

1979

# The Construction and Validation of a Death Anxiety Scale

Mark Lane Whipple

*Eastern Illinois University*

This research is a product of the graduate program in [Psychology](#) at Eastern Illinois University. [Find out more](#) about the program.

---

## Recommended Citation

Whipple, Mark Lane, "The Construction and Validation of a Death Anxiety Scale" (1979). *Masters Theses*. 3164.  
<https://thekeep.eiu.edu/theses/3164>

This is brought to you for free and open access by the Student Theses & Publications at The Keep. It has been accepted for inclusion in Masters Theses by an authorized administrator of The Keep. For more information, please contact [tabruns@eiu.edu](mailto:tabruns@eiu.edu).

THESIS REPRODUCTION CERTIFICATE

TO: Graduate Degree Candidates who have written formal theses.

SUBJECT: Permission to reproduce theses.

The University Library is receiving a number of requests from other institutions asking permission to reproduce dissertations for inclusion in their library holdings. Although no copyright laws are involved, we feel that professional courtesy demands that permission be obtained from the author before we allow theses to be copied.

Please sign one of the following statements:

Booth Library of Eastern Illinois University has my permission to lend my thesis to a reputable college or university for the purpose of copying it for inclusion in that institution's library or research holdings.

10-8-79

Date

Author

I respectfully request Booth Library of Eastern Illinois University not allow my thesis be reproduced because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date

Author

The Construction and Validation of a

---

Death Anxiety Scale

---

(TITLE)

BY

Mark Lane Whipple

**THESIS**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
Master of Arts

---

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY  
CHARLESTON, ILLINOIS

1979

YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING  
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

8/8/79  
DATE

ADVISER

8/8/79  
DATE

DEPARTMENT HEAD

THE CONSTRUCTION AND VALIDATION  
OF A DEATH ANXIETY SCALE

BY

MARK LANE WHIPPLE

B. S. in Psychology, MacMurray College, 1976

ABSTRACT OF A THESIS

Submitted in partial fulfillment of the requirements  
for the degree of Master of Arts in Psychology at the Graduate School  
of Eastern Illinois University

CHARLESTON, ILLINOIS  
1979

Death anxiety has been previously investigated by many means including questionnaires and physiological and behavioral measures. Prior research indicated that paper and pencil scales of death anxiety correlated with physiological measures of anxiety. The present study was an attempt to construct and validate a large paper and pencil scale to measure death anxiety by using physiological measures of anxiety as external validation criteria. Sixty-six white female students were randomly selected from a pool of 80 volunteers obtained from introductory Psychology classes at Eastern Illinois University.

The physiological measure, changes in Galvanic Skin Response upon the presentation of 10 death-related and 20 neutral words, was recorded for each volunteer. Mean percent change in GSR, logarithm of mean percent change in GSR, and square root of mean percent change in GSR were computed for all 10 stimulus words for each student. A 102-item questionnaire was administered to each student and the above measures were correlated with each item of the questionnaire. This process yielded 16, 15, and 6 items respectively. A Kuder-Richardson measure of internal consistency indicated 44 items to be internally consistent. Twenty students were randomly selected to return and take the paper and pencil test in four weeks. A correlation of .8886,  $p < .001$  was obtained, an indication of a very high temporal reliability for the scale. It appears that death anxiety scales have high levels of internal consistency and temporal reliability but correlate very poorly with physiological indicators of anxiety.

### Acknowledgements

I wish to sincerely thank all three members of the committee which sat for this thesis. Without the efforts of Drs. William Hillner, William McGown, and Frank E. Hustmyer, Jr., this thesis, the greatest accomplishment of my life, could not have been achieved.

## TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS . . . . .	.iii
LIST OF TABLES . . . . .	v
 Chapter	
I. Introduction . . . . .	1
Introduction to Review of the Literature . . . . .	2
Definition of Death Anxiety . . . . .	2
Assessment of Death Anxiety . . . . .	2
Physiological Assessment of Anxiety . . . . .	11
Physiological Assessment of Death Anxiety . . . . .	13
Summary . . . . .	16
Statement of the Problem . . . . .	17
II. Method . . . . .	18
Subjects . . . . .	18
Apparatus . . . . .	18
Procedure . . . . .	19
III. Results . . . . .	21
Item Correlations with SCC . . . . .	21
Internal Consistency and Test-Retest Reliability of the Scale . . . . .	22
IV. Discussion . . . . .	23
Appendix A . . . . .	28
Appendix B . . . . .	30
Appendix C . . . . .	36
Appendix D . . . . .	38
Appendix E . . . . .	40
Appendix F . . . . .	42
Appendix G . . . . .	44
References . . . . .	47

