Chapter 3: Systematic Review of existential anxiety instruments

Van Bruggen, V.
Vos, J.
Westerhof, G.J.
Bohlmeijer, E. T.
Glas, G.


Abstract
Existential anxiety (EA) is an expression of being occupied with ultimate concerns like death, meaninglessness and fundamental loneliness. Philosophers and psychologists have claimed its importance for the study of human thinking, emotion, decision-making and psychopathology. Until now research has mainly focused on death anxiety. Several death anxiety instruments have been developed and evaluated. This paper is the first to review instruments measuring EA in a comprehensive way, i.e. covering several existential themes. Such instruments might be useful to gain insight in the interrelatedness of the aspects of EA, and application in clinical practice. Four models of EA were reviewed and compared resulting in a working definition. This definition was used to develop a search strategy that, after an initial screening, yielded 532 potentially relevant papers. A total of 78 instruments were identified, most of them measuring death anxiety. Five instruments were included that had a comprehensive perspective on EA. These were further evaluated using the COSMIN criteria for publications about test development. The Existential Anxiety Questionnaire (Weems et al., 2004), turned out to be the most thoroughly examined, with promising results. The paper concludes with recommendations about development and use of EA instruments.

3.1 Introduction
With its origins in the philosophical traditions of such great thinkers as Kierkegaard (1843/1954a, 1849/1954b), Jaspers (1913/1946) and Heidegger (1927/1979), the concept of Existential Anxiety (EA) has been embraced by many psychologists and psychiatrists (eg. Glas, 2003, 2013; May, 1950/1977; Ratcliffe, 2005; Van Deurzen & Adams, 2011; Yalom, 1980). In addition, cognitive psychologists have also shown interest in EA: Terror
Chapter 3: Systematic Review

Management Theory (TMT) (Koole, Greenberg, & Pyszczynski, 2006) forms for instance an experimental tradition in which hundreds of experiments on EA have been conducted in the past decades, mainly focusing on death anxiety.

EA is generally defined as the expression of ultimate concerns about life itself, including such things as meaninglessness, death, fundamental loneliness and lack of certainty. Available literature indicates that in normal circumstances, most people are quite able to manage these concerns. However, there are times (e.g., hardship, adversity, trauma, loss), when people are no longer able to cope and they are thrown into existential turmoil (Fuchs, 2013).

EA is an important concept in more than one respect. It can be helpful in understanding human behavior and especially the way society tries to deal with the basic anxieties. There is for example experimental evidence that xenophobia and cultural and political conservatism increase when people are confronted with their mortality (Solomon, Greenberg, & Pyszczynski, 2004). EA may also help to understand psychopathology. People with mental health problems are more sensitive to the ultimate concerns of life, sometimes because they have been confronted with these concerns as a result of traumatic experiences (Fuchs, 2013).

An interesting question is whether EA can be seen as a factor that is related to psychopathology, but can be meaningful distinguished. Research on death anxiety has shown that death anxiety is related to neuroticism, state as well as trait anxiety, and different diagnostic categories like depression or generalized anxiety, but more research is necessary to clarify this relationship (Neimeyer, Wittkowski, & Moser, 2004). Elsewhere we proposed that EA could be an important transdiagnostic factor in the understanding of mental health disorders and that giving attention to EA can contribute to a person-centered perspective on health and improvement of treatment methods (Van Bruggen, Vos, Bohlmeijer, & Glas, 2013). Sound measurement instruments are necessary for research projects to give ground to this claim (Noyon & Heidenreich, 2007). Therefore, we aim to perform a systematic literature review of psychometric instruments measuring EA. A brief introduction to EA will be given to delimit the terrain of this review and help to determine the content validity of the instruments at stake. We are well aware that a quantitative approach is controversial among adherents of the existential perspective on human functioning. Some eschew the use of standardised measurements in general, and regard these measurement as being in opposition to the flexibility and the inherent holistic character of human functioning. More about this issue can be found in Vos (2013) and Vos, Cooper, Craig, and Correia (2015). We start from the proposition that the combination of different scientific methods helps to get more insight in human functioning, and that a quantitative approach has its own advantages and limitations.
3.1.1 Existential anxiety

When EA is related to the ultimate concerns or limitations of life itself, the question arises what exactly these concerns are. In the past decennia several models have been presented. We chose models that were developed by Tillich (1952), Yalom (1980), Glas (2003, 2013) and Terror Management Theory (TMT) (Koole et al., 2006), each describing between four and seven concerns. We chose these models because they give a formal description of a discrete set of existential concerns, and are at the same time diverse enough regarding time of creation and theoretical background. A short informal overview of the four models is given in Table 1, and the concerns are described below, also giving attention to other important theorists who didn’t give a formal classification of concerns. Three existential concerns are described in all four models: death, meaninglessness, and guilt. Two additional concerns are distinguished in two or three of the models: isolation and identity.

