Reliability and Validity of the Turkish Version of Abdel-Khalek's Death Anxiety Scale among College Students

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ABSTRACT

Introduction: Although death anxiety is considered a universal phenomenon, attitudes toward death may vary across populations that differ in terms of religion and culture. Abdel-Khalek's Death Anxiety Scale (ASDA) was developed on the basis of the rationale that there are specific concepts related to death and afterdeath in Muslim populations. This study aims to translate and adapt ASDA in the Turkish population, examine its validity and reliability, and to compare its psychometric properties with the widely used Templer's Death Anxiety Scale (DAS).

Methods: A total of 220 medical students were included in the study. The Turkish version of ASDA, DAS, and Hospital Anxiety and Depression Scale were used for data collection.

Results: Cronbach's alpha coefficients were .86 for ASDA and .66 for DAS. Analysis by principal components with varimax rotation produced five factors for ASDA that explained 65.6% of total variance. ASDA and DAS were highly correlated with each other ($r=.68, p<.001$)

Conclusion: The results of this study indicate that the Turkish version of Abdel-Khalek's Death Anxiety Scale is a reliable and valid instrument. The Turkish version of ASDA revealed better psychometric properties than DAS. This finding may reflect specific cultural and religious attitudes toward death or may result from more comprehensible language use in ASDA.

Keywords: Death anxiety, psychometric scale, validity, reliability

INTRODUCTION

Anxiety is closely related to uncertainty and its awareness. In this context, four basic characteristics that can provoke anxiety regarding death are 1) Death itself (suffering, illness, loneliness, etc.), 2) Loss (one's loss of everything which belongs to the materialistic world, especially of his own body), 3) Unpredictability (when and how will it happen), and 4) Obscurity (obscurity of death and afterdeath) (1). Despite Freud's view that death is an unimaginable and incomprehensible phenomenon, at bottom, each one of us is convinced of our own immortality; therefore, death cannot be a source of anxiety (2), existentialist thinkers share the idea that death is the primary source of anxiety (3). Becker states that the people's daily behavior consists of attempts to deny death and to keep this basic anxiety under strict regulation (4). Yalom argued that the fear of death is the primal source of anxiety that is a composite of a number of smaller, discrete fears, and fear from nonexistence rests in the center of inner turmoil of anxiety (5).

Death anxiety is considered as a universal phenomenon (5,6,7,8). However, the subject of death was a taboo and a less investigated field of inquiry for mental health researchers until the book by Kubler-Ross that focused on death and dying in 1960s. Together with Kubler-Ross' (8) book "On Death and Dying," influences of World War II and existentialist psychology resulted in an increase in death studies.

There are many terms used in the literature to define negative attitudes toward death: death anxiety, fear of death, death concern, etc. Fear of death is a more specific, external threat, whereas death anxiety is used to define a more generic and nonspecific distress (3). Several scales have been developed to assess death anxiety and death attitudes (9,10,11,12,13,14,15,16,17,18). Templer's Death Anxiety Scale (DAS) has been used in approximately 60% of death studies since the date it was developed (19).

Arabic Death Anxiety Scale (ASDA) was developed and validated by Abdel-Khalek in 2004 on the basis of the rationale that there are concepts related to death and afterdeath that are specific to Muslim populations. ASDA consists of specific items, such as "fear from the torture of grave" that may provoke death fear/anxiety in predominantly Muslim societies. The original validity and reliability study of ASDA was conducted in Syria, Egypt, and Kuwait with 1636 participants, and alpha coefficients ranged between .88 and .93 (18). In addition, ASDA was used in several studies in Arabic countries (Kuwait, Syria, and Lebanon) as well as in Western countries (Spain,

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England, and USA) (20,21,22,23,24,25). The scale was administered to diverse populations, including health professionals, drug dependents, psychiatric patients, and healthy individuals, to examine the factors related to death anxiety (26,27,28).

This study aims to test the validity and reliability of the Turkish version of ASDA and to examine ASDA's psychometric properties in comparison with DAS, which is widely used in the literature.

METHODS

A total of 220 medical students from Aegean Medical School volunteered to participate in this study. Of these, 56.8% (n=125) were female and 41.8% (n=92) were male students. Three participants did not report gender. Mean age was 20.9 (± 1.4) years.

Tools

Socio-demographic information form: Demographic characteristics of the participants, including age, gender, education status, marital status, religious attitudes, history of psychiatric and organic disorders, and history of loss and suicide, were questioned using this form prepared by the authors.