LIST OF TABLES

Table

Page

1. Previous Attempts to Develop Death Anxiety Scales. . . . . 4

## Chapter I

### Introduction

Research in the area of death attitudes has expanded greatly in the last two decades. Researchers have examined several aspects of death attitudes, particularly anxieties about death. Because the upsurge of interest in death attitude research is so recent, the data concerning death attitudes are limited in scope and quantity. Several means have been used to assess death attitudes, such as interviews, projective tests, and paper and pencil scales (Lester, 1967). Most recent studies of death attitudes seem to concentrate on the development of paper and pencil scales. Much research remains to be done in the field of assessment of death attitudes, particularly with regard to validity and reliability data for death attitude scales (Dickstein, 1972; Templer, 1970).

Several scales have been constructed to assess death anxiety. These have varied in their applications and usefulness, but all seem to have suffered from one form of methodological difficulty or another. Some have failed to provide reliability or validity data. Others have apparently used an inadequate or inappropriate conceptualization of death anxiety or failed to use a valid means of assessment of death anxiety (Durlak, 1973).

This study is an attempt to construct and validate a new scale to measure death anxiety using items from scales previously reported in the literature. Most studies previous to this one have used face validity or factor-analytic approaches in constructing death attitude scales (Hardt, 1975; Nelson and Nelson, 1975). This study will use a physiological measure of anxiety as an external criterion for

the validation of the items, and the internal consistency and face validity of items for further validation of the scale.

### Introduction to Review of the Literature

The present study was an attempt to construct and validate a scale to measure death anxiety in individuals. This review of the literature includes a definition of death anxiety, an overview of previous attempts to assess death anxiety, a consideration of physiological measures of anxiety, a review of previous attempts to assess death anxiety through physiological measures, a summary, and a statement of the problem.

### Definition of Death Anxiety

There has been no strong formal definition of death anxiety put forth by any researcher of the subject. This writer will herein define death anxiety in order to clarify the concept and to provide a basis from which to proceed with research. Death anxiety can be defined as anxiety which is cognitively experienced and expressed by an individual, which is observable in an individual's behavior, and which can be assessed by physiological measures. Death anxiety may be elicited by the presentation of any death-related stimulus such as a word (e.g., funeral) or a picture (e.g., a photo of an open grave) (Templer, 1971).

### Assessment of Death Anxiety

The measurement of individuals' anxiety regarding death appears to have concerned researchers for quite some time. Different techniques have been used by those interested in assessing others' anxiety toward death (Lester, 1967). Some have attempted to assess death anxiety through direct interviews (Schilder, 1936; Anthony, 1940).

Other researchers have used projective techniques such as the TAT to get at individual feelings of anxiety about death and dying (Rhudick and Dibner, 1961). Still others have attempted to indirectly assess death anxiety by observing changes in GSR upon presentation of death-related words (Alexander and Adlerstein, 1958; Meissner, 1958).

The most recent and widely used means of assessment of death anxiety seems to be the multi-item paper and pencil questionnaire. A death anxiety scale is a paper and pencil questionnaire which attempts to assess an individual's fear of death and to indicate his level of anxiety about death and dying. Studies using these scales usually attempt to correlate death anxiety with some other measure of personality traits. Table 1 summarizes the literature concerning the various death anxiety scales to date. The following is a brief review of each of these scales and related literature.

Sarnoff and Corwin's (1959) study of castration anxiety and its effect upon death anxiety is the earliest use of a death anxiety scale. In their introduction they explained that in the psychoanalytic viewpoint castration anxiety arises from excessive threats of castration from the father during the Oedipal stage of development. The manifestations of castration anxiety are often physical, such as fear of injury, or in the extreme, fear of death. Sarnoff and Corwin assessed the effects of castration anxiety upon fear of death by embedding twelve items designed to assess individuals' fear of death in a 22 item scale. They then correlated scores on this scale with responses to the castration anxiety card of the Blacky pictures test. They found a significant correlation between

