a foreign language. The people of Pakistan feel at ease answering the questions that are posed in Urdu. This study was aimed at developing the standardized Urdu version of currently available English TAPES-R instrument that would be conceptually equivalent to Pakistani culture and comprehensible to the country's populace. For procuring the multicultural and conceptually corresponding version of the instrument, the study used Brislin's forward and backward translation way. This technique which congregates on the theoretical rather than the literal uniformity to procure the uniform translated version of instruments, is more reliable and highly recommended [3, 4]. Amputation is the disposal of an entire body part by

careful treatment or stress. Traumatic amputation frequently results in a significant impairment of daily life. To put it another way, people's social, economic, and psychological well-being are all impacted over time by amputation, and these individuals may experience feelings of loneliness and low self-esteem as a result. The amputation sufferers' lives are impacted in addition to the nature of the initial cause, whether it is accidental or abrupt or steady or secondary to a disease [5]. Accidents, calamities, and attacks can sometimes result in amputations that cannot be avoided. Mentally, the loss of limbs is traumatizing; depression rates among people who have had their extremities reduced range from 21% to 35% [6]. One of the first procedures to be described is limb amputation. The history of limb amputation surgical treatment closely reflects that of the war to a large extent. The post-World War -II era witnessed expansion in the advancement of specific recuperation applications and prosthetic style for people experiencing the appendage misfortune [7, 8]. After an amputation, it is clear that continuing daily and social activities is very important. It has been shown that work and everyday prosthesis use were indicators of psychosocial change [9]. Similarly, functional satisfaction with the prosthetic device was linked to less body image anxiety and more time spent using it [10]. As a result, fulfilling social roles will likely depend on having a prosthetic limb that works well. According to numerous researches, choosing prosthetic goals and getting used to having an amputation depend on completing societal commitments, whether they be personal, professional, or otherwise [11-13] this functional competence and the capacity to carry out social tasks that are personally significant are akin to the self-efficacy and independence made possible by the prosthetic device. It was found that longer use times and fewer body image problems were linked to functional satisfaction with the prosthetic device [10]. Therefore, carrying out social tasks probably need having a prosthetic limb that works properly. However, depending on the type of amputation and the technical capabilities of the device, a person's best functional and social aspirations might not be acceptable. In these situations, it is crucial to modify duties or expectations, and it has been noted that this adjustment of expectations is both a crucial and beneficial element of rehabilitation [13, 14]. In recent years, there has been a growing awareness of the necessity of employing more comprehensive functioning measures that take into account the amputation's social and environmental context [15,16]. Even though amputation is likely to have a significant impact on participation, this aspect of functioning among people with limb loss has rarely been studied. According to upcoming research, those who receive more social support are better suited to deal with their limb loss physically and psychologically over time [17-20]. Lower levels of perceived social support were associated with worse self-reported health status, according a two-year prospective study of patients who had undergone traumatic lower limb amputations.

METHODS

For the translation of the scale, the author's consent was requested. Brislin's approach was used to adapt and translate it. Six bilinguals worked on the TAPES-R translation in this step [3]. Four students from the departments of Urdu, Psychology, and English at Quaid-e-Azam University Islamabad as well as four from the Department of Urdu at the International Islamic University Islamabad were chosen from the Master's Programs in Arts and Sciences. Additionally, two M.Phil. Candidates from the same institution were chosen. Bilinguals taken from different fields had exceptional fluency in both Urdu and English. They were tasked for translating all the scale items from English to Urdu while paying close attention to maintaining consistency in both versions' text. Additionally, they were required to translate each and every item without making any changes or replacement of items in the original text of the scale. For the evaluation of the translated items a committee comprising three experts; two professors and a Ph.D. scholar systematically evaluated the translated items in Urdu language and checked content correspondence between the two, English and Urdu versions. The committee participants evaluated the translated items with reference to the situation, grammar, wording and language. Subsequently, finishing the procedure of selecting items which had the meaning nearest to the original items, then the items were written down and given to the bilinguals for back translation. To define the authenticity, reverse translation of Urdu translated content into English language was carried out. Three M.Phil. And two Masters of Arts and Masters of Science bilingual students back-translated the Urdu TAPES-R; were requested to translate TAPES-R into English language with maximum possible accuracy. A cluster of experts involving two professors and a Ph.D. scholar critically evaluated the items of back-translation and carefully chose the list of items for final Urdu scale of TAPES-R. All the individuals had consensus about the correctness of translation. The back-translation method is a standard technique of translation intended for creating cross cultural validity of measures [16]. Statistical Package for Social Sciences (SPSS) version 21.0 was used to analyze the data in terms of alpha reliability, correlations and item total correlations. The scale was given to twenty people, ranging in age from 30 to 60 (mean age =), to determine the

