CONSTRUCTION OF INDIGENOUS DEATH ANXIETY SCALE

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ABSTRACT

Death is an inherently distressing event for every living entity and creates apprehensions among all of us. In our daily lives, we normally face death anxiety at some point or other. To construct an indigenous death anxiety scale (IDAS), 90 items generated through literature search and in-depth interviews were reduced into 74 during the pilot study (n=60) which further reduced into 65 after expert evaluations and finally administered on (N=401) Pakistani Muslims. Item analysis and exploratory factor analysis resulted in 65 items loaded on five factors (Punishment after death, Loss of personal and social identity, Finality of death, Loss of Control and Helplessness and Finality of Death). Cronbach alpha reliability of IDAS (α=.97, p<.001) and interrelationships for five subscales showed good indices (p<.01). The results showed IDAS as a culturally specific and reliable tool to measure death anxiety and hold significance for researchers and health professionals.

Keywords: *Death Anxiety Scale, Item Analysis, Exploratory Factor Analysis, Pakistani, Muslim.*

Introduction

"Everyone is destined to experience both the exhilaration of life and the fear of mortality" (Yalom, 2008, p.273). Human beings are rational individuals possess an overdue concern about their mortality. Death anxiety referred to an apprehension produced by awareness of death; anxiety related to death and dying; apprehension over non-existing self; anxiety about annihilation and non-existence; "vague uneasy feeling of discomfort or dread generated by perceptions of a real or imagined threat to one's existence" (Abdel-Khalek, 2005; Carpenito-Moyet,2008; Tomer & Eliason, 1996; Jones, 2001; Moorhead et al., 2008, p. 761). In the literature search, the terms fear and anxiety used interchangeably for death, however, there is a distinction between these two terms based on identification of its source "anxiety refers to state and ignores object, while fear directs attention precisely to the object"; anxiety is dispersed and lacks object (Feifel, 1965, p.45; Neimeyer, Moser, & Wittkowsk, 2003).

Death anxiety is multifaceted phenomenon (Geurtsen,2010) which includes cognitive, emotional and experiential dimensions; complicated bio-psycho-social and spiritual facets of death are represented by complete self-destruction, loneliness and loss of identity which creates negative emotional reactions (Lehto,2009; Kastenbaum, 2000; DePaola, Neimeyer, Griffin, & Young,2003). The existing body of the literature suggested an important role of death apprehensions in the lives of human beings. Acknowledgement of death possesses a positive impact on the life of individuals; bolsters self-esteem, increased group norm afflictions, adherence to good political leaders and a non-support for political groupings and artwork which is incongruent with cultural ideologies (Bassett, 2007; Jost et al., 2007; Landau et al., 2006). Death fears open novice opportunities for learning, growth, and acceptance, promotes the greater purpose of life and a search for authentic existence (Firestone, 1993). On the other side, findings showed that death anxiety creates uncertainty about the body, disturbances in interpersonal relationship and lowered the level of libido (Bassett, 2007; Goldenberg et al., 2006). Healthy death fears serve as the precursor for self-preservation while the unhealthy preoccupations with death create friction in daily livings and create psychological and emotional disturbances. This was affirmed by different studies which show linkages of death anxiety with eating and self-mutilation disorders (Farber,

Jackson, Tabin, & Bachar, 2007; Jackson, Davidson, Russell, & Vandereycken, 1990).

Owing to pivotal role of death fears, thanatological researchers possess heightened interests to measure death anxiety which are evident from projective tests, psycho-physiological tests, sentence completion tests and interviews such as Word Association and Tachistoscopic Recognition Tasks; Word Recognition Task; The Galvanic Skin Response and Sentence Completion Task (Golding, Atwood & Goodman, 1966; Lester & Lester, 1970; Christ, 1961; Lester &Lester, 1970; Meisner, 1958; Shrut, 1958); direct and forced-choice inquiries (Hackett & Weissman, 1965; Schilder, 1936); Bromberg &Schilder, 1933; Feifel, 1955; and Swenson, 1961)."….95% of the literature on death anxiety has used conscious reports of respondents in the form of written scales or questionnaires." (Neimeyer, 1997; p. 100), concerning to this fact direct methods of inquiries considered as adaptable and practical approaches for clinicians and researchers which are evident from number of scales: Fear of Death Scale (Boyar, 1964); Fear of Death Scale (Sarnoff & Corwin, 1959); Death Anxiety Scale (Templer, 1970); Collett-Lester Fear of Death Scale (1969); Death Concern Scale (Dicksten, 1972); The Revised Death Anxiety Scale (Nehrke,1973); The Multidimensional Death Anxiety Scale (Nelson,1975); Multidimensional Fear of Death Scale (Hoetler, 1979); Fear of Personal Death Scale (Florian & Karvetz, 1983).