Table 1. Previous Attempts to Develop Death Anxiety Scales

Reference	Scale	Number of Items	Format	Criterion	Population	Comments
Sarnoff & Corwin (1965)	Fear of Death Scale	7	Likert-type interspersed with filler items	Item analysis, retained items which discriminate high-anxious from low-anxious	56 male Yale students	No reliability or validity given
	Mortality Scale	5				
Templer (1970)	Death Anxiety Scale	15	True or False to each item	Correlations with physiological measures of death anxiety	Groups of 45, 56, & 46 college students	Very well validated, perhaps the best
Dickstein (1972)	Death Concern Scale	30	True or False to each item	Internal consistency & correlations with other scales	193 college students	
Nelson & Nelson (1975)	No name given	20	Likert-type	Internal consistency, factor analysis	135 students, 793 VA hospital patients (males)	Good factor analysis, first of its kind
Pandey (1975)	No name given	40	Likert-type	Factor analysis, internal consistency	233 Psychology students	Very complex statistical analysis

Blacky pictures test responses assumed to indicate castration anxiety and fear of death as assessed by their scale. They concluded from this that castration anxiety and death anxiety are directly related concepts.

Boyer (1964) administered to 100 persons an 18 item Fear of Death scale which had been previously embedded in a scale to measure child-rearing attitudes. He then showed a movie concerning fatal automobile accidents. He readministered the scale and found that those who had seen the movie had a significant increase in their fear of death. Boyer's data are somewhat confounded by a lack of internal consistency for his scale ( $r = .21$ ) and anxiety reactions which may have been to any one of several stimulus dimensions of the film that they saw. However, Boyer does appear to be one of the first researchers to attempt to construct a scale that is both a reliable and valid means to measure the fear of death (Lester, 1967).

Lester (1967) constructed a scale to assess individuals' fear of death and then used the scale to determine the difference between attitudes toward death in suicidal and non-suicidal students. He found that suicidal students feared death less than non-suicidal students, a finding which supports the scale's construct validity. He did not report any further validity or reliability data for the scale.

In a later study Collett and Lester (1969) constructed another scale consisting of 38 items which were designed to measure individuals' fear of death and fear of dying. This scale was an attempt to assess more than one dimension of death fear. Collett and Lester's study proposed that the fear of death had four separate dimensions:

fear of death of one's self, fear of the process of dying of one's self, fear of death of others, and fear of the process of dying of others. They have reported no reliability data for this scale (Dickstein, 1972). Additionally, Nelson and Nelson (1975) point out that Collett and Lester's categories of death fear were faulty, as the categories were defined and then test items were constructed to fit these categories, a technique which prevents serendipitous discovery of other aspects of death anxiety. Nevertheless, Collett and Lester's scale has been used by Lester (1971, 1972) to study attitudes toward death and suicide in non-disturbed populations and to study the effects of consistency of attitudes toward death upon fear of death. Lack of validity data for Collett and Lester's scale affects the usefulness of data derived from studies using that scale.

Tolor and Reznikoff (1967) used a fear of death scale which was constructed earlier by Livingston and Zimet (1965) to assess the relationship between several personality variables and death anxiety. They found a significant correlation between their death anxiety scale and Byrne's (1961) Repression-Sensitization scale. Byrne's scale determines whether an individual responds to threatening stimuli through avoidance and denial (repression) or through alertness and approaching (intellectualizing and obsessional) behaviors i.e., sensitizing (Tolor and Reznikoff, 1967). They found that high death-anxious individuals tended toward sensitizing as their primary means of coping with anxieties. Additionally, they found a positive correlation between a belief in external controls and overt death anxiety. These correlations were moderate to low which led them to conclude that further studies should be performed.

Handal (1969) devised a study which used Tolor and Reznikoff's revision of Livingston and Zimet's (1965) scale to measure fear of death among medical students. Handal correlated scores on the fear of death scale with each participant's report of how long he expected to live and with Zuckerman's (1966) Affective Adjective Check-List of Anxiety (short form). He found that there was a significant correlation between general anxiety and death anxiety for both males and females. There was, however, a significant negative relationship between females' reports of their expected life span and their level of death anxiety. This was not found for males, which led Handal to conclude that males were more defensive about death than females. Because the correlation between measured death anxiety and general anxiety was low ( $r = .33$ ) he concluded that they were probably different states. Lester's (1971) study found that females were more anxious about some aspects of dying and death than males which supports Handal's findings about the differences between measured death anxiety in males and females.

