

# The Existential Concerns Questionnaire (ECQ)—Development and Initial Validation of a New Existential Anxiety Scale in a Nonclinical and Clinical Sample

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**Objective:** Existential anxiety (EA) is a construct that refers to fears that are provoked by core threats of human existence, such as death, meaninglessness, and fundamental loneliness. The objective of this study was to develop an EA measure that can be used in research and clinical practice.

**Method:** The Existential Concerns Questionnaire (ECQ) was completed by a nonclinical sample of 389 adults, together with questionnaires measuring death anxiety, intolerance of uncertainty, neuroticism, distress, meaning, and life events. Adaptations were made based on item analysis and factor analysis. A total of 99 adults who had an anxiety and/or depressive disorder completed the final version.

**Results:** The ECQ was demonstrated to be essentially unidimensional and showed good reliability and stability. Correlations with other measures were within the expected range of strength, except for a weak association with life events. **Conclusion:** Initial results regarding the psychometric properties of the ECQ are promising. © 2017 Wiley Periodicals, Inc. *J. Clin. Psychol.* 0:1–12, 2017.

Keywords: existential; anxiety; psychopathology; questionnaire development; death anxiety

Anxiety can be provoked by concrete threats, such as violence, illness, or social exclusion. Existential anxiety (EA) is anxiety that reaches beyond concrete threats and is related to existence as a whole (Glas, 2003). The best-known example of EA is death anxiety. Apart from the fear of a concrete threat, such as becoming fatally ill, people can also become possessed by anxiety regarding the finitude of life as such. Other examples of EA include anxiety in relation to the experience of meaninglessness, fear of making wrong life choices, and feeling unconnected to other people (Yalom, 1980). Literature about EA has long been dominated by philosophical reflection and advice for therapeutic practice, but during the past decades, the amount of empirical research on EA, especially death anxiety, has increased. A well-known example from social psychology is the experimental tradition of terror management theory, which studies

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We want to thank A. Bosch, MSc; H. Kranzusch, MSc; J. M. Goldberg, MSc; and Y. Weikamp, MSc for their share in the development of the ECQ items. We thank two anonymous reviewers and editors of *Journal of Clinical Psychology* for valuable advice that greatly helped to improve this paper. We also thank W. Noordhof, MA, language professional, and the different bilingual translators for their help in the translation of the items of the EAQ. The first author received financial support from his employer, Dimence Groep, Institute for Mental Health, Overijssel, The Netherlands, to work on this research project.

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the defense mechanisms that people use to cope when confronting existential concerns (Koole, Greenberg, & Pyszczynski, 2006).

EA also has received attention within a clinical context, providing an understanding of psychopathology and the development of treatment methods. Some initial studies have already demonstrated a relationship between psychopathology and death anxiety (Iverach, Menzies, & Menzies, 2014; Neimeyer, Wittkowski, & Moser, 2004), and different psychotherapeutic models emphasize that clinicians who help people with mental health complaints should pay attention to their existential experiences (Cooper, 2003). However, studies have yet to reveal whether a relationship between EA applies to people with mental health complaints in general or just to certain subgroups, and whether paying attention to EA indeed adds to treatment effects.

Current empirical studies of EA may be hindered by the lack of a well-validated, comprehensive instrument, covering the broad range of existential concerns. A recently published systematic review of instruments that covered different aspects of EA yielded five questionnaires, but four of these instruments were outdated or poorly supported (van Bruggen, Vos, Westerhof, Bohlmeijer, & Glas, 2015). Only the Existential Anxiety Questionnaire (EAQ) showed satisfactory results with regard to its reliability and validity. This 13-item questionnaire covers anxiety in reaction to death, guilt, and meaninglessness and was developed as a preliminary empirical examination of the existential theory of Tillich (1886-1965); however, the authors suggested that its item content might be expanded (Weems, Costa, Dehon, & Berman, 2004).

In this present study, the EAQ was used as a starting point for the development of a questionnaire that covers different existential concerns. Building on conceptual work by Glas (2003), Yalom (1980), and Tillich (1952) as well as terror management theory (Koole et al., 2006), we developed a comprehensive categorization of existential concerns in the following five theoretical domains. (For a more extensive description, see (van Bruggen, Vos, Westerhof, Bohlmeijer, & Glas, 2015))

*Death.* We discerned two aspects of death: (a) the fact that one's own life will end at some unknown moment, and (b) the threat of the world as an unsafe place in which, at any moment, something life-threatening can happen.