Populations for developments and psychometric validations used in predominant western death anxiety scales represent different than Pakistani religious and cultural backgrounds. Pakistani society signified by collectivistic Islamic culture, scriptures in Holy Quran are heavily laden with message of death and life after death, "Wherever you are, death will overtake you, though you remain in lofty towers" (4:78) similarly, "Convey good news to those who believe and do good deeds that they shall have gardens through which rivers flow. Whenever they shall be given a portion of the fruits thereof, they shall say: This is what was given to us before. And they shall be given the like of it" (2:25). Aside from religious factors, certain socio-political disruptions hold significance for death fears. In Pakistan, during past few years, violent activities like bomb blasts, terrorist attacks, eruptions and violation of protective measures produce damages; 6072 fatalities which occurred due to terrorist activities (Khalily, Fooley, Hussain & Bano, 2011; South Asia Terrorism Portal, 2012) and trivial death prompts exposures creates death anxiety (Greenberg, et al., 2004).

Aforementioned religious and socio-political factors create pressing need of time to empirically investigate the phenomenon of death anxiety. To our best knowledge, no previous attempt has been made to indigenously measure death anxiety in Pakistani Muslims. Death anxiety assessment provides an initial guide for mental health professionals and researchers to carry out related explorations which could be beneficial to adopt strategies for effective management of death anxiety.

The goals of the present study include the development of self-report IDAS and determination of its psychometric properties.

Materials and Methods

Phase I
Item Constructions include Literature review and interviews in which pre-existing death anxiety measures: Fear of death scale (Boyar,1964); Collett-Lester Fear of Death Scale (1969); Multidimensional Death Anxiety Scale (Nelson,1975); Fear of Personal Death Scale (Florian & Karvetz, 1983); Hostetler's Multidimensional Fear of Death Scale (1979) were reviewed before item writing in terms of content, themes and response categories. Thanatological literature from different books, online journals, magazines were also considered

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and broader and specific areas were identified for item development. To probe an in-depth exploration of the phenomenon of death anxiety, healthy individuals (n=50) and patients (n=50) diagnosed with psychological and physical illness were selected for an interview. The outlines of the interview included thoughts, emotions and possible reasons for death-related anxieties. Ninety tentative statements were written in Urdu from the verbatim. Subject experts review items for language clarity and content specificity. Items were rephrased and modified, four-point Likert scale was decided for the scoring of responses.

Phase II

To evaluate content and face validity, eliminate vague, repetitive and overlapped items pilot study was carried out, (n= 60) individuals were recruited through the convenient sampling and asked to identify ambiguous items. Each suggestion/objection was carefully taken into account and reduced into 74 items. The items were further reviewed by subject experts, vague terminologies were replaced, rephrased and resulted in 65 items.

Phase III

Sample of (N=401) Pakistani Muslims recruited on voluntarily basis and was given consent forms and personal information sheet along with 65 items of the scale. Confidentiality was assured and only consented individuals were handed over study forms.

Results

Statistical Package for Social Sciences version 22.0(SPSS 22) was utilized to carry out statistical computations. 65 items created by item development and pilot study were condensed into 63 items after item-total correlation (Table1) and factor analysis (Table 2). Polit and Beck(2007) suggested removing the item-total correlations which showed values lower than .3 and retain items showed values of .6 and high with total scale. In the present study item-total correlation which showed the value of .30 and above were retained in the final scale. Considering this notion, corresponding items which exhibit loading of .30 and above on their respective factors were chosen to include in the final structure of IDAS. Also in factor analysis, the criteria for retention of an item in a particular factor was .30 and above (Kline, 1993). Kaiser-Meyer-Olkin (KMO) and Bartlet test for sphericity values indicate the use of factor analysis (Principal Component Analysis) for current data.