Handal and Rychlak (1971) used the scale from Handal's (1969) study to investigate the relationship between death anxiety, content of dreams, and scores on Byrne's (1961) Repression-Sensitization scale. They found significant correlations among all three factors. They found that repression tends to negatively correlate with death anxiety, a finding which supports Tolor and Reznikoff's (1967) data. Handal and Rychlak additionally found that individuals who are either very anxious or only slightly anxious about death tended to have more dreams concerning death than individuals who have a moderate amount of death anxiety. They also found that people who are highly

anxious about death use repression as a preferred means of masking their anxieties about death. They postulated that the high number of death-related dreams among low death-anxious individuals may be due to the presence of two types among those who are found to be low-anxious. One type uses repression to very effectively mask measurable death anxiety, while the other type is unable to repress his death anxieties completely and expresses them in dreams. No replications or further studies have been done to support these data.

Perhaps the best of the recent death anxiety scales is the Death Anxiety Scale developed by Templer (1970). He constructed his scale by selecting questions which had been judged to measure death anxiety and then interspersing those questions among the last 200 questions of the Minnesota Multiphasic Personality Inventory (MMPI). He validated the scale empirically by comparing the scores of normal controls with psychiatric patients who had complained of fearing death and also correlating his scale with Boyer's (1964) Fear of Death scale. He obtained a correlation of .74 between Boyer's Fear of Death scale and his Death Anxiety Scale. In the same study Templer also compared his scale to the Manifest Anxiety Scale (Bendig, 1956), the Welsh Anxiety Scale (Welsh, 1956), and the Welsh Anxiety Index (Welsh, 1956) and found a significant correlation between his scale and each of these measures. The resulting scale is perhaps one of the best from a standpoint of reliability and validity. He has obtained a test-retest reliability coefficient of .83 over a two week time period, and a Kuder-Richardson internal consistency coefficient of .76. To further improve the reliability and validity of his scale, Templer studied the scale both when administered as one group of items together

within the MMPI and when the items were interspersed throughout the MMPI. He found that there was little or no difference between the scores achieved on the test in the two different conditions (Templer and Ruff, 1971).

Ray and Najman (1974) have used Templer's (1970) Death Anxiety Scale and Sarnoff and Corwin's (1959) scale with their own questionnaire designed to measure death acceptance to determine whether individuals who accepted death were also anxious about death. They hypothesized that individuals with an acceptant attitude toward death would be able to admit death anxiety and be at least mildly positive toward it. They obtained a moderate negative correlation between their death acceptance scale and the two scales of death anxiety. They found a positive correlation between the two death anxiety scales. They concluded from this that death acceptance and death anxiety were two separate constructs which could co-exist in individuals.

Dickstein and Blatt (1966) have studied what they have termed death concern and have related this to one's awareness of and concern with the future. They note that Rapaport, Gill, and Schafer (1945) conceptualized the Picture Arrangement subtest of the Wechsler Adult Intelligence Scale (WAIS) as a measure of the capacity for anticipation and consequently as a measure of concern for the future. They used the above measure along with projective responses to a story completion task used by Wallace (1956) to assess future time perspective and a death concern scale which they devised for their study. They found a significant correlation between concern for the future as measured by projective means, low death concern as measured by their own test, and high Picture Arrangement subtest scores.

The use of a death concern scale with no validity data makes these results questionable. However, in a later study Dickstein (1972) used scales which measure state anxiety, trait anxiety, and sensitization to validate the death concern scale. Dickstein points out that death anxiety may be related to a more general tendency to be anxious, thus explaining the correlations between his scale and general anxiety scales. He notes that the correlation between death concern and manifest anxiety is low, which may indicate that there are differences between the two states of anxiety.

Durlak (1972) examined Lester's (1967) scale, Collett and Lester's (1969) scale, Boyer's (1964) scale, Sarnoff and Corwin's (1959) scale, and a scale devised by Tolor and Reznikoff (1967) and reported in Handal (1969) to determine their concurrent validities and the factors which they measure. He found that the scales tended to be moderately correlated and tended to measure "personal fears and anxieties about death and dying. . ." (Durlak, 1972, p. 547) better than they measured individuals' fears of others' death. Durlak (1973) later investigated Lester's (1967) Fear of Death scale by attempting to correlate Lester's scale with five questions which Durlak felt indicated concern with and fear of death. He found that there was no correlation at all between the two different measures, and concluded that the usefulness of measures of death anxiety was limited.

Pandey (1975) has done a factor-analysis of attitudes toward death among college students. He administered several questions which were intended to assess death attitude factors and subject differences. He discovered similar factors of curiosity-escape, depressive-fear, mortality, and sarcastic-fascination in both black and white students.