*Meaninglessness.* The experience that meaning systems are relative, because there are many of them, and that one's own ideas about the meaning of the world do not convince other people.

*Guilt.* Guilt is a differentiated and complex concept in itself. We chose to focus on the experience of not being able to fulfil one's own expectations about life.

*Social isolation.* The experience of not being connected to other people and being unable to fully share the perspective of another person.

*Identity.* Not having full knowledge of oneself along with the inconsistencies in the experience of oneself and the world.

These five theoretical domains were the basis on which we developed the Existential Concerns Questionnaire (ECQ)<sup>1</sup>. This study reports on the final item selection and initial validation of the ECQ in a nonclinical and clinical sample, testing the following hypotheses.

### *Structural Validity*

With respect to the scale's latent structure, we hypothesized the above-mentioned theoretical domains to be strongly interconnected. The experience of meaning in life is, for example, connected with feeling related to other people (King, Heintzelman, & Ward, 2016; Wong, 2012), and therefore it also can be expected that not feeling related to other people is connected with the absence of the experience of meaning. Above this, we developed our questionnaire as a measure of feelings of anxiety. For this reason, it was expected that any factors emerging from the data would be related to a general underlying EA dimension, with possibly a distinct place for one or

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<sup>1</sup>Dutch or English version of the ECQ and a description of the process of item generation and refinement, including an iterative procedure of cognitive interviewing, can be requested from the first author.

more subdomains. We considered death anxiety to be a likely example of a distinct subdomain because it's the most articulate example of EA.

### *Construct Validity*

We expected to find strong positive correlations with other measures of negative existential experiences. We chose two of these measures, namely, one for death anxiety and the other for intolerance of uncertainty. We further expected strong correlations with measures for neuroticism, as both personality trait and momentary distress, because this relationship has been shown for death anxiety (Iverach et al., 2014), and death anxiety is one of the aspects of our conceptual definition of EA. Some people seem to be more vulnerable to experiencing EA than others (Fuchs, 2013), and, for this reason, we expected the relationship of EA to a neurotic disposition to last when correcting for the influence of actual symptoms.

The relationship with meaning in life is complex because the absence of an experience of meaning may be accompanied by feelings of meaninglessness or anxiety, but this is not always the case (Janoff-Bulman & Jopyk, 2004). We expected to find a moderate positive correlation with the search for meaning in life and a moderate negative correlation with experienced meaning. In the existential literature, life events are seen as a possible trigger for EA, but, at the same time, life events might ultimately be helpful in developing an accepting attitude to life concerns (Janoff-Bulman & Yopyk, 2004). Consequently, we expected a moderate positive relationship between life events and EA, which possibly might be strongest for more recently experienced life events. With regard to our clinical sample, we expected significantly higher scores on the ECQ compared to the nonclinical sample and similar relationships with other constructs.

### *Incremental Validity*

We hypothesized the relationship with experienced meaning to last after controlling for actual distress or neuroticism as a disposition because this indicates that EA does not fully overlap with neuroticism or distress but also has specific features.

## Method

### *Participants and Procedures*

Respondents in our nonclinical sample were psychology students and their relatives or acquaintances. Participants in a bachelor's psychology course were asked to complete the questionnaires and find two other respondents, respectively, from the age groups >30 and >50 years. Students received course credits for their contribution. All students were asked after a period of 2 weeks to complete the ECQ a second time. The study was approved by the ethical board of the faculty of Behavioural, Management and Social Sciences of the University of Twente. After data collection was completed ( $N = 465$ ), we excluded 51 respondents who had a very incomplete protocol, namely, one or more questionnaires missing. Only two of these respondents had completed the ECQ.

We additionally screened for careless responding. We used two instructed response items (e.g., "This is a test item, please mark *never* if you have read this") to screen for respondents who randomly answered questions. In addition, we registered the respondents' total response time. A total of 18 respondents failed on one of the screening items, and 15 of these respondents also gave an incorrect answer to the other screening item. Because most respondents (85.3%) needed 15 minutes or more to complete all questionnaires, we excluded 17 respondents who finished the protocol in less than 10 minutes. Of these 17 respondents, 10 additionally failed one or both of the screening items.