psychometric characteristics. The sample was taken from a variety of Pakistani hospitals, that included Fauji Foundation Hospital in Rawalpindi, the National Institute of Rehabilitation Medicine (NIRM) in Islamabad, the Ghurki Hospital in Lahore, the CMH in Quetta, the Nishtar Hospital in Multan, and the Fauji Foundation Hospital in Rawalpindi. The sample was selected using purposive sampling technique. Another sample (n=20) was chosen for cross-linguistic validation and divided into two equal parts (group 1 and group 2). Group 1 completed the original English version of the scale, while Group 2 completed the translated Urdu version. The same participants were given the scale again, but this time in a different way after 15 days. Further, groups 1a (n=5) and 1b (n=5) were subdivided from group 1. The formation of groups 2a (n=5) and 2b (n=5) was similar. Groups 1a and 2a received the Urdu version of the scale, while group 1b and 2b received the English version. Permission letters were issued to the administrators of specific institutes for data collection by the Psychology Department at International Islamic University Islamabad. The specific individuals were contacted and their approval was taken for their involvement in the research after the authorities granted permission. They were asked to carefully respond to the Trinity Amputation and Prosthesis Experience Scales-Revised (TAPES-R) questions after reading the instructions. The questionnaire took an average of 15 minutes in its completion. The participants were guaranteed of maintaining the privacy of their responses. The individuals completed the scale with sufficient assistance.

R E S U L T S

Table 1 shows the frequencies and percentages of the demographic variables. These demographic variables are age, gender, duration of amputation, duration of prosthesis types of prosthesis and reason of amputation.

Table 1: Frequencies and percentages of demographic variables of Study (N=20)

Variables	Category	F (%)
Age	30 – 40	6(30)
	41 – 50	10(50)
	51 – 60	4(20)
Gender	Male	18(90)
	Female	2(10)
Duration of Amputation	0 – 2	6(30)
	3 – 5	12(60)
	6 – 8	2(10)
Duration of Prosthesis	0 – 2	13(65)
	3 – 5	7(35)
Types of Prosthesis	Below knee	7(35)
	Through knee	1(5)
	Above knee	6(30)
	Below elbow	1(5)
	Above elbow	5(25)
Reason of Amputation	diabetes	3(15)
	Others	17(85)

Table 2 shows Descriptive statistics, Alpha reliabilities and the number of items in each subscale of the questionnaire. The Alpha reliability of the subscales is good and hence the questionnaire is reliable for further analysis. Values of Skewness and Kurtosis of all the subscales are between (-1 to +1) which shows that the data is normally distributed.

Table 2: Descriptive Statistics and Alpha-Reliability Coefficient of scales (N=20)

Subscales	K	A	M ± SD	Range Actual	Range Potential	Skewness	Kurtosis
General Adjustment	5	.67	2.6 ± 0.33	1.8-3.2	5-25	-1.69	3.08
Social Adjustment	5	.62	2.6 ± 0.29	1.9-3.0	5-25	-1.02	0.89
Adjustment to Limitation	5	.28	2.5 ± 0.26	2.2-3.0	5-25	0.68	-0.37
Activity Restriction Scale	10	.79	1.1 ± 0.65	0.3-3.6	10-30	2.64	9.88
Aesthetic Satisfaction	3	.83	6.9 ± 1.43	3-9	3-9	-0.86	1.51
Functional Satisfaction	4	.75	9.9 ± 1.65	7-13	4-12	0.02	-0.26

k= No. of items, M (SD) = Mean (Standard Deviation), α= Chronbach's Alpha

Table 3 shows significant correlation between Trinity Amputation and Prosthesis Experience Scale- Revised (TAPES-R) Urdu and English versions are significant. It shows that there is a high consistency between English and Urdu versions of the questionnaire.

