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Original Article

## Psychometric characteristics of the Reasons for Death Fear Scale among Iranian nurses

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## ABSTRACT

**Objectives:** Death fear is the main subject in thanatology. Several researchers have defined different reasons for fear of death. This study aimed to explore the performance of the Farsi version of the Reasons for Death Fear Scale (RDFS) among a convenience sample of Iranian nurses ( $n = 106$ ).

**Methods:** The nurses were selected by the convenience sampling method and were asked to complete the RDFS, Death Concern Scale, Collett-Lester Fear of Death Scale, Death Anxiety Scale, Death Depression Scale, and Death Obsession Scale.

**Results:** For the RDFS, the Cronbach's  $\alpha$  coefficient was 0.90, and the 2-week test–retest reliability was 0.64. The RDFS was correlated at 0.34, 0.39, 0.50, 0.35, and 0.39 to the above-mentioned five scales, indicating its good construct and criterion-related validity. Based on the exploratory factor analysis, the RDFS-identified four factors accounted for 66.20% of the variance and were labeled as “Fear of Pain and Punishment,” “Fear of Losing Worldly Involvements,” “Religious Transgressions and Failures,” and “Parting from Loved Ones.”

**Conclusions:** The RDFS presents good validity and reliability and can be used in clinical and research settings in Iran.

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## 1. Introduction

Fear of death is a multidimensional concept [3–5] and an emotional reaction that involves subjective feelings of unpleasantness and concern based on the contemplation or anticipation of any fact related to death [1,2]. People who suffer from fear of death are highly preoccupied with death and dying, thereby affecting their daily lives. Furthermore, death fear may lead to psychiatric disorders, such as obsessive–compulsive disorder and hypochondria [6]. An important question in this field is the cause of fear death, which has been provided with several answers.

Hoelter [7] proposed the following eight dimensions of death fear: (1) fear of the dying process, (2) fear of the dead, (3) fear of being destroyed, (4) fear for the death of significant others, (5) fear

of the unknown, (6) fear of conscious death, (7) fear for body after death, and (8) fear of premature death.

Florian and Mikulincer [8] considered three dimensions for this concept. The first dimension is (1) intrapersonal dimension derived from the effect of death on the mind and body. This aspect is characterized by the fear of lack of access to personal goals, pleasures, and bodily deterioration. The second dimension is (2) interpersonal dimension, which is characterized by the effect of death on interpersonal relationships. The third dimension is (3) para-personal dimension, which refers to a mixture of fear of the world and punishment after death.

Schulz et al. [9] articulated nine components related to death anxiety. These components are (1) fear of physical suffering, (2) fear of isolation and loneliness, (3) fear of no n-being, (4) fear of cowardice and humiliation, (5) fear of failing to achieve important goals, (6) fear of impact on survivors, (7) fear of punishment or of the unknown, (8) fear of death of others, and (9) fear of the act of dying (e.g., pain, loss of control, and rejection because of illness).

Wong [10] presented different aspects regarding the meaning of death fear; these aspects are rooted on death anxiety. The 10

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meanings he proposed were finality, uncertainty, annihilation, ultimate loss, life flow disruption, leaving loved ones, pain and loneliness, prematurity and violence of death, failure of life work completion, and judgment and retribution. Campbellm [11] stated the following reasons for death fear: the unknown loneliness and anxiety from tolerating the death experience; the loss of family and friends; the loss of self-control of bodily functions; the possibility of suffering, pain, unbearable grief, and a non-existent or terrible afterlife; and the failure to achieve one's life goals.

Given the distinction between fear of own death and that of others, Bath [12] indicated that most individuals fear their own death and the dying of others, regardless of the degree to which individuals fear their own death. In particular, the process of leaving or separation/loss of loved ones is a central theme in the fear of death of people.

Sharif Nia et al. [12] identified four major themes related to death anxiety experiences. These themes are afterlife fears, alienated farewell, ambiguous separation, and physical dissolution. Patients who have been exposed to death trauma in the battlefield may carry additional burden from unique cognitions and fears related to personal death.

Several researches studied death fear and death anxiety among Iranian nurses [14–18]. In the Death Attitude Profile Revised, Asadpour, Bidaki, Rajabi, Mostafavi, Khaje-Karimaddini et al. found that the occurrence of death fear was significantly high in the young female nurses with low work experience, no experience in the intensive care unit (ICU) ward, and no history of death education. Death escape scores were significantly high among the subjects aged 31–35 years. Women with higher education, older than 46 years, and have over 20 years of work experience have superior approach toward death. Thus, these researchers concluded that their findings could be attributed to religious beliefs and looking at death as a bridge to the afterlife [19].