After the exclusion of these 25 respondents, our sample comprised 389 respondents. Of these respondents, 143 were students; the other respondents were acquainted with these students, a majority being family members (62.6%). Female respondents were overrepresented with 65.3%. Almost half of our respondents reported Dutch as their cultural background. Because we conducted our research in a university near the German border, a large share of the participants were of German background (45.8%). Lower educated respondents were underrepresented because

87.7% of the respondents had an upper secondary degree or higher. The age of the respondents was between 19 and 84 years, with a mean of 40.05 years (17.3). Respondents were unevenly distributed over the age range, with clear peaks around the age of students and both the predefined cutoff points, namely, 30 and 55 years.

Participants in our clinical sample were persons that visited an outpatient department specialized in the treatment of anxiety and depressive disorders within general mental health care. This part of the study was approved by the medical ethical board of Medisch Spectrum Twente, Enschede. Patients received their diagnosis after an intake procedure with an experienced clinician. The M.I.N.I. International Neuropsychiatric Interview-Plus (Sheehan et al., 1998), a structured interview for the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) disorders, was used as part of this procedure. The duration of inclusion was 6 months. Patients were invited by their therapist to participate, and a total of 99 patients accepted this invitation. Participants received an explanatory letter, signed an informed consent form, and were rewarded with a €5 voucher. Once again, we used an instructed response item, but none of the respondents failed on this item.

In the clinical sample, response times were quite evenly distributed, and there was no clear cutoff point to exclude careless responses. For some analyses, small percentages ( $\leq 3\%$ ) of respondents were excluded because of missing data on relevant measures. Female respondents were overrepresented with 72.7%. Our sample mainly comprised Caucasian persons. The main part (89.9%) reported Dutch as their cultural background, while some respondents had a Turkish (4%) or other (6.1%) background. We included lower educated persons but a substantial part (87.9%) of our sample had completed an upper secondary degree or more. Ages of the respondent were between 19 and 62 years, with a mean of 40.31 years (11.67). In general, respondents had multiple *DSM-IV-TR* Axis I diagnoses, ranging from 1 to 5, with 36.4% having one diagnosis, 37.4% having two diagnoses, 15.2% having three diagnoses, and 3.0% having four or five diagnoses. A total of 63.6% had an anxiety disorder, and a total of 61.6% a depressive disorder, with 33.3% being diagnosed with both disorders. Information about the diagnosis was lacking for 8.1% of respondents, but they did not differ significantly on our clinical indices.

### *Measures*

Both samples completed a battery of different measures, which are described in the order in which they were presented. The respondents from our nonclinical sample completed the ECQ (initial 25 items version) after the list of negative life events. We used a limited set of questionnaires for the participants from the clinical sample; besides the ECQ (shortened to 22 items), which followed the demographic questions, they completed only the questionnaires regarding neuroticism, distress, and the experience of meaning. We used the online survey platform Qualtrics (qualtrics.com) for test taking, with the “forced response” option activated to avoid missing item data. We offered respondents from the outpatient population the option to fill in the questionnaires in a paper and pencil format, which was chosen by 22.2%.

*Demographic questions.* We asked respondents to answer questions regarding year of birth, gender, cultural background, level of education, and religious affiliation.

*Life events.* We used a list of nine negative life events based on the list of Brugha, Begginton, Tennant, and Hurry (1985) and asked respondents which events happened to them within three time frames: life time, last year, and last three months. We used the Dutch version that was translated for the NEMESIS-2 study (De Graaf, ten Have, & van Dorsselaer, 2010).

*Depression, Anxiety and Stress Scale-21 (DASS-21).* The DASS 21 is a widely used measure of mood and anxiety complaints and comprises three subscales: anxiety, depression, and stress (Lovibond & Lovibond, 1995). Because the DASS-21 is not diagnosis specific, it can be used in a wide range of clinical and nonclinical settings (Osman et al., 2012). De Beurs, Van Dyck, Marquenie, Lange, and Blonk (2001) translated the DASS 21 into Dutch. Because the factor structure of the DASS 21 has been debated (Osman et al., 2012), we used the total test

score as a measure of distress. For the total test, we found Cronbach's alphas of .92 (nonclinical sample) and .91 (clinical sample).