Nelson and Nelson (1975) factor-analyzed death anxiety by a method similar to Pandey's (1975) and found that death anxiety was comprised of the four factors of death avoidance, death fear, death denial, and reluctance to interact with the dying. Both Nelson and Nelson's (1975) study and Pandey's (1975) study are important because they attempt to factor-analyze death anxieties and attitudes, experimental investigations which have been too often neglected in the literature.

In conclusion, Durlak (1973) points out that most attempts to measure death anxiety have suffered from the absence of what he feels is an adequate measure of death anxiety. Dickstein (1972) supports this by noting that research has produced little evidence of the construct validity of death anxiety scales. He points out that Collett and Lester's (1969) Fear of Death and Fear of Dying scales have no reported reliability data (Dickstein, 1972). The death anxiety scale which has been constructed by Handal (1969) lacks reported internal consistency data. Sarnoff and Corwin's (1959) scale has never been validated, although they did report reliability data for their scale.

#### Physiological Assessment of Anxiety

Measures of changes in physiological activity and the concomitant changes in autonomic arousal have gained a considerable reputation as a means of assessing affective states in individuals. Physiological assessment offers several useful advantages over conventional assessment. Goldfried and Sprafkin (1974) note that some of these advantages are that the person being assessed cannot fake responses, that external observers are not needed, and that the individual must participate in only a very minimal, passive way. Additionally,

Kallman and Feuerstein (1972) point out that physiological assessment can adequately measure covert affective states which cannot be assessed by any other means. Physiological assessment is thus perhaps the most objective means of assessment available, simply because all of the observation and recording is done by machinery. Human error can only be introduced in the application of the machinery or the interpretation of the data (Edelberg, 1967). Engel (1972) also notes that physiological assessment is less susceptible to demand characteristics than are other behavioral assessment devices.

Physiological assessment does, however, present methodological problems. One difficulty with physiological assessment is that correlations between the reactivity of biological systems between individuals are often low or nonsignificant (Engel, 1972; Goldfried and Sprafkin, 1974). This poses problems with reliability of data (Martin, 1961). Individual response patterns pose another problem. Since each person has a unique response pattern in which some systems are more reactive than others, it follows that the assessor cannot know which system is the most responsive (Goldfried and Sprafkin, 1974). The assessor may or may not be assessing the most reactive system of an individual.

One must decide which biological system of the body to assess before starting the assessment procedure. There are several systems of the human body which respond to stress in measurable ways, e.g., the cardiovascular system. The skin responds to increasing stress by increased production of sweat, a fact which causes increased electrical conductivity of the skin. This can be measured by attaching electrodes to the most reactive areas of the skin and measuring the

level of conductance of an electric current (Edelberg, 1972).

While all the physiological measures of anxiety have adequate bodies of literature to recommend them, the above-mentioned indices of arousal have perhaps the greatest body of literature extant (Engel, 1972; Goldfried and Sprafkin, 1974; and Kallman and Feuerstein, 1977).

#### Physiological Assessment of Death Anxiety

There have been few physiological measurements of death anxiety, and only one study other than Templer's (1971) has used such measures to validate a death anxiety scale. Thauberger, Thauberger, and Cleland (1976) have investigated the usefulness of heart rate and blood pressure as a measure of death anxiety. They administered the Avoidance of the Ontological Confrontation of Death (AOCD) scale to participants who were then placed in successively more stressful situations involving death. They placed the subjects, respectively, in a funeral home, near a casket, in an open casket, and finally, in a closed casket. During each of the situations the individual's pulse and blood pressure were taken. It was found that blood pressure correlated positively with the AOCD, while pulse correlated negatively with the AOCD. They suggested that this was because of a natural physiological phenomenon in which pulse rate goes down as blood pressure goes up in an emotionally stressful situation.

Raskin (in Prokasy and Raskin, 1973) cites a study in which the authors presented affectively weighted and neutral slides to male subjects. It was found that these stimuli caused heart rate to increase, a finding which upholds the findings of Thauberger et al. (1976). It is important to note that heart rate has been shown to correlate with both affectively weighted stimuli and with a paper

and pencil test. This information suggests that heart rate is a useful indicator of death anxiety.