Table 1

A comparison of models of EA

<table>
<thead>
<tr>
<th>TMT</th>
<th>Tillich</th>
<th>Yalom</th>
<th>Glas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>Death and Fate</td>
<td>Death</td>
<td>Death / Unsafety</td>
</tr>
<tr>
<td>Meaninglessness</td>
<td>Emptiness and Meaninglessness</td>
<td>Meaninglessness</td>
<td>Absurdity and Meaninglessness / Life as such</td>
</tr>
<tr>
<td>Guilt</td>
<td>Guilt and Condemnation</td>
<td>Freedom</td>
<td>Doubt and inability to choose</td>
</tr>
<tr>
<td>Isolation</td>
<td>Isolation</td>
<td>Isolation</td>
<td>Isolation</td>
</tr>
<tr>
<td>Identity</td>
<td></td>
<td></td>
<td>Loss of structure in the relation to oneself and the world</td>
</tr>
</tbody>
</table>
Death: Human beings are able to reflect on their mortality and the possibility of non-being. It is important to note that this anxiety is not limited to concerns about the concrete moment of one’s life-ending, but primarily has to do with finitude, i.e. the very fact that one’s life will end at some (as yet unknown) point in time. Tillich (1952) differentiates between absolute and relative variants of existential concerns. He sees death anxiety as an absolute concern and fate, anxiety related to the contingency of happenings, as a relative one. Glas (2003) gives attention to lack of safety, the world as an unsafe place, a lack of physical protection, which seems closely related to death anxiety.

Meaninglessness: People are constantly trying to make sense of what occurs in their life, they search for meaning and try to find a purpose to live for. The work of Frankl (1962) is often mentioned in this regard. Frankl claimed that the search for meaning is inherent to the human condition. The experience that in this search no help can be expected from an external authority, and that one is responsible for giving one’s own answers, may give rise to anxiety. Tillich (1952) sees emptiness, the breaking down of a once accepted belief system, as a relative variant of meaninglessness. Glas (2003) describes anxiety (or other negative feelings such as disgust) that is provoked by existence as such, the matter-of-factness of live. This can be seen as an extreme example of the experience of meaninglessness.

Guilt: In the context of EA, guilt has first to do with moral transgressions. Tillich (1952) for example, mentions that this feeling may result from not living up to one’s own moral standards, and he distinguishes this from an absolute variant of guilt, namely condemnation, the feeling of not living up to presupposed universal standards. Within TMT guilt is seen as one of the moral emotions that also include shame (Tangney & Mashek, 2004). However, May (1950/1977) and Yalom (1980) see guilt from a different perspective, namely as not fulfilling one’s potential. They see life as a reservoir of endless possibilities, but this freedom has also a shadow side, because not all these possibilities can be chosen. That one still is responsible for choosing one’s own path in life, can lead to doubt and procrastination (Glas, 2003).

In addition to death, meaninglessness and guilt, two concerns are mentioned in two or three models: isolation and identity.

Isolation: Man is an individual who cannot really know what someone else experiences, or how it would feel to be someone or something else. There exists an unbridgeable gap between one’s own inner world and that of others. At the same time people feel a need to be connected to others. Longing for connectedness in the context of this gap in the understanding of other minds, may give rise to feelings of fundamental isolation and loneliness. All of our theorists
mention isolation as one of the important limitations of life that may give rise to EA, although Tillich doesn’t give it a formal place in his typology of anxieties.

Identity: In TMT a fifth source of EA is mentioned: identity, not being able to get full self-insight and experiencing unclear boundaries between self and non-self (Koole et al., 2006). Closely related to this is Glas’ (2001, 2003, 2013) description of anxiety related to loss of structure in the relation to oneself and the world, which is assented to by Ratcliffe (2005, 2008/2011) who sees existential feelings as background feelings, for example the feeling that something is real (or not) and feelings of homeliness or estrangement.

Of course we do not claim that our summary of ultimate concerns is exhaustive, or that all existential experiences could be classified with it. We merely use it as a starting point in our search for relevant instruments, and think it provides a sensible and broad enough coverage of the phenomena under study. It must also be noted that all authors of the above mentioned conceptual models state that feelings related to different existential concerns strongly overlap and interrelate in the experiences of people. For example, when someone is aware of the contingency of occurrences (fate), the lack of a system of meaning that could have helped to deal with this contingency, can be felt at the same time (meaninglessness), whereas the world may also feel strange and uncanny (loss of structure), and the help of other people is believed to be utterly insufficient (isolation). So what may seem sensible distinctions to the philosopher or psychologist, may be hard to find as distinct categories in everyday experiences or empirical data.

The question whether it will be possible to close this gap between theoretical descriptions of EA and empirical data, can be answered by using sound measurement instruments. This review intends to search for such instruments, whereby the following working definition will be used; EA is the negative emotion which may accompany the awareness of the ultimate concerns of life: death, meaninglessness, guilt, isolation and identity.

In the past decades several reviews of particular concerns have been published, for example on death anxiety (Missler et al., 2011; Neimeyer, 1997, 2003, 1994; Wass & Forfar, 1982) guilt (Tilghman Osborne, 2010) and loneliness (Cramer, 1999). Instruments with a comprehensive perspective, as intended in this paper, may be helpful to gain insight in the mutual relationships between different concerns, their role in human functioning, and their importance in therapy processes. Such instruments may also be more applicable for screening for EA in clinical settings than instrument with a specific focus, like death anxiety. Screening can be helpful for identifying patients who need additional help for dealing with EA.
Chapter 3: Systematic Review

Instruments focusing on positive existential experiences, like hope or meaning, will not be taken into account. The reason for this is that our review focuses on the primary negative experience of the ultimate concerns of life, although individuals may of course secondarily re-interpret this and experience positive growth. Besides, in our opinion instruments focusing on positive existential experiences cannot be seen as measuring the opposite of negative existential experiences: a lack of positive meaning in life does for instance not necessarily imply that someone experiences life as fundamentally meaningless. For a review of meaning in life instruments, Brandstätter et al. (2012) could be read. Park (2010) provides an overview of research on Meaning in life and important conceptual questions. Thauberger (1982) wrote a review of existential scales that were available at that time, describing instruments directed at measuring the confrontation/avoidance of existential issues, locus of control, sexuality and positive existential feelings like hope, but none of these instruments addressed EA as described in our definition.