*International Personality Item Pool-Neuroticism (IPIP-N)*. The IPIP provides items for the development of short measures of personality traits (ipip.ori.org; Donellan, Oswald, Baird, & Lucas, 2006). We used 10 items that intend to measure neuroticism. These items had been translated as part of the Dutch version of the Five-Factor Personality Inventory (Hendriks, 1997). We found Cronbach's alphas of .89 (nonclinical sample) and .87 (clinical sample).

*Intolerance of Uncertainty Scale (IUS)*. Helsen, Van den Bussche, Vlaeyen, and Goubert (2013) developed a short version of the IUS (Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994) for use in a Dutch population. The scale comprises 12 items that all relate to a negative attitude to uncertainty. Cronbach's alpha in our study was .86 for the nonclinical sample.

*Death Attitude Profile-Revised-Anxiety subscale (DAP-R Anxiety)*. The DAP-R (Wong, Reker, & Gesser, 1994) measures the attitudes that people may have with regard to death, for example, avoidance, acceptance, or anxiety. We used the seven-item anxiety subscale. Spenklink and Doosje (2010) translated the DAP-R into Dutch. We found in our sample a Cronbach's alpha of .89 (nonclinical sample).

*Meaning in Life Questionnaire (MLQ)*. The MLQ is a 10-item measure of experiences of meaning in life and consists of two subscales, one regarding experienced meaning in life and the other regarding the search for meaning (Steger, Frazier, Oishi, & Kaler, 2006). We used a Dutch translation of the questionnaire that was developed by Van den Heuvel, Demerouti, Schreurs, Bakker, and Schaufeli (2009). We found the following Cronbach's alphas for each of the subscales: Presence of Meaning, .82 (nonclinical sample) and .86 (clinical sample) and Search for Meaning, .86 (nonclinical sample) and .80 (clinical sample).

## Results

### *Item Analysis, Factor Structure, and Temporal Stability*

Item analysis and exploratory factor analysis of the data from the nonclinical sample were performed using the program SPSS (version 22). All these analyses were performed on the data from the nonclinical sample ( $n = 389$ ). Based on the results of the item analysis, we shortened the ECQ to 22 items, removing item 15 because of extreme responses and items 11 and 4 because of low item total correlations ( $< .35$ ).

We performed principal component analysis with Oblimin rotation (Fabrigar, Wegener, MacCallum, & Strahan, 1999) on the 22 remaining items. Eigenvalues, scree plot, and parallel test all indicated a three-factor solution. These three factors together explained 52.7% of the total variance. As shown in Table 1, the first factor (eigenvalue 8.17; 37.2% explained variance) comprised 13 items regarding different aspects of EA, namely, anxiety related to meaninglessness, guilt, isolation, and identity. We labelled this factor "General EA" because all the domains of EA that we included in our model were represented in this first factor, except those with regard to anxiety in reaction to death and the threat of the world. Items with the latter content were represented by the second factor (eigenvalue 2.24; 10.2% explained variance) that contained seven items and was labelled "Death Anxiety." The third factor (eigenvalue 1.18; 5.37% explained variance) comprised four items regarding an avoidance reaction to existential concerns and was labelled "Avoidance." Item 5 loaded almost equally on the first two factors, and item 18 almost equally on the second and third factor.

Next we performed confirmatory factor analysis, to further examine the dimensionality of the scale and the viability of calculating subscale scores. LISREL (version 8.80) was used to compare three hierarchically nested models, namely, a strict unidimensional model, a model with three correlated factors, and a bifactor model (Chen, Hayes, Carver, Laurenceau, & Zhang, 2012). Model fit was examined using Satorra-Bentler chi-square ( $SB\chi^2$ ) statistic, in which smaller values indicate better fit, root mean square error of approximation (RMSEA), standardized root