Item Analysis

Table 1 Descriptive Statistics and Item-Total Correlations of 65 Items of IDAS

Item no	M	SD	r	Item no	M	SD	r
1	2.84	1.059	0.33**	13	2.44	1.208	-0.75(ns)
2	2.65	1.145	0.48**	14	2.14	1.130	0.59**
3	2.37	1.150	0.50**	15	2.28	1.147	0.53**
4	2.26	1.163	0.55**	16	2.24	1.143	0.51**
5	1.78	.964	0.46**	17	2.09	1.165	0.46**
6	2.17	1.208	0.56**	18	2.22	1.128	0.48**
7	1.91	1.055	0.55**	19	2.50	1.193	0.49**
8	2.16	1.168	0.59**	20	2.30	1.154	0.63**
9	2.16	1.214	0.62**	21	1.32	.760	0.40**
10	1.38	.788	0.42**	22	1.56	.919	0.42**
11	1.87	1.160	0.61**	23	1.64	1.017	0.58**
12	2.05	1.142	0.62**	24	1.84	1.076	0.66**

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Item no	M	SD	r	Item no	M	SD	r
25	1.89	1.019	0.61**	37	2.59	1.154	0.52**
26	1.86	1.019	0.66**	38	2.23	1.232	0.58**
27	1.84	1.045	0.70**	39	2.71	1.142	0.55**
28	1.96	1.094	0.64**	40	2.36	1.201	0.63**
29	2.41	1.181	0.51**	41	2.64	1.152	0.59**
30	2.12	1.181	0.39**	42	2.81	1.184	0.60**
31	1.47	.928	0.34**	43	2.48	1.150	-0.2 (ns)
32	2.25	1.204	0.50**	44	2.57	1.140	0.55**
33	2.66	1.165	0.57**	45	1.95	1.115	0.55**
34	2.96	1.156	0.54**	46	1.87	1.107	0.53**
35	2.71	1.198	0.53**	47	1.75	1.110	0.49**
36	2.22	1.218	0.49**	48	1.81	1.071	0.57**

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Item no	M	SD	r	Item no	M	SD	r
49	2.39	1.236	0.57**	61	2.35	1.185	0.60**
50	2.23	1.236	0.47**	62	2.36	1.193	0.65**
51	1.171	1.043	0.44**	63	2.09	1.219	0.62**
52	1.64	.999	0.51**	64	1.87	1.190	0.53**
53	1.56	.940	0.47**	65	2.26	1.211	0.58**
54	2.79	1.175	0.57**				
55	1.86	1.097	0.52**				
56	1.66	.981	0.44**				
57	1.81	1.052	0.53**				
58	1.99	1.231	0.61**				
59	3.02	1.115	0.53**				
60	2.70	1.217	0.63**				

*** Correlation is significant at the 0.01 level (2-tailed).*
**Correlation is significant at the 0.05 level (2-tailed)*
Table 1 item-total correlation IDAS shows value of $r(401)$ = .33 to .70*, p<.01.*

Factor Analysis

To establish underlying dimensions of IDAS, Principal Component Analysis (PCA) with varimax rotation was utilized. Kaiser criterion and the percentage of total explained variance were used to analyze the meaningfulness factors. Kaiser (1974) recommended retaining all components with above unity Eigenvalues. Present data produced twelve factors which lacked clarity. To attain best-fit model nine, eight, seven, six and five-factor solutions were carried out with. The five-factor solution provided a simpler, comprehensive structure. Least numbers of cross-loadings were found for the five-factor solution. Total variance explained by five factors was found to be 47.843%. Also, literature review and concept generation guided five facets of death anxiety for item development of IDAS. Further support for the retention five factors was provided by Scree plot test (Cattel, 1966). The first factor showed Eigenvalue of 20.358 and second, third, fourth and fifth factors showed values of 3.389, 2.392, 2.269, and 1.734 respectively.

Table 2 Factor Structure and Eigen Values of IDAS with Varimax Rotation (N=401)

Items	Factors				
	FI	*FII*	*FIII*	*FIV*	*FV*
1	.291	-.107	**.470**	.037	.007
2	.092	.129	**.666**	.100	.067
3	.072	.157	**.630**	.130	.182
4	.078	.193	**.648**	.197	.128
5	.059	.152	**.502**	.163	.266
6	.220	.155	**.646**	.156	.057
7	.099	.284	**.380**	.297	.310
8	.228	.130	**.547**	.389	.033
9	.255	.245	**.531**	.361	-.084
10	-.034	**.358**	.198	**.348**	.224
11	.284	.243	.313	**.495**	.056
12	.313	.219	.273	**.551**	.095
13	-.171	-.114	.066	-.055	.259
14	**.374**	.097	**.368**	.343	.235
15	.250	.059	.345	.345	**.374**

Continue..