Different reasons support the translation of the Reasons for Death Fear Scale (RDFS) into the Farsi language and the study of its psychometric properties. In particular, cultural, ethnic, and socio-demographic factors related to reasons for fearing death can influence the severity of death fear. In the Iranian society, Islamic religion plays an important role in people's lives; thus, the reasons for death fear in this society must be investigated. Given the influence of the Holy Qur'an, people with worldly involvement consider confrontation with death as highly difficult (3/14, 17/18) [20].

Despite the good characteristics of the RDFS and its applicability in Arabic and Iranian university student samples [21,22], no published study investigated the reliability, validity, and factorial structure of this scale among Iranian nurses. Arabic countries and Iran share the religion of Islam but speak different languages. Therefore, the present research aimed to develop and implement the RDFS in Iran and to determine the psychometric properties of this scale in a sample of Iranian nurses. The RDFS can be useful in the research on personality, clinical practice, and cross-cultural comparisons.

## 2. Material and methods

### 2.1. Participants

A total of 106 Iranian volunteer nurses were selected from different wards of two hospitals in Tehran, Iran. These hospitals included Hazrat-e Rasool General Hospital, which is affiliated with the Iran University of Medical Sciences, and the Khatam-AlAnbia General Hospital. The nurses were invited to voluntarily participate in the study. The study purpose was explained to the nurses, and their anonymity was assured. The nurses provided verbal

consent. The study protocol was approved by an institutional review board. The inclusion criteria were as follows: nursing career, assignment to the wards, and educational level of bachelor degree and higher. The exclusion criteria were as follows: having medical diseases and mental disorders. These criteria were identified by the researchers based on the responses of the nurses to some questions in the demographic information sheet. Table 1 provides some demographic and professional data of the participants.

### 2.2. Measures

The RDFS was developed by Abdel-Khalek (2002) in two languages, namely, Arabic and English, and consisted of 18 brief statements. The scale used a five-point response format, particularly, (1) strongly disagree, (2) disagree, (3) neutral, (4) agree and (5) strongly agree. The score can range from 18 to 90. The author identified four factors for the scale (63.3% of the variance). A high-loaded factor of death distress was extracted, where the loading of RDFS was 0.45. By contrast, the loadings of the Death Anxiety Scale (DAS), Death Depression Scale (DDS), and Death Obsession Scale (DOS) ranged between 0.80 and 0.90. The correlation of RDFS to DAS was higher than that to general anxiety. The Cronbach's  $\alpha$  reliability was 0.82 in RDFS [21] but was 0.83 in another sample [22]. Item–remainder correlations ranged between 0.22 and 0.56. The RDFS was significantly correlated with DAS and general anxiety, DDS, and DOS. The scale also exhibited a concurrent validity and was significantly correlated at 0.48 to the DAS, 0.53 to the Self-Rating of Death Fear, 0.26 to the Kuwait University Anxiety Scale, and 0.22 to the Spielberger et al. Trait subscale of the State–Trait Anxiety Inventory (STAI) [21]. Using a sample of Iranian university students, Aflakseir [23] identified four factors for the RDFS. These four factors showed good internal consistency, i.e., 0.90, 0.68, 0.78, and 0.72. The RDFS was significantly correlated at 0.40 to the DAS.

In the present study, the 18-item version of the RDFS was translated into Farsi from English. The back-translation technique was applied to verify the adequacy of the translation (Appendices A & B). To establish test–retest reliability, we asked 56 of the nurses to complete the RDFS by 2 weeks after the first investigation.

**Table 1**  
Characteristics of the sample.

Variable	n	%
Age		
20–29	27	25.5
30–39	51	48.1
40–49	20	18.9
≥50	6	5.7
Sex		
Women	101	95.3
Men	5	4.7
Appointment		
Contract	64	60.4
Formal	42	39.6
Work experience		
1–5 years	35	33.0
≥5 years	71	67.0
Position		
Staff nurse	93	87.7
Head nurse	13	12.3
Work shift		
Rotational	83	78.3
Fixed		21.7
Number of patients per shift		
0–9	54	50.9
Care of end-stage patients in the past 3 months		
0–6	61	58.0
Participation in reclamation operations in the past 3 months		
≥5	31	29.9

Other scales were also used in the present study. These scales included the Death Concern Scale (DCS) [24], Collett-Lester Fear of Death Scale (CLFDS) [25], DAS [26], DDS [27], and DOS [28]. Previous studies have reported desirable reliability and validity for all these scales [29–39]. In the present study, the Farsi-validated forms of the DCS, CLFDS, DAS, DDS, and DOS were used. Table 2 displays some psychometric data on the scales.