The first study to use a GSR measure of death anxiety was done by Alexander, Colley, and Adlerstein (1957). In this study, Alexander et al. presented a word list consisting of sex-, school-, and death-related words, as well as 'basal' or neutral affect words. They then measured the amount of time each person took to respond to each word and the amount of change in GSR each subject exhibited to death-related words and found that death-related words were just as affect-laden as were the other non-basal words in the study. This indicates that death-related words cause the type of autonomic arousal which is associated with anxiety. In a later study, Alexander and Adlerstein (1958) used a similar design with children and obtained similar results: death-related words elicit an affective response in children.

Meissner (1958) measured the affective response of 40 Roman Catholic priests to death-related words. The measure used was change in GSR upon presentation of death-related words. He presented the death-related words embedded in a word list, just as Alexander, Colley, and Adlerstein (1957) did. Meissner found that GSR did change upon presentation of the affective words, a finding which supports Alexander's previous studies.

Golding, Atwood, and Goodman (1966) used a tachistoscope to present death-related words and neutral words and found that the group studied recognized death-related words less frequently than neutral words, a fact which led Golding et al. to conclude that death-related words caused an affective reaction. They found no correlation between perceptual defense to death-related words as measured by the tachistoscope

and Sarnoff and Corwin's (1959) Fear of Death scale. From this they concluded that the Fear of Death scale does not necessarily measure an underlying state of death anxiety.

Templer, in the most recent study of affective reactions to death anxiety, presented a list of 30 words to individuals and then measured the resulting change in GSR (Templer, 1971). Ten of the words were death-related words, ten were high in affect but not related to death, and ten were neutral in affect. Templer found that death-related words caused a greater change in GSR than neutral words. Templer then correlated average changes in GSR to death-related words with total scores on his Death Anxiety Scale. He found a correlation of .30 between high levels of affective arousal to death-related words and the Death Anxiety Scale.

There are advantages to the use of GSR for the construction and validation of a death anxiety scale. A study of this kind builds upon the prior GSR research noted above. That research all indicates that GSR is a good indicator of death anxiety. There have been no studies done to this date which have used physiological measures for the purpose of constructing a scale to measure death anxiety. Templer (1971) used physiological measures to validate his scale, but he initially constructed the scale using other criteria to determine its validity. Templer (1971) as well as others (Alexander, Colley, and Adlerstein, 1957; Alexander and Adlerstein, 1958; and Meissner, 1958) have indicated the usefulness of physiological measures in the assessment of death anxiety. The presence of several scales of death anxiety lends credence to this mode of assessment (Lester, 1967; Collett and Lester, 1969). A scale which uses physiological

measures to construct as well as validate a death anxiety scale has a firm base of support in the literature.

### Summary

The assessment of attitudes concerning death and of death anxiety is not totally new to the field of personality research. However, assessment of death attitudes and death anxiety by formal paper and pencil scales is a fairly recent innovation in personality research. Several scales have been constructed to measure death attitudes or death anxiety by various means, but most of them suffer from methodological difficulties such as a lack of validity or reliability data, or a lack of conceptual refinement.

Physiological measurement of behavior has a fairly well-established reputation as an effective means of assessment (Goldfried and Sprafkin, 1974). While there are methodological problems with this form of assessment, physiological assessment is useful because it does not require self-reports and thus omits a possible source of distortion. GSR and heart-rate are quite popular as means of assessing anxiety because they appear to be reliable and because they are relatively simple measures of anxiety.

Only four studies have been done using physiological measures to determine the level of death anxiety in individuals. Two of these studies were done by Alexander and his colleagues (1957, 1958). Another was done by Meissner (1958), and the most recent was done by Templer (1971). All used a similar design to assess anxieties about death. All presented death-related words and then measured the change in GSR which occurred upon presentation of those words. Only two studies to date have correlated physiologically measured death anxiety with

a death anxiety scale (Templer, 1971; Thauberger, Thauberger, and Cleland, 1976). Theirs were the first studies of the type to be done. Templer's has perhaps the most extensive reliability and validity data of any scale. There have been no studies which have used physiological measures to establish discriminate validity for each item on a test.

#### Statement of the Problem

The purpose of the present study was to establish the criterion validity of a death anxiety scale developed by the author using a physiological response to death-related words as the criterion of death anxiety. This author hypothesized that such a criterion measure would significantly correlate with individual items as well as the total score of the scale.