Items	Factors				
	FI	*FII*	*FIII*	*FIV*	*FV*
16	.309	.075	.243	.332	**.359**
17	.086	.273	.266	.193	**.381**
18	.199	.222	**.349**	.090	**.348**
19	.285	.028	.276	.293	**.444**
20	**.388**	.144	**.388**	.342	.221
21	.046	.387	-.032	**.595**	-.006
22	.040	**.485**	.049	.370	.028
23	.162	.411	.244	**.553**	-.086
24	.287	.288	.391	**.517**	-.059
25	.301	.147	.416	**.446**	.109
26	.238	.412	.328	**.436**	.100
27	.325	.300	.335	**.498**	.177
28	.391	.181	.248	**.521**	.197
29	**.456**	.094	.140	.172	**.444**
30	.260	.258	-.058	.137	**.494**

Items	Factors				
	FI	*FII*	*FIII*	*FIV*	*FV*
31	.067	**.303**	-.004	.291	.290
32	**.445**	.136	.111	.155	.407
33	**.499**	.081	.237	.159	.443
34	**.704**	.051	.087	.177	.196
35	**.655**	.102	.029	.221	.173
36	**.482**	.382	.123	.044	-.106
37	**.687**	.139	.027	.218	.000
38	**.619**	.184	.097	.255	.102
39	**.688**	.176	.179	.057	-.016
40	**.583**	.223	.265	.202	.034
41	**.649**	.161	.234	.098	.105
42	**.650**	.173	.296	.048	.066
43	-.065	.035	-.033	-.129	.241
44	**.586**	.183	.240	.075	.056
45	.154	**.627**	.198	.048	.245

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Items	Factors				
	FI	*FII*	*FIII*	*FIV*	*FV*
46	.175	**.650**	.041	.131	.264
47	.179	**.511**	.160	.097	.168
48	.160	**.641**	.100	.127	.375
49	.203	**.646**	.145	.041	.311
50	.150	**.542**	.086	-.013	.443
51	.146	**.533**	.018	.290	-.011
52	.072	**.629**	.203	.173	.048
53	.076	**.679**	.060	.233	-.078
54	**.459**	.206	**.443**	.021	.061
55	.233	**.471**	.291	.073	-.011
56	.173	**.508**	.083	.220	-.056
57	.184	**.530**	.245	.137	.059
58	.252	**.593**	.332	.044	.047
59	.427	.224	**.463**	-.132	.123
60	**.464**	.320	**.475**	.042	-.038
61	**.500**	.331	.324	.130	-.130
62	**.528**	.262	.462	.118	-.074
63	.359	**.454**	.435	.138	-.199
64	.242	**.476**	.368	.163	-.269
65	.327	.360	**.439**	.047	.034
Eigenvalues	20.358	3.389	2.392	2.269	1.734
% Variance	31.314	5.379	3.797	3.601	2.752
Cumulative %	31.314	37.692	41.490	45.0951	47.843

Note. Items with .30 or above loadings are boldfaced in the corresponding factor.
p < .01.
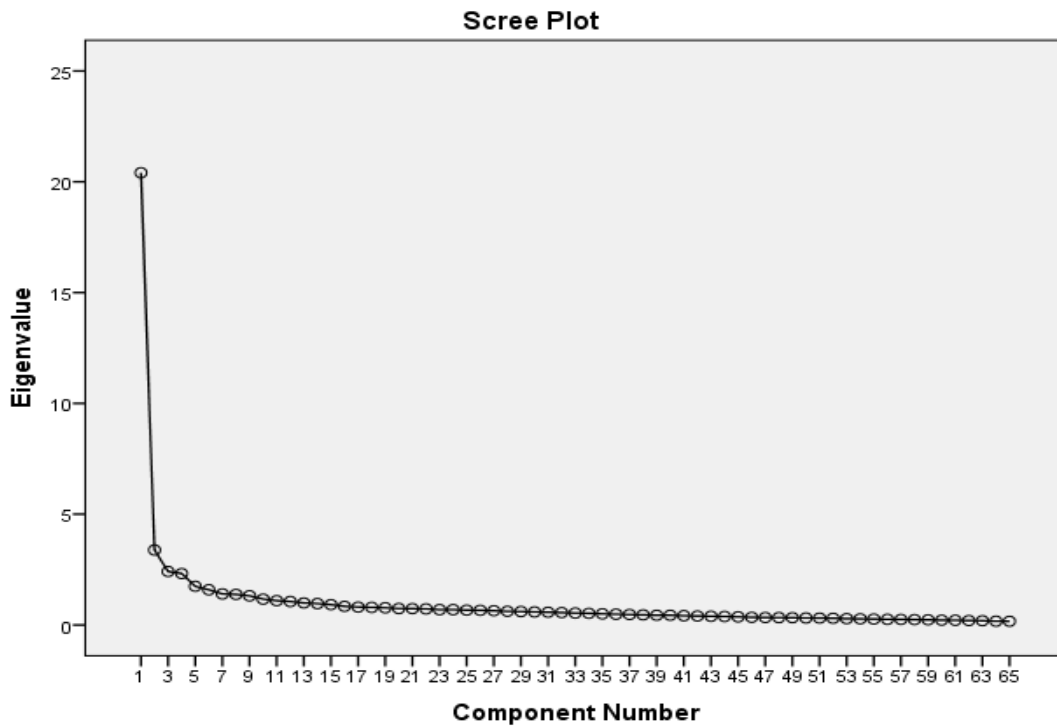Table 2 shows items and their respective loadings under five factors in IDAS