**Table 1**  
*Pattern Matrix of Factor Loadings Resulting From Principal Component Analysis With Oblimin Rotation*

Item	Factor		
	General EA	Death anxiety	Avoidance
1. The question of whether life has meaning makes me anxious.	.57		
2. It frightens me when I realize how many choices life offers.	.59		
3. I worry about not being at home in the world, as if I do not belong here.	.77		
5. Existence feels threatening to me, as if at any moment something terrible could happen to me.	.44	.41	
6. It frightens me that at some point in time I will be dead.		.85	
7. I worry about the meaning of life.	.69		
8. I try to forget that all my choices have consequences.			.55
9. I get anxious because of losing touch with myself.	.68		
10. I struggle with the feeling that in the end I am on my own in life.	.64		
12. It makes me anxious that my life is passing by.		.80	
13. When the question of whether life has meaning enters my mind, I try to think quickly about something else.			.65
14. I worry about not living the life that I could live.	.67		
16. The awareness that other people will never know me at the deepest level frightens me.	.69		
17. I worry that, out of the blue, something terrible might happen to me.		.65	
18. I try to push away the thought that life will end.		.50	.57
19. It frightens me that things I once considered important seem meaningless when I look back on them.	.50		
20. I am afraid that I do not get out of life what is in it.	.67		
21. I try to avoid the question of who I really am.			.71
22. I have the anxious feeling that there is a gap between me and other people.	.76		
23. I become anxious when I realize how vulnerable my body is to the dangers of life.		.62	
24. I worry about having to let go of everything at the moment of my death.		.71	
25. I am afraid that I will never know myself at the deepest level.	.56		

*Note.* EA = existential anxiety. Factor loadings below .3 were suppressed. We translated the items of the scale into English using a forward-backward procedure with two independent bilingual translators.

mean square residual (SRMR), non-normed fit index (NNFI), and comparative fit index (CFI). Given the ordinal nature of the items, robust maximum likelihood estimation with SB-scaled statistics was used.

Several restrictions were applied to the models: The variance of factors was fixed to one and error terms were not allowed to correlate. In the unidimensional model, all items loaded on only one general factor. In the three-factor model, items were allowed to load on only one of the three specific factors, and these were free to correlate. In the bifactor model, each item was allowed to load only on its specific factor and the general factor, and factors were not allowed to correlate with each other or with the general factor. Model fit was examined using  $SB\chi^2$ , in which smaller values indicate better fit, RMSEA, SRMR, NNFI, and CFI. RMSEA and SRMR values  $\leq .06$  and  $.08$ , respectively, and NNFI and CFI values  $\geq .95$ , were considered indicative of good model fit (Hu & Bentler, 1999).

As shown in Table 2, all indices provided insufficient support for a strict unidimensional model. The bifactor model received the best support on all indices, although absolute differences in fit indices with the correlated three-factor model were small. As the correlated three-factor model

Table 2  
Model Fit Indices for Three Models Tested in Confirmatory Factor Analysis

Model	SB $\chi^2$	Df	RMSEA (90% CI)	SRMR	NNFI	CFI
Unidimensional	1122.21	209	.106 [.010–.112]	.093	.930	.942
Correlated three-factor	530.97	206	.062 [.057–.070]	.077	.977	.979
Bifactor (three second-order factors)	379.98	187	.052 [.044–.059]	.063	.985	.988

Note. N=389. SB $\chi^2$  = Sattora-Bentler scaled chi-square; Df = degrees of freedom; CI = confidence interval; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; NNFI = non-normed fit index; CFI = comparative fit index.

is nested within the bifactor model (Reise, 2012), we additionally used the SB-scaled<sup>2</sup> difference chi-square ( $\Delta$ SB $\chi^2$ ) test (Bryant & Satorra, 2012; Satorra & Bentler, 2001) and found that the bifactor model provided a significant improvement in fit:  $\Delta$ SB $\chi^2$  (19) = 185.0,  $p < .001$ . All items, except 3, 6, and 22, more strongly correlated with the general factor in comparison with the three group factors (Figure 1).

Factor loadings on the general factor were between 0.42 and .80, indicating that they all were strong enough indicators of the general factor, and loadings were not substantially lower than those in the unidimensional model (between .49 and .77). This suggests that the general factor was not much influenced by the presence of specific group factors, so that the ECQ is sufficiently unidimensional to compute total scale scores or perform IRT analyses (Reise et al., 2007). This conclusion is also supported by the strong factor correlations in the correlated three-factor model (.64, .73, and .74).