Arabic Scale of Death Anxiety (ASDA): This scale was developed by Abdel-Khalek in 2004 in Arabic and English. It contains 20 statements. It provides a 5-point Likert-type measurement (1=no, 5=very much). In this study, the English version of the scale was chosen to apply the same translation procedure as with Templer's Death Anxiety Scale to comparatively examine psychometric properties of these scales.

Templer's Death Anxiety Scale (DAS): DAS was used in the majority of studies concerning death anxiety since the date it was published in 1970 (19). It is a unidimensional, self-administered questionnaire that consists of 15 items in a True/False format. Nine of the 15 items are scored in the direction of the true option and six in the opposite direction. Total scores range from 0 to 15. Higher scores indicate higher levels of death anxiety. Internal consistency of the original English version was found to be (K/R-20) .76 (13). The validity and reliability study of the Turkish version was published by Akça and Köse (29).

Hospital Anxiety Depression Scale (HADS): This scale comprises 14 questions; seven of these (odd numbers) measure anxiety and the other seven questions (even numbers) measure depression. This scale was developed by Zigmond and Snaith (30) in 1983. In 1997, the validity and reliability study of the Turkish version of the scale was conducted by Aydemir et al. (31). This scale was chosen because it has been widely used in both healthy individuals and patients, it is easily administered, and it is not affected from somatic symptoms and transient mood fluctuations (32,33).

Procedure

ASDA and DAS were translated to Turkish by three bilingual specialists. These preliminary Turkish translations were back translated to English by a bilingual, native English-speaking teacher. The authors reached a consensus on a translated version that provided the meaning of the original scale. All students were administered socio-demographic information form and the scales in classroom settings, during regular university hours, in groups with the observance of the authors after being informed about the study and the scales and giving consent. The order of the data-gathering tools was the same in every application. The ethical approval of the study was obtained from the ethical committee of Izmir Atatürk Training and Research Hospital.

Statistical Analysis

The data was analyzed using Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) 15.0 package program. For reliability, Cronbach's alpha coefficients and item-total score correlation coefficients were calculated to assess internal consistency. For the validity study, Pearson's correlation analysis was used to investigate correlations between the scales to test concurrent validity. Principal component analysis and varimax rotation were performed on the data obtained from 220 participants to investigate the factor structure.

RESULTS

Reliability

Cronbach's alpha coefficient for ASDA was .86. After deleting each item, alpha coefficients ranged between .85 and .86, except for item 20. After deleting item 20, alpha coefficient was found to be .90 (Table 1). Guttman coefficient was .86 for ASDA.

For DAS, Cronbach's alpha coefficient was .66. After deleting each item, alpha coefficients ranged between .62 and .67. Guttman coefficient was .65 for DAS.

Assessment of Factor Structure

A total of five factors comprising 65.6% of the common variance were determined using varimax rotation method and principal component analysis. The first factor accounted for 36.6% of common variance (fear provoked by visual stimuli related to death; items 2,8,11,16,17), second factor accounted for 9.5% (fear of physical and psychological pain related to death; items 5,6,10,15,19), third factor accounted for 7.2% (fear of other situations reminding death; items 3,12,14,18), fourth factor accounted for 7% (fear of postmortem events; items 7,9,13), and fifth factor accounted for 5.4% of common variance (fear from the act of dying; items 1,4,20) (Table 2).

The correlation of ASDA with HADS was found to be $r=.26$, $p=.001$ for the HADS depression subscale and $r=.39$; $p=.001$ for the HADS for anxiety subscale. The concurrent correlation of ASDA with DAS was found to be $r=.68$, $p<.001$.

DISCUSSION

In this study, the validity and reliability of the Turkish version of Arabic Death Anxiety Scale was tested, and psychometric properties of the scale were investigated in comparison with Templer's Death Anxiety Scale. Calculated Cronbach's coefficient value of .86 implicates that the Turkish version of ASDA has a high internal consistency. Original reliability study of the scale was conducted in Syria, Kuwait, and Egypt and Cronbach's alpha coefficients for ASDA were .89, .93, and .90, respectively (18). In another validity study that was conducted in Spain and Egypt, alpha coefficients for ASDA were .90 and .86, respectively (21). In the same study, alpha coefficients for DAS were .71 and .65, respectively. Similarly, we found the reliability coefficient to be lower for DAS than for ASDA. In addition, ASDA revealed better psychometric properties in other reliability measures (Guttman coefficient, alpha coefficients calculated after deleting each item) than DAS.