3.1.2 Objectives
The aim of this review is to provide an overview of instruments of EA along with information on the psychometric qualities. The following research questions will be answered; 1) which instruments explicitly address EA as a broad concept, i.e. measure two or more of the five existential concerns? 2) how is EA defined in the development of the instruments, and which concerns are distinguished? 3) what is the psychometric quality of the instruments?

3.2 Methods

3.2.1 Procedure
"Searches of three electronic databases (i.e. PubMed, Web of Science, and PsycINFO) were completed in November 2012, using the following search terms: EXISTENTIAL*, ‘ULTIMATE CONCERN’, DEATH, FREEDOM, MEANINGLESSNESS, ISOLATION, in combination with different terms regarding anxiety and test construction and validation. The working definition given above was used for choosing the search terms. Different combinations of search terms were tried out, striving for a balance between terms that covered the whole spectrum of the definition, and were still specific enough. For this reason GUILT and IDENTITY were for example omitted, because they are used in many different contexts,
and would give too many false positive results. In PubMed a search filter developed by Terwee et al. (2009) was used for the selection of psychometric publications. Figure 1 provides an overview of the procedure. Titles and abstracts of all publications were reviewed by the first author to select articles regarding the development or use of an EA instrument. To check the reliability of the selection, the second author studied a random selection of articles and decided upon their eligibility. The inter-rater reliability coefficient Kappa was 0.88 (se=0.042), which may be regarded as very good (Fleiss, 1981; Landis & Koch, 1977). Out of the selected articles the instruments regarding EA were selected, and a differentiation was made between instruments with a general perspective, as intended in this review, and other instruments that aimed at specific concerns like death anxiety or guilt. Two experts in the field of EA were consulted, one of them a leading researcher in Terror Management Theory, and the other in the research on meaning in life. Both experts confirmed that no relevant instruments were missed. However, after the completion of a former version of this paper, a reviewer drew our attention to the Existential Study (Thorne, 1973), and this instrument was also included.

The last step was to perform an additional search with the name of the instrument as search term and, as far as possible, by personal correspondence with the developers, to make sure that all studies using the instrument were included. A complete description of the search strategy can be requested from the first author.

### 3.2.2 Exclusion criteria

This study aimed at identifying instruments that provide information on the interrelatedness of the different forms of EA, and which also appear applicable to clinical practice and research projects with adults. Therefore the following exclusion criteria were used.

- Population below 18 years, when a minor part of the study population was above 18 the instrument was also included.
- Subscales that are part of an instrument with broader scope.
- Instruments that focused only on one concern, e.g. death anxiety.
- Single item instruments.
- Experimental tasks.
- Qualitative instruments.
- No English version available.
Chapter 3: Systematic Review

After the selection of the instruments all studies regarding these instruments were included, also more recent published ones, or studies using a population below 18 years.

3.2.3 Evaluation of the Quality of the EA Instruments
For each instrument a publication was identified that provided the most extensive information on its development and validation. This key publication was used to evaluate the psychometric quality of the instrument. The studies were evaluated using the criteria of the COSMIN statement (Consensus-based standards for the selection of health measurement instruments) (Mokkink, 2010; Mokkink et al., 2010; Mokkink et al., 2013). These standards were developed in 2005 in an international Delphi study, and were tested and improved in the following years. Originally intended for the evaluation of patient reported outcome measures, they are also applicable to the evaluation of other measurement instruments. Table 2 provides a summary of the COSMIN criteria and their meaning. As recommended by Terwee (2012) a four point scale, poor, fair, good, excellent, was used, applying the worst score counts principle. This means that the lowest score attained describes the quality of a measurement property. When for example structural validity is evaluated, a too small sample (less than 5 participants per item) can lead to the classification poor, even when other aspects, like the applied statistics, are good enough. It is important to note that this scoring system is an evaluation of the methodology, and not of the instrument at stake. When an aspect of a study is poor, it only means that it can’t be used to evaluate the quality of the instrument. In this case other publications about the instrument were searched for additional information.
Table 2

*COSMIN criteria*

<table>
<thead>
<tr>
<th><strong>Criterion</strong></th>
<th><strong>Meaning</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal consistency</td>
<td>Show the items of a (sub)scale the expected interrelatedness?</td>
</tr>
<tr>
<td>Reliability</td>
<td>Are the results of the test consistent over two or more applications of the test?</td>
</tr>
<tr>
<td>Measurement error</td>
<td>Do changes in the outcome of the test reflect ‘true’ changes in the construct?</td>
</tr>
<tr>
<td>Content Validity</td>
<td>Are the items of the test an adequate reflection of the intended construct?</td>
</tr>
<tr>
<td>Structural validity</td>
<td>Do the scores of the test reflect the dimensionality of the construct?</td>
</tr>
<tr>
<td>Hypotheses testing</td>
<td>Does the (sub)scale relate with other measures in the expected way?</td>
</tr>
<tr>
<td>Cross-cultural validity</td>
<td>Do scores of the test converge in different cultural settings?</td>
</tr>
<tr>
<td>Criterion validity</td>
<td>Does the (sub)scale relate with a ‘gold standard’ in the expected way?</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Are changes in the construct adequately reflected in the outcome of the test?</td>
</tr>
<tr>
<td>Interpretability</td>
<td>Is it possible to interpret changes in the outcome of the test in a way that is meaningful to the field of interest?</td>
</tr>
</tbody>
</table>

3.3 Results

3.3.1 Number of Hits and Identified Instruments

At first 8075 articles were found, 1923 turned out to be duplicates. The remaining 6152 articles were screened for the use of an EA instrument, resulting in 532 articles in which 78 instruments were used. Figure 1 provides a flow diagram of the selection process. Most
instruments were used to study death and dying, just a small number addressed one of the other existential concerns. Only five instruments used a comprehensive perspective on EA.