The content of group factor “General EA” almost totally overlapped with our conceptualization of EA, but “Death Anxiety” and “Avoidance” may represent conceptually differential aspects of EA. Figure 1 shows that “Death Anxiety” can be subdivided into two parts after partialling out the influence of the general factor. Items 6, 12, and 24, which are about the anxiety of death at the end of one’s life, have acceptable loadings on the specific factor, but items 5, 17, and 23, which are about the threat of the world, have too low loadings (between  $-.04$  and  $.16$ ), to be seen as a meaningful representation of this factor. When items 6, 12, and 24 are taken together, they form a conceptually relevant subscale with an acceptable consistency, Cronbach’s alpha being .81 in the nonclinical sample and .83 in the clinical sample.

The correlation with psychological distress (nonclinical sample .266,  $< .001$ ; clinical sample .176, nonsignificant) differs markedly for this set of items, compared with the strong correlation between the total scale and psychological distress (see Table 3), implying that these death anxiety items have a relatively distinct place in our EA measure. The four items of the “Avoidance” factor (8, 13, 18, and 21) have a low consistency, Cronbach’s alpha being .68 in the nonclinical sample and .58 in the clinical sample. However, also for this factor, a substantial difference exists in correlation with psychological distress (nonclinical sample .438,  $p < .001$ ; clinical sample .294,  $p .003$ ), in comparison to the strong correlations with the total scale (see Table 3). The overall conclusion of the factor analysis, however, is that the ECQ in its present form is best used as a unidimensional scale, and all following analyses will be based on the total scale scores. We will return to the possible influence of subfactors in the Discussion section.

The total ECQ demonstrated good internal consistency, Cronbach’s alpha being .92 in the nonclinical sample and .91 in the clinical sample. A majority (89.5%) of the students in our sample completed the ECQ for a second time after 2 weeks. We chose this time frame because it was considered long enough to prevent memory effects and short enough for a minimal of new (major) life events to have occurred and respondents’ EA to have minimally altered. We found an intraclass correlation coefficient (single measures) of .87,  $n = 128$ ,  $p < .001$ , 95% confidence interval [.82, .91], which indicated that the items of the ECQ are stable enough in time.

<sup>2</sup>Contact the authors for an EXCEL macro file for conducting scaled difference chi-square tests via LISREL 8, LISREL 9, EQS, and Mplus.