The language use may be one of the reasons of higher reliability of ASDA than DAS (21). Forty percent of the items in DAS are negatively phrased, and when they are responded as "False," double negativity occurs. People who are not native English-speakers may have difficulty in understanding items that contain double negativity. DAS was admin-

Table 1. Alpha coefficients if item deleted for Arabic Death Anxiety Scale

Item number	Alpha if item deleted
1. I fear death whenever I become ill	.86
2. I fear looking at the dead	.86
3. I fear visiting graves	.86
4. The possibility of having a surgical operation terrifies me	.86
5. I am afraid of suffering a heart attack	.86
6. I worry that death may deprive me of someone dear to me	.86
7. I am apprehensive of unknown things after death	.86
8. I am afraid of looking at a corpse	.86
9. I fear the torture of grave	.86
10. I fear getting a serious disease	.86
11. Witnessing the burial procedure terrifies me	.85
12. I dread walking in graveyards	.85
13. I am preoccupied with thinking about what will happen after death	.86
14. I am afraid of sleeping and not waking up again	.86
15. The pain accompanying death terrifies me	.86
16. I get upset by witnessing a funeral	.86
17. The sight of a dying person frightens me	.86
18. Talking about death upsets me	.86
19. I am afraid of getting cancer	.86
20. I fear death	.90

istered to numerous study participants from English-speaking countries as well as non-English speaking countries, including China, Pakistan, Kuwait, Egypt, Lebanon, Australia, Nigeria, Japan, Spain, Italy, Holland, and Portugal. Alpha coefficients found in the reliability studies conducted in non-English speaking countries ranged from .65 to .79, which were not different from the values in English-speaking countries (13,21,34,35,36,37,38,39,40,41). Similarly, alpha coefficient of the Turkish version of DAS was reported as 0.75 in a previous study (29). In one intercultural study, comparing death anxiety and death metaphors of 92 Nigerian and 114 Australian students, who were accommodated in their own countries, alpha coefficients for DAS were 0.84 for Australian students (all were Christians) and 0.59 for Nigerian students (65% Christians, 20% Muslim). However, researchers of this study used a modified version of DAS with a 4-point Likert-type format (41). In another study comparing death anxiety of participants from Egypt (n=132) and Spain (n=126), alpha coefficients for DAS were .65 and .70, respectively. In the same study, alpha coefficients for ASDA were found to be .86 in Egypt and .90 in Spain (21). In conclusion, similar reliability coefficients obtained from different countries, together with intercultural comparative studies did not support the hypothesis that reliability of DAS differs among different cultures. In addition, similar high reliability values were reported for ASDA in a limited number of comparative studies conducted in Western and Arabian countries (21,25).

When we investigated the construct validity of ASDA using factor analysis, five factors were obtained: fear provoked by visual stimuli related to death (Factor 1), fear of physical and psychological pain related to death (Factor 2), fear of other situations reminding death (Factor 3), fear of postmortem events (Factor 4), and fear from the act of dying (Factor 5). In the original

validity study, four factors were found in the Egyptian and Syrian samples, and three factors were found in the Kuwaiti sample. These factors accounted for 62.1%, 55.2%, and 61% of the common variance, respectively. In the Egyptian sample, these factors were labeled as fear of dead people and tombs, fear of postmortem events, fear of lethal disease, and death preoccupation. Similarly, in the Syrian sample the factors were labeled as fear of dead people and tombs, fear of postmortem events, fear of lethal disease, and death concern. Factors reported for the Kuwaiti sample were fear of dead people and tombs, fear of lethal disease, and fear of post-mortem events (19).

Concurrent validity of ASDA was examined using HADS and DAS. The significant correlations between ASDA scores and other scales (HADS Anxiety Subscale and DAS) confirm the concurrent validity of the scale.

Although the study sample was adequately sized and homogeneous, specific limitations have to be acknowledged. The participants were not assessed for psychiatric disorders using a structured questionnaire. The participants were in a limited age range; therefore, the present study does not provide information regarding individuals from different age groups.

In conclusion, the construct and concurrent validity measurements demonstrate that the Turkish version of ASDA is a valid and reliable instrument and has better psychometric properties than DAS. In this sample, factors predicting death anxiety is another interesting research topic to be studied. We believe that the Turkish version of ASDA will contribute to researchers both in medicine and social sciences studying death anxiety across diverse populations in our country.

Table 2. Factor structure of Arabic Death Anxiety Scale*

Items	Factors				
	1	2	3	4	5
Item 1					.69
Item 2	.82				
Item 3			.77		
Item 4					.46
Item 5		.68			
Item 6		.59			
Item 7				.69	
Item 8	.83				
Item 9				.74	
Item 10		.84			
Item 11	.75				
Item 12			.74		
Item 13				.79	
Item 14			.78		
Item 15		.45			
Item 16	.60				
Item 17	.67				
Item 18			.50		
Item 19		.81			
Item 20					.67
Variance %	36.57	9.45	7.19	6.99	5.43

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