Figure 1 Scree Test for Eigenvalues and Factors IDAS

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The figure shows a decreasing line after five components for IDAS. The factors were labelled based on the commonality of items in the factors and careful examination of the content adequacy of items by the subject experts. In the case of dubious loadings, the content of the item was scrutinized for the suitability of the retention in a particular factor. Five-factor solutions for the multidimensional IDAS are as follows:

Factor I: Punishment after death(PAD) measures fear of punishments after death. It includes 17 items. Sample items include "Punishments due to bad deeds"; "fear of accountability", "lack of preparation for life after death".

Factor II: Loss of personal and social identity (LPASI) measures fears related to the failure to achieve future targets. It includes 18 items. Sample items include "consequences to family members and friends" "Loss of self-fulfilment", "Loss of social status".

Factor III: Finality of death(FOD) measures fears about the inescapability of death. It comprised of 12 items. Sample items include "environmental death cues", " an ultimate reality ", "fear of unknown", "mysterious death facts related to death".

Factor IV: Lack of control and helplessness(LOCAH) measures fears about losing control over one's body and feelings of helplessness related to death. It includes 9 items. Sample items include "self-annihilation"; "dying slowly" "dying with pain"; "suffocation" blurred vision at the time of death".

Factor V: General death of self(GDS) measures interpersonal fears accompanied by death and dying. It includes 7 items. Sample items include; "reluctance to interact with dead bodies", "fear of visiting relatives on their deathbeds", " avoidance of visiting graveyards" dying violent deaths".

Alpha Reliabilities of IDAS and Subscales
Internal consistency of overall and five Subscales of IDAS was computed.
Table 3 Cronbach Alpha of IDAS and Subscales

S.No	Subscales	No of items	Alpha Reliability
1	IDAS	63	.97**
2	PAD	17	.92**
3	LPASI	18	.90**
4	FOD	12	.87**
5	LOCAH	9	.88**
6	GDS	7	.78**

Table 3 shows the values for alpha coefficient reliability IDAS (α=.96, *p*<.001) and subscales (α=.92 - .78, *p*<.001).

Correlations between Total and Sub-Scales IDAS
Table 4 Inter Correlations of Total and Subscales IDAS (N=401)

	IDAS	SUBSC I	SUBSCII	SUBSCIII	SUBSCIV	SUBSCV
IDAS	--	.89**	.85**	.86**	.87**	.77**
SUBSC I	--	----	.63**	.73**	.72**.	.66**
SUBSCII	---	-----	-----	.64**	.71**	.57**
SUBSCIII	---	---	----	---	.71**	.60**
SUBSCIV					---	.63**
SUBSCV					---	----

Note: **p <.01
Table 4 shows the subscale coefficient values range (r=. 60 to .89, *p*<.01).

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Descriptive Statistics IDAS
Table 5 Descriptive Statistics for IDAS Subscales (N=401)

Descriptive	death anxiety Scale IDAS	Subscale I PAD	Subscale II LPASI	Subscale III FOD	Subscale IV LOCAH	Subscale V GDS
Mean	135.61	42.62	32.56	28.30	16.26	15.86
Median	136.00	43.00	31.00	28.00	15.00	16.00
Mode	142	51	18	24	9	16
Range	187	51	54	36	28	21
SD	39.890	13.233	12.00	8.893	6.853	5.403
Variance	1591.19	175.122	144.03	79.081	46.970	29.194
Minimum	63	17	18	12	8	7
Maximum	250	68	72	48	36	28
Percentiles						
25th	104.50	33.00	22.00	21.00	10.00	11.50
50th	136.00	43.00	31.00	28.00	15.00	16.00
75th	163.00	52.50	40.00	35.00	20.50	20.00

Table 5 shows descriptive statistics for composite and subscale IDAS values.