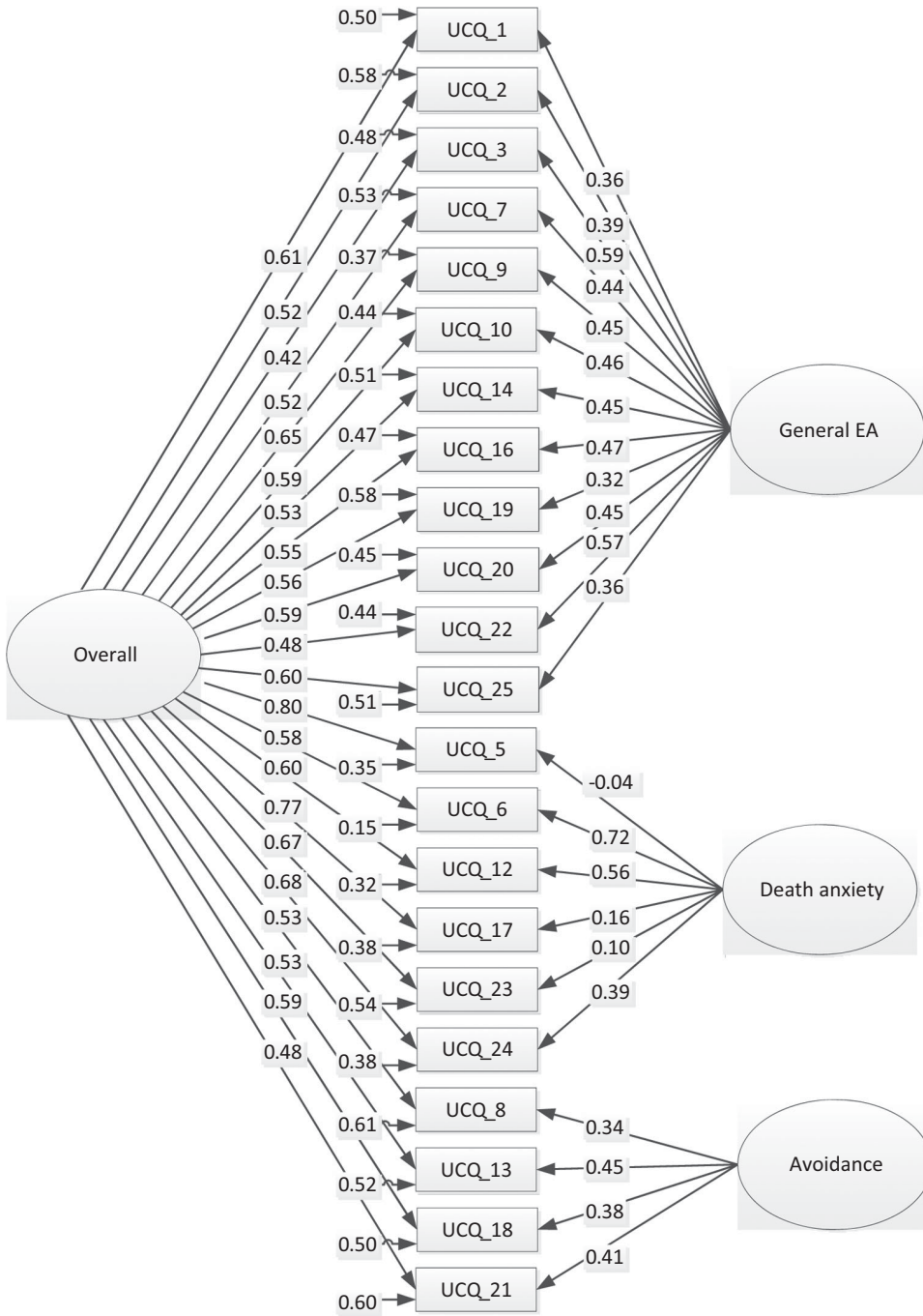


Figure 1. Factor loadings and residuals in the bifactor model.



Table 3  
Descriptive Statistics and Pearson's Correlation Coefficients

	Mean (SD) Range	ECQ Pearson's r
<b>Expected correlation: Strong (&gt; .5)</b>		
Neuroticism (IPIP)		
Nonclinical sample	25.82 (7.98) 10–50	.67**
Clinical sample	36.74 (6.87) 15–50	.55**
Depression, anxiety, stress (DASS 21)		
Nonclinical sample	11.00 (9.02) 0–54	.62**
Clinical sample	23.62 (10.23) 5–49	.53**
Death anxiety (DAP-R Anxiety Scale)	21.78 (9.33) 7–49	.53**
Intolerance of uncertainty (IUS)	31.86 (7.76) 13–59	.52**
<b>Expected correlation: Moderate (.30–.50)</b>		
Experienced Meaning (MLQ Presence Scale)		
Nonclinical sample	24.41 (5.67) 8–35	–.45**
Clinical sample	18.64 (6.59) 8–32	–.54**
Search for meaning (MLQ Search Scale)		
Nonclinical sample	19.13 (6.56) 5–35	.38**
Clinical sample	22.09 (6.05) 8–35	.22*
Negative events: Lifetime	2.39 (1.50) 0–8	.10*
Last year	0.56 (0.76) 0–5	.09
Last three months	0.27 (0.51) 0–2	.03

Note. SD = standard deviation; ECQ = Existential Concerns Questionnaire; IPIP = International Personality Item Pool-Neuroticism; DASS 21 = Depression, Anxiety and Stress Scale-21; DAP-R Anxiety Scale = Death Attitude Profile-Revised-Anxiety subscale; IUS = Intolerance of Uncertainty Scale; MLQ = Meaning in Life Questionnaire.

\*  $p < .05$ .

\*\*  $p < .01$ .

### Construct and Incremental Validity

In the nonclinical sample, the mean score for the ECQ was 42.92 (standard deviation [SD] = 12.59, range: 22–85). In the clinical sample, the mean score for the ECQ was 58.34 (SD = 13.75, range: 27–94); as expected, this score was significantly higher than in the nonclinical sample,  $t(486) = -10.68$ ,  $p < .001$ , providing support for the known groups validity of the ECQ. In Table 3, Pearson's correlation coefficients can be found between the summed ECQ scores and measures of intolerance of uncertainty (IUS), death anxiety (DAP-R Anxiety subscale), neuroticism (IPIP scale), distress (DASS 21), and experienced meaning and search for meaning (subscales MLQ). Correlations above .50 were considered strong, between .30 and .50 moderate, and between .10 and .30 small (Cohen, 1988).