### 2.3. Data analysis

Data were analyzed by descriptive statistics, Pearson correlation coefficient, and principal components factor analysis to identify the number of factors to be retained. The criterion of eigenvalue greater than or equal to 1.0 was followed, and the varimax orthogonal rotation of axes was adopted.

## 3. Results

The mean total score on the RDFS was ( $57.51 \pm 14.15$ ). The lowest mean item score was ( $2.74 \pm 1.32$ ) for item 3: “too many sins,” whereas the highest mean score was ( $3.71 \pm 1.18$ ) for item 5: “parting from the relatives and beloved.”

### 3.1. Reliability coefficients of the RDFS

For the RDFS, the Cronbach's  $\alpha$  coefficient was 0.90, the Spearman–Brown coefficient was 0.87, and the Guttman Split-half coefficient was 0.87. These values indicated high internal consistency (Table 2). The 2-week test–retest reliability was 0.64.

### 3.2. Correlations between the items and the total score on the RDFS

The Pearson correlations between the individual items and the RDFS total scores ranged between 0.21 for item 2 ( $P < 0.05$ ) to 0.74 for item 8 ( $P < 0.01$ ). This result indicated a moderate-to-high association between the individual items and the RDFS total scores (Table 3). This result is another indication of the internal consistency of RDFS. The inter-item correlations of the RDFS ranged between  $-0.02$  for items 3 and 6 (no significant) and 0.67 for items 8 and 9 ( $P < 0.01$ ). This result indicated the importance of distinguishing the different reasons for death anxiety through RDFS.

### 3.3. Correlations of the RDFS with other scales

Table 4 presents the RDFS correlations with other scales. This table shows that the correlations ranged from 0.34 to 0.50. All the correlations were positive and significant ( $P < 0.01$ ), indicating a moderate construct and criterion-related validity of the measures.

### 3.4. Factor analysis of the RDFS

The criteria for the factor analysis were evaluated using the Kaiser–Meyer–Olkin Measure (KMO) of sampling adequacy and the Bartlett Test of Sphericity. The KOM was 0.891, which reflected

**Table 3**  
Pearson correlations ( $r$ ) between the RDFS items and the total score.

Item	$r$	Item	$r$
1	0.31**	10	0.63**
2	0.21*	11	0.72**
3	0.30**	12	0.70**
4	0.60**	13	0.43**
5	0.37**	14	0.66**
6	0.49**	15	0.62**
7	0.67**	16	0.56**
8	0.74**	17	0.51**
9	0.72**	18	0.67**

\*Two-tailed  $P < 0.05$ ; \*\*Two-tailed  $P < 0.01$ .

**Table 4**  
Pearson correlations ( $r$ ) between the scales.

Scales	Pearson $r$ with RDFS
Death Concern Scale	0.34*
Death Anxiety Scale	0.50*
Collett-Lester Fear of Death Scale	0.39*
Death Depression Scale	0.35*
Death Obsession Scale	0.39*

\* $P < 0.01$ .

the adequacy of the present sample data. The Bartlett's Test of Sphericity value was 960.961 ( $df = 153$ ,  $P < 0.001$ ), which indicated that the factor analysis was justified for the present sample. The principal component analysis followed the varimax orthogonal rotation. The results of factor analysis of the 18-item RDFS identified four factors (66.20%). These four factors exhibited good internal consistency, i.e., 0.88, 0.82, 0.57, and 0.57. Table 5 depicts the obtained factors.

Factor 1 (8 items) explained 24.87% of the observed variance and was labeled “Fear of Pain and Punishment.” This result included the items “fear of heavenly punishment,” “too many sins,” “fear of hell and doomsday,” “terribly strenuous moment when the soul parts from the body,” “failure to perform religious duties and obligations,” “death entails so many vague and unknown issues,” “lack of faith,” and “torture of the grave.” Factor 2 (5 items) explained 19.41% of the observed variance and was labeled “Fear of Losing Worldly Involvements.” This factor included the items “life teems with meaningful things,” “leaving behind secular pleasures,” “grieving over what one will leave behind (e.g., wealth and valuables),” “loss of self or identity,” and “death puts an end to one's plans and objectives.” Factor 3 (2 items) explained 11.44% of the observed variance and was labeled “Religious Transgressions and Failures.” This factor included the items “grieving of loved ones” and “acute pains associated with dying.” Factor 4 (2 items) explained 10.467% of the observed variance and was labeled “Parting from Loved Ones.” This factor included the items “worry about one's offspring” and “parting from the relatives and beloved” (Table 5).