Table 3: Cross Language and Test-retest Reliability of TAPES-R and its subscales (N = 20)

Groups	N	1st Administration	2nd Administration	R
I	5	English	English	.82
II	5	English	Urdu	.76
III	5	Urdu	Urdu	.72
IV	5	Urdu	English	.87

This table shows the correlation matrix of the given scale. Correlation shows the degree of strength and association between the variables. The outcome indicates towards existence of a significant positive correlation between general adjustment and functional satisfaction.

Table 4: Correlation Coefficient Matrix for study variables (N=20)

Variables	1	2	3	4	5	6
1 General Adjustment	1	.47*	–.15	–.42	.55*	.73**
2 Social Adjustment		1	.11	.23	.47*	.35
3 Adjustment to Limitation			1	.05	–.24	.05
4 Activity Restriction Scale				1	–.26	–.41
5 Aesthetic Satisfaction					1	.47*
6 Functional Satisfaction						1

(*p<0.05), (**p<0.01)

DISCUSSION

In Pakistan, there are very few studies on amputation and prosthesis, particularly with regard to their rehabilitation. Hence, there was an extraordinary need of openness of suitable estimation in Urdu language to assess a general outlook of people of removal and prosthesis. Present review was led to decipher the Trinity Amputation and Prosthesis Evaluation Scale (TAPES-R) into Urdu language and to lay out its psychometric properties. Following Brislin's [3] description of the steps of translation, the instrument was translated. Scale translation consisted of a forward translation by bilingual experts and a committee approach, a backward translation by different bilingual experts (not the same experts who translated the forward part), and a committee approach. As the final step of the study, a consensus meeting was held to select the best reconciled version of the translated scale to achieve the study's goal. Analyzing a comparison between the scale's original English-language version and the translated Urdu version is an essential step in the translation phase. This help determine the scale's cross-language validity. Two versions of the scale were given to a small group of twenty prosthetic users in order to verify their responses. After administering two Urdu-English and two Urdu-Urdu sequences to two groups of people, these two groups were further divided into four subgroups of 10 married people each. Reliabilities across tests and correlations between these groups; English to Urdu, English to English, English to Urdu, and Urdu-English all indicate a significant positive relationship between the two scales. The evaluation of the scales' quality and suitability is made possible by determining their psychometric properties, which is considered an essential initial step. The findings showed that participants generally responded positively to all of the scales. In addition, it demonstrated that the items were easily comprehended. The item total correlation and reliability analysis revealed that each scale was internally consistent [21]. Overall, it showed that the translated version of the scale in Urdu has good construct validity and reliability, so it could be used for the measurement. The present study's findings support the confident use of translated scales in hospitals and rehabilitation facilities as well as the direction of future research. In order to improve the internal consistency of the scale, future studies might attempt to develop and improve a number of items while keeping the cultural background in mind.

CONCLUSIONS

Because Urdu is Pakistan's native language, the TAPES-R translation is usable by the entire Pakistani population. The majority of Pakistanis are able to respond to the question statements in Urdu with confidence because they are simple to understand. This translated version can be utilized for numerous other research designs in addition to surveys. This scale is designed specifically for the prosthetic population, which includes both men and women.

Authors Contribution

Conceptualization: SFD
Methodology: SFD
Formal analysis: MJK
Writing-review and editing: SFD, MJK

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

REFERENCES

[1] Bibi A, Lin M, Margraf J. Salutogenic constructs across Pakistan and Germany: A cross sectional study. International Journal of Clinical and Health Psychology. 2020 Jan; 20(1): 1-9. doi: 10.1016/j.ijchp.2019.10.001.

[2] Khan MJ and Batool SS. Translation and adaptation of simplifying mental illness plus life enhancement skills (SMILES) program. Pakistan Journal of Social and Clinical Psychology. 2013 Dec; 11(2): 22-7.

[3] Brislin RW. A culture general assimilator: Preparation for various types of sojourns. International Journal of Intercultural Relations. 1986 Jan; 10(2): 215-34. doi: 10.1016/0147-1767(86)90007-6.

[4] Voracek M, Haubner T, Fisher ML. Recent decline in nonpaternity rates: a cross-temporal meta-analysis. Psychological Reports. 2008 Dec; 103(3): 799-811. doi: 10.2466/pr0.103.3.799-811.