In line with our expectations, we found strong correlations with death anxiety, intolerance of uncertainty, neuroticism, and distress. Also in line with our expectations were the moderate correlations with the experience of meaning and the search for meaning in the nonclinical sample, while in the clinical sample, both correlations slightly deviated in strength from our expectations.

In contrast with our expectations, negative life events in lifetime correlated only weakly with the ECQ, and negative life events in the past year or 3 months showed nonsignificant correlations. However, negative life events were extremely skewed in all time frames because the number of negative life events was low for most respondents. For this reason, we used a log transformation of these variables, but this did not lead to substantially different results.

Finally, we tested whether the correlations with neuroticism as a personality trait lasted when controlling for momentary distress, and in line with our expectations, the partial correlation was still significant for both the nonclinical sample (.43;  $p < .001$ ) and the clinical sample (.29;  $p < .004$ ). We also tested the relationship with experienced meaning when controlling for neuroticism or momentary distress, and this relationship remained significant for both the nonclinical sample (neuroticism:  $-.27$ ;  $p < .001$ , distress  $-.29$ ;  $p < .001$ ) and the clinical sample (neuroticism:  $-.33$ ;  $p < .001$ , distress:  $-.34$ ;  $p < .001$ ).

## Discussion

The aim of this study was to develop and validate an instrument that measures EA as a broad concept. The results indicated that the ECQ is essentially unidimensional, with good internal consistency and test-retest reliability. The construct validity also proved to be good, as the most correlations between the ECQ and other measures<sup>3</sup> were in the expected range of strength. Last, the incremental validity was demonstrated in that the relationship with experienced meaning remained when controlling for neuroticism or psychological distress.

Our analyses on the structural validity of the ECQ did support our expectation that the five domains of our theoretical model would be strongly interconnected. In fact, the bifactor model shows that the scale is basically one-dimensional. The strong interrelatedness of the items from our five domains shows that a conceptualization of EA that goes beyond existential death anxiety makes sense. Nonetheless, our results also suggest that avoidance, and death anxiety in its narrower sense, namely, anxiety provoked by the finiteness of life, may have a relatively distinct place in the construct of EA, and this last finding is also in line with our expectations.

The three items that represented death anxiety in its narrower sense showed a weak correlation with distress in the nonclinical sample and a nonsignificant correlation in the clinical sample. This finding is contrary to the strong correlation of distress with EA as a broad construct. A possible explanation is that these items, being very concrete reminders of the finiteness of life, activated relatively strong defense mechanisms, resulting in weaker relations with psychological distress. From a psychometric perspective, it could be considered to remove these items; however, we advise to keep them as part of the ECQ to preserve content validity because death anxiety is broadly seen as a typical example of an existential concern. With regard to the avoidance items, one possibility is to exclude these items from the ECQ to make it an even more unequivocal anxiety measure. Another possibility is to extend the ECQ with items regarding other attitudes toward existential concerns, for example, acceptance or approach.

### *Limitations*

Because we recruited student respondents and their relatives and acquaintances, a weakness of our study is that the nonclinical sample cannot be seen as representative of the general population. Nevertheless, this sample is diverse in terms of level of education, age, and religious orientation. We performed exploratory and confirmatory factor analyses in the same sample, with the risk of chance capitalization and overestimation of model fit. However, note that we did not use the results of confirmatory analysis to simply validate the exploratory model but to compare this model with the performance of other potentially relevant structures, which indicated that the dimensionality of the scale was best characterized by a bifactor structure. Also important to note is that the English translation still needs to be validated, and that it

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<sup>3</sup>We also included a measure for social desirability in our data collection, and found a weak correlation with the ECQ. Since the use of social desirability measures is debated, and to improve readability of our paper, the description of this measure was deleted.

is necessary to replicate the results of our factor analyses in independent samples. Our study focussed on anxiety, but this is just one of different aspects of existential experiences. Former research has also focused on hope, meaning, and self-transcendence. However, we think that, especially in a clinical context, anxiety is an important subject and worth thorough study.

### Conclusion

This study reports the development and initial validation of the ECQ. Additional research is needed to further examine its psychometric qualities and applicability. It would be interesting to know whether changes in the level of EA are related to treatment response and if baseline EA scores can be used as a prognostic or prescriptive indicator for interventions.

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