**Table 2**  
Descriptive statistics and Cronbach's  $\alpha$  of all scales.

Scales	Number of items	Format	$M \pm SD$	Cronbach's $\alpha$
Reasons for Death Fear Scale	18	Likert (1–5)	$57.70 \pm 14.23$	0.90
Death Concern Scale	30	Likert (1–4)	$72.72 \pm 10.82$	0.77
Death Anxiety Scale	15	True–False (0–1)	$8.27 \pm 2.71$	0.60
Collett-Lester Fear of Death Scale	32	Likert (1–5)	$99.15 \pm 25.14$	0.94
Death Depression Scale	17	True–False (0–1)	$8.07 \pm 4.34$	0.84
Death Obsession Scale	15	Likert (1–5)	$30.74 \pm 12.35$	0.95

**Table 5**Four varimax factor loadings (>0.50) of the Farsi version of the Reasons for Death Fear Scale (RDFS) in Iranian nurses ( $n = 106$ ).<sup>a</sup>

RDFS Items	Component			
	1	2	3	4
1. Fear of heavenly punishment	<b>0.607</b>	-0.065	0.469	0.306
2. Worry about one's offspring	0.146	0.044	0.348	<b>0.752</b>
3. Too many sins	<b>0.602</b>	-0.195	0.487	0.177
4. Life teems with meaningful things	0.395	<b>0.593</b>	-0.016	0.462
5. Parting from the relatives and beloved	0.284	0.471	0.033	<b>0.594</b>
6. Leaving behind secular pleasures	0.039	<b>0.748</b>	0.091	0.102
7. Fear of hell and doomsday	<b>0.685</b>	-0.008	0.376	0.228
8. Terribly strenuous moment when the soul parts from the body	<b>0.810</b>	0.234	0.096	0.114
9. Failure to perform religious duties and obligations	<b>0.817</b>	0.206	0.075	0.104
10. Death entails so many vague and unknown issues	<b>0.572</b>	0.262	0.063	0.235
11. Element of surprise in death	0.491	0.383	0.119	0.450
12. Lack of faith	<b>0.642</b>	0.497	-0.065	0.058
13. Grieving of loved ones	-0.015	0.096	<b>0.814</b>	0.279
14. Torture of the grave	<b>0.585</b>	0.394	0.396	-0.250
15. Acute pains associated with dying	0.416	0.226	<b>0.672</b>	-0.046
16. Grieving over what one will leave behind, e.g. wealth, valuables, etc.	0.077	<b>0.799</b>	-0.004	0.256
17. Loss of self or identity	0.140	<b>0.760</b>	0.146	-0.159
18. Death puts an end to one's plans and objectives	0.417	<b>0.571</b>	0.031	0.216
Eigenvalue	4.47	3.49	2.06	1.88
% of variance	24.87	19.41	11.44	10.46
% of total variance	66.20			

Note: Factor 1 (items: 1, 3, 7, 8, 9, 10, 12, and 14): Fear of Pain and Punishment.

Factor 2 (items: 4, 6, 16, 17, and 18): Fear of Losing Worldly Involvements.

Factor 3 (items: 13, and 15): Religious Transgressions and Failures.

Factor 4 (items: 2, and 5): Parting from Loved Ones.

<sup>a</sup> Items of high loadings (>0.50) are given in bold to clearly differentiate the factors.

#### 4. Discussion

Death anxiety or fear of death is the main subject in thanatology, the scientific study of various aspects of death. Several researchers have defined different reasons for fear of death. However, to the best of our knowledge, RDFS is the only scale that can directly address this subject. The RDFS holds good psychometric characteristics for Arabic population [21]. Arabic and Iranian populations share Islam religion, specific historical events, and cultural roots. Therefore, scholars intend to develop a Farsi version of the RDFS to be used in thanatology research and cross-cultural studies.