## Chapter II

### Method

#### Subjects

There were 66 white female students selected randomly from a pool of 80 volunteers who had been recruited from undergraduate Psychology classes at Eastern Illinois University. Fourteen of the subjects were dropped from the study because of various methodological problems. The physiological measures of some students' anxiety were inadequate because the data were attenuated by the experimenter's improper calibration of the measurement devices and because of the inability of some students to reach a basal level of GSR. The students ranged in age from 18 to 33 years. The median age was 20 years, the mean age 22.2. No other attempt was made to classify the students according to other personal data. The tester was a 23 year-old male graduate student at Eastern Illinois University (the author).

#### Apparatus

The polygraph was a Physiograph Desk Model DMP 4-A manufactured by Narco-Bio Systems, Inc. The indices of arousal used for this study were GSR, hereafter called Skin Conductance Change (SCC) and heart rate. Skin conductance was measured by taping two separate lead plates to the tips of each student's left and right middle fingers. The pre-amplifier was calibrated to adjust the amount of change in SCC pen-recorder distance travelled per ohm of skin conductance. The heart rate assessment device used two silver-disc electrodes covered with an electrolyte gel and taped to the right and left wrists. The heart rate measuring devices were connected to a separate pen-recorder by a route similar to that of the SCC connection.

### Procedure

Each subject was tested separately in a medium-sized, well-lighted room in which were housed several chairs, some video-tape equipment, and a polygraph. During the time prior to the experimental period the tester engaged the students in light conversation to allay anxieties about the testing process. Each student was given instructions to move as little as possible. Students were told they were participating in a study which would result in the construction of a new personality test. The exact nature of the personality test was not revealed until after the experiment was completed. The students faced away from the tester.

The questionnaire presented was derived from five previously published scales of death anxiety discussed earlier in the paper (Dickstein, 1972; Nelson and Nelson, 1975; Pandey, 1975; Sarnoff and Corwin, 1959; and Templer, 1970. See Appendix A for the original scales). Not all items from each scale were used. Items which appeared in more than one scale of which were judged by this writer to be irrelevant were eliminated (see Appendix B for a copy of the resulting test). Answers were recorded in pencil on an IBM format answer sheet. The answer sheets were then scored by a machine scanner.

Each student's resting level of skin conductance was determined by allowing the student to sit quietly until the amount of change in skin conductance had stabilized. With regard to heart rate, it was discovered that the speed of the physiograph paper had been set too low to allow accurate determination of heart rate. For this reason heart rate data were eliminated from the study.

After a period of accommodation to allow the student's skin conductance and heart rate to stabilize, a three word warm-up consisting of the words 'horse', 'dog', and 'undertaker' was presented to each student. A student's skin conductance was considered to have stabilized when the student's skin conductance did not change over a five second period. When the student's skin conductance and heart rate had stabilized, 10 death-related words and 20 neutral words were read from a card by the tester in a fixed, interspersed order (see Appendix C for the stimulus words). The students' skin conductance and heart rate levels were allowed to return to basal level after each word.

After the last word had been presented, the measuring devices were removed from the student and she was presented with a 102-item questionnaire, each item of which she was to answer either 'agree' or 'disagree'. Each student was told "I have here some questions which I would like for you to answer 'agree' or 'disagree'. Please mark your answers on this sheet with this pencil. Mark one for agree, two for disagree. Do you have any questions?" The purpose of the study was explained to the students after they returned the IBM sheet. A group of 20 students was then randomly selected to complete the questionnaire again four weeks after the original testing. From these questionnaires test-retest reliability data were derived.

## Chapter III

### Results

#### Item Correlations with SCC

In order to correlate the criterion SCC measure with the items and total score on the death anxiety scale, it was necessary to transform the absolute value of mean percent change from the baseline SCC measure. Two such transformations were used since no single transformation is accepted by researchers as the "best" (Sidowski, 1966). The logarithm of mean percent SCC and square root of SCC were the transformations and mean percent SCC were all correlated with the death anxiety scale.

For mean percent SCC for all 10 death-related words, the mean change was 103.37 with a standard deviation of 3.76. A low nonsignificant correlation ( $r=-.05$ ,  $p=.34$ ) was found between the mean percent SCC and the total 102 item test scores. From the initial 102 items, only 15 had a significant correlation ( $p .05$ ) with this version of the criterion measure. Appendix D lists these 15 items.

For the first transformation of the criterion, log mean percent SCC, the mean log was -5.19 with a standard deviation of 1.684. A low nonsignificant correlation ( $r=-.09$ ,  $p=.22$ ) was found between log of mean SCC and the total 102 item test scores. From the 102 original items, only six items had a significant correlation with this criterion transformation. Appendix E lists these six items.