Figure 1. Summary of the selection procedure.
3.3.2 Introduction to EA Instruments

Below the background and theoretical underpinnings of the five EA instruments will be described, followed by an evaluation of their content in relation to our working definition and their psychometric quality. Table 3\(^3\) gives a summary of the most important psychometric characteristics, and the quality of the studies in which the instrument was evaluated. Measurement error, cross cultural validation, criterion validity and responsiveness are not used in the following description, because they were described for none of the five instruments. All instruments were developed for scientific purposes, and none were evaluated regarding their clinical applicability.

The Existential Study (Thorne, 1973)

Thorne (1973) based the Existential Study (ES) on actual patient communications, collected in psychiatric practice. Using this data, he developed the 200 items of the Existential Study, which he defined as a questionnaire “….designed to measure Self-concepts, Self-status, Self-esteem, Self-actualization, existential morale, demoralization, meanings of life, attitudes toward the human condition, and destiny, suicide, and existential success-failure” (Thorne, 1973, p. 387). The author also refers to a classification and nomenclature for existential state reactions (Thorne, 1970), but the relationship of this classification with the ES is unclear. The answer format of the ES is true/false. Examples of items are: “Life seems to be passing me by”, “Things are rapidly going to hell in the world” and “Sometimes I hate myself for the way I have messed things up in life.” Thorne (1973) tested the ES with 1309 respondents from different groups: felons, alcoholics, philosophy students, psychology students, unmarried mothers and patients with a primary diagnosis of chronic undifferentiated schizophrenia. Basic statistical information about the respondents, the procedure and the features of the test, like the reliability, is lacking or incomplete. Pishkin and Thorne (1973) performed factor analysis on the total sample and the different subgroups, resulting in a five factor solution that accounted for 27.3 % of the total variance. Beforehand they hypothesized that the scale would reflect three underlying factors, namely concerns regarding the self, concerns regarding relations with others and concerns regarding the world, but it isn’t clarified how the results of the (explorative) factor analysis relate to this expectation, leaving aside the question whether it makes sense at all to distinguish factors that account for such small percentages of variance as 2.5 % or 1.8 %. Thorne and Pishkin (1973) also compared the response patterns of the

\(^3\) Table 3 is given as supplement at the end of this chapter.
different groups of respondents. They found a different score pattern for schizophrenic patients, and lower scores for students compared to all clinical groups (including felons). Psychology students and Philosophy students also showed differences, the latter showing less existential problems. The authors do not provide information on significance levels.

Evaluation: beside the initial publications in Journal of Clinical Psychology, no references to the ES could be found, and the reason for this seems to be clear; The ES seems to have found its end in ill performed statistics and conceptual confusion, although the authors started their project in a way that was promising, namely by analyzing patient reports, and a strength of their study is that they used diverse groups of respondents. The authors refer to different classifications of experiences that may underlie their instrument, without clarifying how these classifications interrelate. The unclear theoretical foundation makes it also hard to say to which extend the ES resembles our definition of EA.

**Existential Anxiety Scale (Good & Good, 1974)**

Good and Good (1974) based their scale on the writings of Frankl (1962). They renamed his central concept of *existential vacuum* as EA. A clear definition lacks, but they give the following description. “Compared with neurotic anxiety, then, EA is more the product of despair than distress, of alienation than guilt, of emptiness than fear” (p. 72). The writings of Frankl were used to formulate the 32 items, which mainly relate to feelings of meaninglessness. A true/false response format is used. Examples of items are: “I frequently have the feeling that my life has little or no purpose”” and “I mostly feel all alone in the world”. The authors tested the Existential Anxiety Scale (EAS) with 237 respondents (undergraduates), correlated it with a test anxiety scale and an achievement motivation scale, and found the expected inverse relationships for need for achievement but not for test anxiety. Due to major flaws in the key publication, and the absence of supplementary information in other publications, not much can be said about its reliability and validity.

Hullett (1994) tested the EAS with 461 graduate and undergraduate students and found the expected correlations with the Purpose in Life Scale, the Seeking of Noetic Goals Test and the Back Depression Inventory, but not with addictive behavior (instrument unknown), spirituality (instrument unknown), age and number of close friends. Brookings and Serratelli (2006) used the scale as part of an instrument to measure well-being and found partial support for the expected relationship with instruments for positive illusions (Balanced Inventory of Desirable Responding Self-deceptive Positivity subscale and the How I See Myself Questionnaire).
Evaluation: Although different concerns as mentioned in our definition of EAS can be recognised in the items of the EAS, the renaming of existential vacuum as EA is in our opinion a conceptually confusing step. There can be more contexts in which EA emerges than situations of meaninglessness, and it is debatable whether the EAS is indeed an instrument with a broad perspective on EA. No information is given about the development of the content of the scale, and it is unclear to what extent the content of the scale reflects different existential concerns, and whether it is a measure of anxiety at all, since anxiety or related terms are not used in the items. So its content validity is evaluated as poor. The authors presented their scale as preliminary, and although it was used in two other studies, the conclusion must be that it never surpassed this state.

Existential Anxiety Scale (Bylski & Westman, 1991)

Bylski and Westman (1991) developed a scale with 20 items, including 6 filler items. The article mentions wrongly 28 items (A.S. Westman, personal communication, August 13, 2013). The scale expresses Yalom’s description of EA, which has to do with death, freedom, meaninglessness and isolation. The respondent is asked to indicate on a five point likert scale to which extent he worries about this subject. Examples of items: “I worry about being lonely and without anyone to understand me” and “I worry about my own death”.