The results of the present study revealed that the mean score of reasons for fear of death among nurses was moderately high. The means for 15 items of the RDFS (0.83%) were above midpoint, i.e., 3. The total mean score of the RDFS for the Iranian sample was significantly lower than that for the Egyptian college students [21]. Under the RDFS and other death distress scales, Ayyad [40] found that the nurses who deal with critical cases and work in high-stress wards, such as the ICU, obtained higher mean scores on death distress than the nurses who work in low-stress wards, such as the internal medicine department. Another study showed that female nurses achieved significantly higher scores on only two items of the scale, particularly, grieving over what they would leave behind (wealth and valuables) and over the loss of self or identity, than female non-nurses [29]. Moreover, Abdel-Khalek [21] reported that female students obtained significantly high scores for the following three items of the scale: fear of hell and doomsday, fear of vague and unknown issues, and torture of the grave.

The present study showed the high reliability coefficients of the RDFS. Previous studies on the RDFS among Egyptian, Kuwaiti, and Iranian university students also reported good reliability and concurrent validity [21,23,40].

The present study indicated significantly positive correlations among all the scale items and the total score. These results suggested the good internal consistency and the contribution of each item to the total scale score. These findings are consistent with the

results of Abdel-Khalek [21,22].

The principal component analysis following the varimax orthogonal rotation identified four factors in the present study (accounted for 66.20% of the variance). These factors were labeled "Fear of Pain and Punishment," "Fear of Losing Worldly Involvements," "Religious Transgressions and Failures," and "Parting from Loved Ones." These identified components were consistent with the theoretical formulation of the scale and the four components of Abdel-Khalek. Moreover, Aflaksair included (I) Fear of Pain and Punishment, (II) Fear of Losing Worldly Involvements, (III) Religious Transgressions and Failures, and (IV) Parting from Loved Ones [21,23]. These findings revealed the replicable factors of the RDFS. Abdel-Khalek found that Fear of Pain and Punishment is also a factor, along with (including, but not limited to) Fear of Losing Worldly Involvements, Religious Transgressions and Failures, and Parting from Loved Ones. Thus, contrary to what he claimed, people hold 17 remaining reasons for death fear despite the assumption that pain would cease at the moment of death [21]. In his study, Aflaksair found the highest mean score under the Fear of Pain and Punishment, whereas the lowest mean score was under the Fear of Losing Worldly Involvements [23]. Hollander, in his article "Fear Itself," distinguished between fear of pain and fear of death. He identified various kinds of fear, particularly, fear of own death and fear of pain and other bodily suffering. Similar to Abdel-Khalek's model, Hollander's model argued that the fear of own death constitutes many kinds of fear, including fear of experiencing the precise moment of dying of self, of the consequences of dying, of something in the afterlife, or the absence of an afterlife [41].

The correlation of RDFS to the other scales ( $P < 0.01$ ) indicated its moderate criterion validity. These findings are consistent with the results of Abdel-Khalek [21] and Abdel-Khalek who found RDFS to be significantly and positively correlated to the DAS, CLFDS, DDS, and DOS [22]. By applying the RDFS, DAS, STAI, and Religious Orientation Scale with emphasis on Islam, Aflaksair found that the subscales of the RDFS explained 24% of the variance in anxiety. Anxiety was predicted only by the Fear of Losing Worldly



Involvements. Three components of the RDFS showed positive relationships with anxiety; the highest relation involved the Fear of Losing Worldly Involvements and Parting from Loved Ones, whereas the lowest relation involved the Fear of Pain and Punishment. Religiosity had significant positive relationships with the Fear of Pain and Punishment and with Religious Transgression and Failures [23]. Ayyad [40] reported the significant positive correlations between the RDFS and the Arabic Scale for Death Anxiety (ASDA), DDS, and DOS.

The present study held some limitations that should be considered. First, the majority of participants were females. Furthermore, the nurses did not constitute a representative sample of the Iranian population. Further studies using representative male and female samples are recommended.

## 5. Conclusions

We conclude that the RDFS holds good psychometric characteristics, i.e., validity and reliability, and can be used in the clinical and research settings in Iran. Furthermore, this study confirms the multidimensionality hypothesis of the RDFS proposed by Abdel-Khalek. This work also justifies the use of the RDFS by Persian-speaking health care professionals to evaluate a specific domain of attitude toward death, i.e. the reasons for fear of death.

## Conflict of interest

The authors declare no funding source and no conflict of interest regarding the publication of this paper.

## Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.ijnss.2017.10.002>.

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