[5] De Godoy JM, Braile DM, Buzatto SH, Longo O, Fontes OA. Quality of life after amputation. Psychology, Health & Medicine. 2002 Nov; 7(4): 397-400. doi: 10.1080/13548500021000015212.

[6] Phelps LF, Williams RM, Raichle KA, Turner AP, Ehde DM. The importance of cognitive processing to adjustment in the 1st year following amputation. Rehabilitation Psychology. 2008 Feb; 53(1): 28. doi: 10.1037/0090-5550.53.1.28.

[7] Hierton T. Total hip replacement: a ten-year follow-up of an early series. Acta Orthopaedica Scandinavica. 1982 Jan; 53(3): 397-406. doi: 10.3109/17453678208992233.

[8] Bowker JH and Pritham CH. The history of amputation surgery and prosthetics. Atlas of

amputations and limb deficiencies: Surgical, prosthetic, and rehabilitation principles. 3rd Edition. 2004.

[9] Sinha R, van den Heuvel WJ, Arokiasamy P. Adjustments to amputation and an artificial limb in lower limb amputees. Prosthetics and Orthotics International. 2014 Apr; 38(2): 115-21. doi: 10.1177/0309364613489332.

[10] Murray CD and Fox J. Body image and prosthesis satisfaction in the lower limb amputee. Disability and rehabilitation. 2002 Jan; 24(17): 925-31. doi: 10.1080/09638280210150014.

[11] Murray CD. Being like everybody else: the personal meanings of being a prosthesis user. Disability and Rehabilitation. 2009 Jan; 31(7): 573-81. doi:10.1080/09638280802240290.

[12] Rybarczyk B, Edwards R, Behel J. Diversity in adjustment to a leg amputation: case illustrations of common themes. Disability and Rehabilitation. 2004 Jul; 26(14-15): 944-53. doi: 10.1080/09638 28041 0001708986.

[13] Saradjian A, Thompson AR, Datta D. The experience of men using an upper limb prosthesis following amputation: positive coping and minimizing feeling different. Disability and Rehabilitation. 2008 Jan; 30(11): 871-83. doi: 10.1080/09638280701427386.

[14] Hamill R, Carson S, Dorahy M. Experiences of psychosocial adjustment within 18 months of amputation: an interpretative phenomenological analysis. Disability and Rehabilitation. 2010 Jan; 32(9): 729-40. doi:10.3109/09638280903295417.

[15] Gallagher P, O'Donovan MA, Doyle A, Desmond D. Environmental barriers, activity limitations and participation restrictions experienced by people with major limb amputation. Prosthetics and Orthotics International. 2011 Sep; 35(3): 278-84. doi: 10.1177/0 309364611407108.

[16] Kohler F, Cieza A, Stucki G, Geertzen J, Burger H, Dillon MP, *et al*. Developing Core Sets for persons following amputation based on the International Classification of Functioning, Disability and Health as a way to specify functioning. Prosthetics and Orthotics International. 2009 Jun; 33(2): 117-29. doi: 10.1080/03093640802652029.

[17] Bosse MJ, MacKenzie EJ, Kellam JF, Burgess AR, Webb LX, Swiontkowski MF, *et al*. An analysis of outcomes of reconstruction or amputation after leg-threatening injuries. New England Journal of Medicine. 2002 Dec; 347(24): 1924-31. doi: 10.1056/NEJMoa012604.

[18] Hanley MA, Jensen MP, Ehde DM, Hoffman AJ, Patterson DR, Robinson LR. Psychosocial predictors of long-term adjustment to lower-limb amputation and phantom limb pain. Disability and Rehabilitation. 2004 Jul; 26(14-15): 882-93. doi: 10.1080/096382 80410001708896.

[19] Jensen MP, Ehde DM, Hoffman AJ, Patterson DR, Czerniecki JM, Robinson LR. Cognitions, coping and social environment predict adjustment to phantom limb pain. Pain. 2002 Jan; 95(1-2): 133-42. doi: 10.1016/S0304-3959(01)00390-6.

[20] Unwin J, Kacperek L, Clarke C. A prospective study of positive adjustment to lower limb amputation. Clinical Rehabilitation. 2009 Nov; 23(11): 1044-50. doi: 10.1177/0269215509339001.

[21] Anastasi A and Urbina S. Psychological testing. Prentice Hall/Pearson Education; 7th edition. 1997.