The authors tested the Existential Anxiety Scale (EAS) with 63 respondents (students and their family and friends) and found the expected correlations with a measure for defense style (Short Repression-Sensitization Scale) but not with religiosity (items from different scales). The test showed to be quite stable over a period of a week (Product-moment correlation: 0.74).

Westman (1992) used the EAS in a study with 82 students, and correlated it with the Denial Questionnaire and the Conceptualization of Self and of Death Questionnaire. She found expected correlations with identity diffusion, despair about life, denial of death and less extension into tasks, but not with conceptualization of death, religiosity, egocentricity and irresponsibility.

Evaluation: The EAS is based on one of the theories that was used to formulate our working definition, and different aspects of it can be recognized in the items. The authors claim that the scale has face validity, but the information about its development is sparse, and it is unclear how the different aspects of the underlying theory have contributed to the content of the scale. The EAS was tested with only small samples and not much can be said about its psychometric qualities, except that it showed acceptable stability over two measures.
Chapter 3: Systematic Review

**Fear Scale (Walters, 2000)**

The Fear Scale (FS) was developed by Walters (1998) as part of his theory about delinquency and substance abuse: the lifestyle theory. The author states that “the incentive for lifestyle development is grounded in fear” (p. 13), and he argues that this fear is the natural consequence of the conflict between the instinct to survive and a constantly changing environment that challenges survival. This fear can according to Walters become existential in organisms with self-awareness. He mentions three categories that relate to the issue of survival: the ability to band together into groups, to predict and control the environment and to have a sense of one’s identity and existence within a wider context.

The Fear Scale consists of 18 items and the question whether these are or have been a personal source of apprehension or concern to the respondent. In correspondence with the above mentioned three categories, there are the following subscales: bonding, orientation, identity. Examples of items are “intimacy”, “commitment”, “weakness”, “vulnerability”, “disapproval”, “insignificance”. The respondent is asked to mark the items that are a personal concern to him and these are summed up.

The author tested the scale with 98 federal prison inmates, and correlated it with newly developed instruments concerning outcome expectancies for crime and negative consequences of crime (Walters, 2000). The internal consistency of the EAQ seems to be sufficient (Coefficient Alpha Social scale: 0.66, Control scale: 0.72, Identity scale: 0.69). Testing of the underlying three-factor structure using confirmatory factor analysis was only moderately supportive (GFI 0.86 and RMR 0.07), after elimination of three items the scale showed better fit (GFI 0.91 and RMR 0.06). There is also some preliminary support for its construct validity, since the FS (version with three items deleted) did stronger relate to outcome expectancies for crime than a scale measuring (experienced) negative consequences of crime. This was predicted in the lifestyle theory, describing EA as an important factor in choosing criminal activities as an aspect of lifestyle preferences.

Walters (2001) also used the FS in a study with 135 male inmates and found significant correlations with the State-Trait Inventory and with both of its subscales when controlling for the other subscale, which was seen as preliminary support to the notion that existential fear is sensitive to both dispositional and situational based anxiety. In this article also information about its stability is given, although it is not clear how these data were collected (test-retest reliability after two weeks Total scale: 0.74, Social scale: 0.51, Control scale: 0.63, Identity scale: 0.66).
Evaluation: The categories of the Fear Scale relate to three concerns of our working definition; Isolation, Identity and Death (with the impossibility to control the environment as one of its aspects). Interesting is that the author grounded his theory about the important role of existential anxiety in evolutionary psychology. It is unclear how the items of the FS were developed, and whether they cover the underlying concept, so the content validity of the scale is poor as is its face validity: at first glance the scale doesn’t look as an instrument of existential anxiety or even anxiety at all, for it is unclear what “being a personal concern” of items like “intimacy” or “commitment” has to do with anxiety.

Existential Anxiety Questionnaire (Weems, Costa, Dehon, & Berman, 2004)
The Existential Anxiety Questionnaire (Weems et al., 2004) is based on the theory of Tillich (1952), and consists of 13 items which represent three domains that each contain a relative and an absolute existential concern: fate and death, emptiness and meaninglessness, guilt and condemnation. Examples of items: “I often feel anxious because of feelings of guilt” and “I often think about death and this causes me anxiety”.
The authors tested the EAQ with two samples of students (225 respectively 326) and found support for its test-retest reliability (0.72) after a period of two weeks and its internal consistency (0.71 respectively 0.76). It can be questioned whether it would have been better to measure the internal consistency for each of the three factors and not for the total scale, a point of view which would have led to a rating as poor for this aspect (Mokkink et al., 2013). As the factors were strongly correlated, we think it is plausible not to regard them as subscales and to mention only the consistency of the total scale. Mentioning the internal consistency of the factors would even not have been appropriate at all, as the number of items for each of the factors is very small. Confirmatory factor analysis was only moderately supportive of the proposed three factor structure: GFI 0.92 and RMSEA 0.064 (Study 1) and GFI 0.90 and RMSEA 0.090 (Study 2). The scale correlated in the predicted way with instruments for anxiety and depression (Symptom Check List 90-R and Inventory of Depressive Symptomatology) and purpose in life (Purpose in Life Scale) and had incremental validity beyond the Purpose in Life Scale in predicting depressive symptoms.