Discussion

Present study produced cultural specific, self-report death anxiety scale which comprised of 63 items with distinct commonalities and constitutes five subscales: PAD, LPASI, FOD, LOCAH and GDS respectively.

Factor I interpreted as PAD represented by items related to punishments in the hereafter, fear of painful death process, reprimand for wrongdoings, absence of sufficient death preparations, fear to see one's creator, lack of ample information related to dealings and consequences after death. Item #14("I fear the process of my soul leaving my body") and item#20("I fear that onset of death will be painful") cross-loaded on factor I and II. Based on expert's views these items were kept in factor I. Item #34 ("I fear the evaluation of my deeds after dying") showed the highest loading among all items. Also, this factor showed a greater number of items as compared to other factors which provide an idea that the apprehension for punishments after death lies at the heart of death anxiety for the present population. A possible explanation for this fact is that Muslims adherently belief that there is a life after death and each will be rewarded according to their deeds on the final day of judgment. Many verses of the Quran and Hadith emphasized that our life in this world is temporary and life after death is permanent and everlasting and we will deserve heaven or hell following good and bad deeds. As stated in the Quran; Every soul shall taste death and you will be paid in full only on the Day of Resurrection. Whoever is kept away from the Fire and admitted to the Garden will have triumphed. The present world is only an illusory pleasure" (Quran, 3:185).

Factor II interpreted LPASI represented by the items related with distresses to accomplish future targets, helplessness about the inability to cater the needs of relatives and significant others, the concern that after one's death individuals will be forgotten by relatives, family, and friends. Item #53 ("I fear that nobody will follow my will when I die") showed the greatest loading in factor II.

Factor III interpreted as FOD, represented by items related to unavoidable nature of death, worldly death cues and the anonymous mystery related to death. Item2 ("I fear that all living things will expire one day") showed the highest loading in factor III.

The fourth factor interpreted LOCAH, represented by the concerns encompassing interpersonal death fears i.e; painful dying process, dying slowly, body annihilation; death by suffocation; losing physiological control at the time of death; fear of postmortem after one's death.

The fifth factor interpreted as GDS, represented by fears of dead bodies, graveyards, slow painful and violent deaths inflicted by accidents and diseases. Item #29 ("I fear to die whenever I see a funeral process ongoing to the graveyard") exhibited cross-loading for factor I and factor V however, conserved for factor V because of content aptness. Item#30 ("I am scared of touching a dead body") showed the highest loading in factor V.

Items to total correlation for 63 items ranged from .33 to .70 *(p<.01)*. Cronbach alpha reliability found to be (α=.97) for overall IDAS, whereas alpha reliabilities for five subscales ranged from (α=.92 - .78). According to Nunnaly and Brestein (1994), the minimum acceptable criterion for Cronbach alpha is.70 for newly developed psychological construct. Present values for overall IDAS and subscales showed higher than acceptable criterion suggested by Nummaly and Brestein (1994) demonstrates that scale contains a homogenous set of items and founds to be a reliable tool.

According to Mc Dowell (2006), the correlation values for subscales of the same scale showed the range of .60 and above considered as significant. Significant and positive correlation values (r=. 60 to .89, *p*<.01) among subscales and composite death anxiety measure demonstrated interrelatedness of construct. Descriptive analysis showed percentile scores of IDAS which demarcated higher, medium and lower ranges of scores. The results showed IDAS as a reliable tool to measure death anxiety among the Pakistani Muslim population.

IDAS development was a preliminary struggle to measure death anxiety possibly opens doors for academicians to execute empirical death investigations, introduce death courses, conduct workshops, training, and seminars to promote death-related awareness. Present inquiry embrace implications for health professionals for assessments of death anxiety among clinical patients which aids in psychotherapeutic interventions focused to deal and manage death anxiety.

Limitations and Recommendations

The study selectively included Muslim population inclusion of individuals hold diverse religious backgrounds (Buddhists, Christians, Hindus) possibly enhance the generalizability of findings. There is a need to establish further psychometric refinements which are included but not limited to temporal, split-half reliability, convergent, discriminant validity of the scale in future studies. It is also advised to carry out further validity studies considering population working in different life-threatening occupations (firefighters, ambulance drivers, funeral personnel, medical professionals), suicidal individuals, geriatric population and people facing terminal health issues(cancer, heart disease, HIV).

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