Berman, Weems, and Stickle (2006) tested the EAQ with 139 adolescents (15-18 years) and found additional support for the factor structure of the EAQ and the hypothesized associations with psychological symptoms (Brief Symptom Inventory-18) and identity issues (Ego Identity Process Questionnaire). Scott and Weems (2013) tested the EAQ with 386 adults who were exposed to hurricane Katrina, and found support for most of the expected correlations with
Chapter 3: Systematic Review

PTSD (PTSD checklist) and suicidal ideation (Brief Symptom Inventory-18). The EAQ was also translated into Chinese, Slovak and Polish, but no data are available yet on psychometric evaluation (C.F. Weems, personal communication, February 25, 2013).

**Evaluation:** The categories of the EAQ are based on one of the models that was used in our introduction, so it is not surprising to find its content overlapping with three of the categories of our working definition: death, meaninglessness, guilt. The items of the final EAQ were selected on the basis of their item-total correlations. Although the author gives a broad description of the underlying theory we do not know much about the development of the content of the scale and whether it covers the intended construct, so the content validity must be evaluated as poor. Promising evidence is given for the other psychometric aspects.

### 3.4 Discussion

We started this paper with the research question which instruments explicitly address EA as a broad phenomenon, how they define EA, and which concerns they distinguish. The conclusion is that in a period of four decades, only five instruments with a broad perspective on EA were published, and each of them was used in just a few studies. This may be related to the highly abstract and maybe also normative character of the concept of EA. The small number is in strong contrast with the large amount of instruments developed to measure death anxiety, supposedly the most concrete one of the ultimate concerns.

The instruments that were evaluated show considerable differences, although each of them is explicitly presented as an EA instrument. The Existential Anxiety Scale (Good & Good, 1974) focuses mainly on feelings of meaninglessness. The Existential Study (Thorne, 1973) and the Fear Scale (Walters, 2000) use both their own conceptual model, although the latter reflects three of the concerns in our working definition: identity, death and isolation. The Existential Anxiety Scale (Bylski & Westman, 1991) and the Existential Anxiety Questionnaire (Weems et al., 2004) most closely fit our working definition, but both do not cover all five ultimate concerns.

With respect to the psychometric quality of the instruments, Table 3 shows that all studies have one or more major flaws, i.e. a rating of a property as poor. Most notable is the lack of evidence for the content validity. For each of the instruments it is unclear how the content was developed and, when described, it seems to be the work of one or more scientists, also the developer(s). Consultation of expert panels, or pretesting of an instrument with a sample of the intended population, could have given more strength to the claim that an instrument
indeed measures one or more existential concerns, and that all items were necessary to measure this concept in the intended population.

Next, there turn out to be differences between the older instruments, the Existential Study and both Existential Anxiety Scales, and their evaluation studies and the newer ones. The latter used more sophisticated methods to evaluate the reliability and structural and convergent/divergent validity. Both Existential Anxiety Scales used students as research population, and the Fear Checklist was tested with inmates. Only the Existential Study and the Existential Anxiety Questionnaire have been tested with different populations.

All instruments were tested in the USA, the country in which they were developed, and with an English speaking population. EA can be expected to be a highly cultural sensitive topic, as turned out with research on death anxiety (Neimeyer et al., 2004), so it is questionable whether these instruments can also be used in other cultures. The same applies to the setting in which the instruments were tested. It is unclear whether instruments that were tested with normal adults, survivors of a hurricane or inmates also can be used for clinical purposes and how burdensome the completion will be for people with (mental) health complaints.

The conclusion of this review is that at this moment there is no instrument that completely covers the concept of EA, as defined in our working definition. We found some instruments that are relevant to the concept of EA, but none of them could be fully evaluated regarding its psychometric properties. The Existential Anxiety Questionnaire was the most thoroughly evaluated, and was also used in different contexts, with promising results.

As far as known, this article is the first attempt to systematically evaluate scales with a broad perspective on EA, and this can be seen as a strength. Problematic is that we had to use our own definition of EA, because a gold standard is lacking. In our working definition we have focused on anxiety, but it is obvious that other emotions also play a role, and maybe different emotional patterns are typical for each existential concern. So it is debatable whether our definition of EA wasn’t too narrow. Another problematic aspect of our working definition is that the different forms of EA are quite diverse. Death, for example, may be seen as an objective ‘given of existence’, but for meaninglessness this is more complicated, because the question whether life ‘is’ meaninglessness or meaningful depends on a personal judgment.

Illustrative is a recent study (Heintzelman & King, 2014) in which it is posited that most people experience life as meaningful. Another weakness is that most of the selection of the articles was done by just one researcher, although a reliability check turned out well. The possibility that a relevant instrument would be missed, was reduced by checking the reference lists of the key publications, and by consulting experts in the field of existential psychology. Despite this
systematic procedure, we missed one relevant instrument: the Existential Study. We were made aware of the Existential Study by one of the reviewers. One of the reasons we didn’t find the instrument with our search strategy, is that all publications about it lack an abstract. One other reason is that none of the titles of these articles contains the combination of search terms that was needed. This could have been prevented with a full text search, but given the broad range of our search terms this wasn’t feasible, because it would have induced enormous numbers of hits. We believe that our search strategy was sensitive enough to reasonably claim that we have included all relevant instruments. There remains a possibility that we missed instruments published in Non-scientific Journals, or Journals that do not provide abstracts.

As mentioned above, more attention should be given to the development of a new instrument before it is tested with larger samples. Another challenge is to clearly demarcate the concept of EA, whereby our working definition can be used as starting point. Qualitative research, like a Delphi project, or interviews with experienced experts, could help to get more conceptual clarity, and get input for further test development. Method bias is an important problem in social science research (Podsakoff, MacKenzie, & Podsakoff, 2012). This problem may occur when different constructs are measured with the same method, like self-report questionnaires. In this case, there is a risk that at least a part of the covariation between the constructs is caused by sharing the same method, because respondents may show the same response style on different instruments, for example mainly giving affirmative answers. This has importance for our review, as most studies only presented correlations between different self-report measures. Weems (2004) is the only author recognizing the problem of method bias: he recommends using different measurement methods in future research. Podsakoff et al. (2012) mention some other remedies for method bias. The first is: separating different measures in time or psychological proximity, for example by using different cover stories. This remedy may be of help, although the authors also admit that its effect is still uncertain. A proper formulation of the instrument is also important, because ambiguity of items will increase response bias. At last there are also statistical procedures available that can help to diminish the influence of method bias. Another problem in research on anxiety regards a specific response bias: the validity of EA instruments may be threatened by the fact that defense mechanisms play a profound role in coping with anxiety, and especially death anxiety, which is for instance shown by research on TMT (Koole et al., 2006). Due to defense mechanisms it will not be clear whether low scores are caused by the absence of anxiety or by defense mechanisms. So it is preferred to cross-validate self-report instruments of EA with other measures of anxiety, like galvanic skin response or behavioral measures, or to use
instruments to control for defensiveness. Qualitative methods could also contribute to the interpretation of test results. It would for example be informative to interview high and low scorers on an EA questionnaire with regard to their experiences with anxiety, defense mechanisms, and attitude to the ultimate concerns.

An important aspect in the further development of EA instruments, will also be to make them suitable for application in different cultural settings and in a clinical context. The development of clinically useful measures can, as was stated in our introduction, help to ground the claim that it is important to speak with patients about their feelings with regard to the fundamental concerns. Important questions in this regard are to which extent EA is distinguishable from psychopathology, and whether EA indeed adds to our understanding of psychopathology and treatment outcome. Another question is whether EA constructs are unidirectional or bipolar: ‘experiencing meaning in life’ does for instance not seem to be the opposite to ‘the meaninglessness of life’, instead it appears to be a different phenomenon/dimension, as we mentioned in our introduction.

We recommend to use the Existential Anxiety Questionnaire as a starting point in future research projects on EA, and expand its content, so it better covers the existential concerns as described in different theories. That expansion might be an option in future research, was already suggested by the authors of the original version (Weems et al., 2004). Validation in other cultures, and combining the EAQ with existing instruments for existential concerns, for example death anxiety instruments, might give more ground to its validity, and clarify the emotional reactions related to different ultimate concerns.

References
(References marked with an asterisk indicate studies that are reviewed in this chapter)


67
Chapter 3: Systematic Review


Chapter 3: Systematic Review


### Chapter 3: Systematic Review

**Supplemental Table 3**

*Psychometric characteristics of instruments with a general perspective on EA*

<table>
<thead>
<tr>
<th></th>
<th>Existential Study</th>
<th>Existential anxiety Scale</th>
<th>Existential Anxiety Scale</th>
<th>Fear Scale</th>
<th>Existential Anxiety Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Items</strong></td>
<td>200</td>
<td>32</td>
<td>20 (including 6 filler items)</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td><strong>Scaling</strong></td>
<td>True / false.</td>
<td>True / false</td>
<td>Five point Likert-scale</td>
<td>Respondent indicates whether a concern is applicable.</td>
<td>True / false</td>
</tr>
<tr>
<td><strong>Construct</strong></td>
<td>Concerns about 1. meanings and worth of the self, 2. difficulties in getting along with other people, 3. the status of man in the world.</td>
<td>Feelings of 1. meaninglessness, also including 2. isolation and 3. death anxiety.</td>
<td>Worrying about 1. death, 2. meaninglessness, 3. isolation, 4. non-being.</td>
<td>Concerns about three strategies to manage existential fear 1. attachment, 2. control and 3. self-image.</td>
<td>Anxiety which has to do with 1. fate and death, 2. emptiness and meaninglessness, 3. guilt and condemnation.</td>
</tr>
<tr>
<td><strong>Study Population and country</strong></td>
<td>193 felons, 89 Alcoholics. 155 philosophy students. 336 unmarried mothers. 159 psychology students. 338 psychiatric patients with a primary diagnosis of USA.</td>
<td>237 adults (undergraduates). No information about age. USA.</td>
<td>63 adults (students and their friends and family). Age: Mean 26.8, SD 12.0. USA.</td>
<td>98 males (inmates). Age: Mean 34.68, SD 8.97. USA.</td>
<td>Study 1: 225 adults (students). Age: 18-44, Mean 21, SD 4. Study 2: 326 adults (students). Age: 18-59, Mean 21, SD 4. USA.</td>
</tr>
</tbody>
</table>

\(^4\) These three publications were taken together because they all report about the same study and were published together in one issue of the *Journal of Clinical Psychology*.

72
<table>
<thead>
<tr>
<th>Length of follow-up</th>
<th>N/A</th>
<th>N/A</th>
<th>1 week</th>
<th>N/A</th>
<th>2 week (n=88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropouts + missing items and the way they were handled</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>5 of the approached persons were unwilling to participate and 8 failed to complete one or more measures and were dropped from the investigation.</td>
<td>8 (Study 1) / 35 (Study 2) participants had missing or incomplete data. Pair or Analysis (when more than two variables were missing) wise deletion.</td>
</tr>
</tbody>
</table>

**Internal Consistency**

<table>
<thead>
<tr>
<th>N/A</th>
<th>Internal consistency</th>
<th>N/A</th>
<th>Coefficient Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KR-20: 0.89</td>
<td></td>
<td>Social scale: 0.66, Control scale: 0.72, Identity scale: 0.69</td>
</tr>
</tbody>
</table>

**Study quality (conform COSMIN)**

<table>
<thead>
<tr>
<th>Poor (No Cronbach’s Alpha and no item-total correlations calculated)</th>
<th>Poor (No Factor Analysis performed)</th>
<th>Poor (No Cronbach’s Alpha and no item-total correlations calculated)</th>
<th>Fair (Small sample size)</th>
<th>Excellent</th>
</tr>
</thead>
</table>

**Reliability**

<table>
<thead>
<tr>
<th>N/A</th>
<th>N/A</th>
<th>Test-Retest: r= 0.74</th>
<th>N/A</th>
<th>Test-Retest: r=0.72 (p&lt;0.001) (Study 1)</th>
</tr>
</thead>
</table>

**Study quality (conform COSMIN)**

| Poor (only one measurement) | Poor (only one measurement) | Fair (not clear how missing items were handled). | Poor (only one measurement). Walters (2001). Test-retest after two weeks (n=30) Total | Good (good sample size and assumable that test conditions |

5 Primary publication provides incomplete information about age of respondents (mostly adult) and mentions that there were other, undefined, groups of respondents, probably causing the difference between the total n and the summation of the subgroups.
### Content Validity

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>The authors constructed the items from patient communications. It is unclear how was decided which items to include.</td>
<td>The Authors wrote 32 items and decided it to be the final set on the basis of the good internal consistency.</td>
</tr>
<tr>
<td>Unclear how the content of the scale was developed.</td>
<td>Unclear how the content of the scale was developed.</td>
</tr>
<tr>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
</tr>
<tr>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
</tr>
<tr>
<td>Unclear how the content of the scale was developed.</td>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
</tr>
</tbody>
</table>

### Study quality (conform COSMIN)

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
</tr>
<tr>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
</tr>
<tr>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
</tr>
<tr>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
<td>Poor (not assessed whether all items refer to relevant aspects of the construct to be measured, are relevant for the study population and comprehensively reflect the model to be measured)</td>
</tr>
</tbody>
</table>

### Structural Validity

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumed to be unidimensional</td>
<td>Assumed to be unidimensional</td>
</tr>
<tr>
<td>Assumed to be unidimensional</td>
<td>Assumed to be unidimensional</td>
</tr>
<tr>
<td>Confirma tory factor analysis was moderately supportive of the proposed three factor structure; GFI 0.86 and RMR 0.07.</td>
<td>Confirma tory factor analysis was moderately supportive of the proposed three factor structure; GFI 0.92 and RMSEA 0.064 (Study 1) and GFI 0.90 and RMSEA 0.090 (Study 2).</td>
</tr>
</tbody>
</table>
### Study quality (conform COSMIN)

<table>
<thead>
<tr>
<th>Poor (other major methodological flaws, namely not giving information about significance levels)</th>
<th>Poor (no exploratory or confirmatory factor analysis performed)</th>
<th>Poor (no exploratory or confirmatory factor analysis performed)</th>
<th>Excellent</th>
<th>Excellent</th>
</tr>
</thead>
</table>

### Hypothesis Testing (Convergent / Divergent Validity)

| Scores of different subgroups were compared. | Correlation EAS and 1. Need for achievement: -0.45 (p < 0.001) 2. Test anxiety: 0.32 (p < 0.001) (but negative direction hypothesized) | Correlation EAS and 1. Repression-Sensitization Scale: 0.56 (p < 0.001) 2. Religiosity: not related (p > 0.05) (negative direction hypothesized) | Correlation of FS and a measure for outcome expectancies of crime exceeded significantly correlations of outcome expectancies and negative consequences of crime: 0.42 vs. 0.24, paired t-test t(8) = 4.82 (p < 0.01) | Study 1. Correlation EAQ and 1. Anxiety scale SCL90: 0.54 (p < 0.001) 2. Depression Scale SCL90: 0.61 (p < 0.001) Study 2. Correlation EAQ and: 1. IDS: 0.41 (p < 0.001) and 2. PIL: -0.44 (p < 0.001) |

### Study quality (conform COSMIN)

<table>
<thead>
<tr>
<th>Poor (Unclear what was expected)</th>
<th>Fair (poor description of constructs and measurement properties of comparator instruments)</th>
<th>Fair (poor description of constructs and measurement properties of comparator instruments)</th>
<th>Good (expected magnitude of correlations or differences not stated)</th>
<th>Good (expected magnitude of correlations or differences not stated)</th>
</tr>
</thead>
</table>

### Overall evaluation of the quality of the primary publication.

<table>
<thead>
<tr>
<th>Poor: 5</th>
<th>Poor: 4</th>
<th>Poor: 3</th>
<th>Poor: 2</th>
<th>Poor: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair: -</td>
<td>Fair: 1</td>
<td>Fair: 2</td>
<td>Fair: -</td>
<td>Fair: -</td>
</tr>
<tr>
<td>Good: -</td>
<td>Good: -</td>
<td>Good: 1</td>
<td>Good: -</td>
<td>Good: 2</td>
</tr>
<tr>
<td>Excellent: -</td>
<td>Excellent: -</td>
<td>Excellent: 1</td>
<td>Excellent: 1</td>
<td>Excellent: 2</td>
</tr>
</tbody>
</table>

*The evaluation boxes of the COSMIN statement are marked in bold. The following terms are used for evaluation: excellent, good, fair, poor. The reason for given a less than excellent evaluation is mentioned. Note that this aspect of the study may have other, less important, flaws that are not mentioned.*