For the second transformation, the square root of SCC, the mean square root was less than .0001 with a similar standard deviation. As above, a low nonsignificant correlation ( $r=.02$ ,  $p=.42$ ) was found

between the square root of SCC and total test scores. From the 102 items, only 16 items had a significant correlation with this last transformation. Appendix F lists these 16 items. Thus this transformation yielded the greatest number of significant criterion-item correlations. Items 21 and 36 consistently related to all three transformations.

#### Internal Consistency and Test-Retest Reliability of the Scale

In order to develop a scale with a high internal consistency, each of the 102 items were correlated with the total score. There were 44 items (see Appendix G) that correlated significantly ( $p .05$ ) with the total score criterion. The mean score on the 102 item scale was 39.52 with a standard deviation of 4.79. The distribution was negatively skewed with the median at 34.80 and had a range of 21 to 56. For the 20 subjects selected for re-testing, the test-retest correlation, a measure of temporal reliability, was .89,  $p .001$ .

## Chapter IV

### Discussion

This study was an attempt to construct a paper and pencil test of death anxiety using physiological measures of anxiety upon presentation of death-related stimuli as criteria for external validation. The hypothesis that changes in an individual's GSR could be correlated with items on a paper and pencil scale was not supported by statistical measures. The physiological measures of anxiety were found to correlate very poorly with the paper and pencil scale and only with a few individual items.

Three analyses were performed using mean percent SCC per student, log mean percent SCC per student, and square root of mean percent SCC per student. 16 items correlated significantly with the square root of mean percent change as the criterion, the most of any of the transformations. The use of mean percent SCC was not a good statistical manipulation as it changes the level of significance to a numerically higher figure. Even at a significance level of .05, five of any 100 items would tend to be correlated significantly with the criterion measure. This means that five or more of the 16 items yielded by the square root of mean percent SCC transformation were probably selected by chance. For these reasons the usefulness of the data are questionable.

The paper and pencil test and its internal consistency were analyzed and 44 items were found to correlate well with each other. These 44 items came from several different scales, as did the items in Ourlak's (1972) study. Durlak investigated several existing death anxiety scales and found a moderate correlation among them. The data gathered in the present study support his findings. The current

research was able to produce a large number of internally consistent items that could be used in future validation research.

Further, the test-retest correlation for the scale used in the present study was .89, a significant high correlation. Templer (1970) obtained a test-retest reliability coefficient of .83. It appears that paper and pencil measures of death anxiety have a considerable temporal reliability.

There is much research to indicate that GSR is effective as a measure of not only physiological arousal, but arousal to death-related stimulus words as well (Alexander, Colley, and Adlerstein, 1957; Alexander and Adlerstein, 1958; Meissner, 1958; and Templer, 1971). However, GSR is a more complex measure than it appears at first, and many variables can affect the results. Many of those variables which are discussed below were not controlled for in this study and may have had an adverse effect on the resulting data.

In all the studies mentioned above the death-related stimulus was presented through a phone receiver by an experimenter in the next room which was not done in the present study. It appears that the absence of the experimenter in those experiments might cause more relaxation and less spontaneous SCC which would have added to the baseline stability of the GSR data in the current study. Stern and Janes (in Prokasy and Raskin, 1973) also note that some researchers have had good results from using a couch, which was not available for this study, rather than a chair in order to induce greater relaxation. It appears that lying down allows greater relaxation and thus greater relative changes in GSR. Venables and Christie (in Prokasy and Raskin, 1973) also cite various studies which show

that room lighting, time of day, the subject's activities before the assessment period, length of the assessment session, room temperature, humidity, and drug intake can all affect changes in GSR. Of these variables, only temperature was observed and noted not to have changed more than five degrees during any student's assessment period in the present study. None of the other variables was controlled. Additionally, the type of measuring apparatus may have influenced the study's outcome. The measuring apparatus used was an older, tube-type device. This may have influenced the accuracy of the data obtained. GSR appears to be a worthwhile measure, but care must be taken to insure that extraneous factors do not affect the data.

An additional problem with GSR as an external criterion for validation is that there is little correlation between self-report measures and physiological measures (Goldfried and Sprafkin, 1974). Katkin (1965) found no correlation between GSR and the Taylor Manifest Anxiety Scale, a scale which is supposed to assess an individual's tendency to be anxious. Kallman and Feuerstein (1972) support this finding by noting that the low correlation between standard psychometric instruments and physiological measures may be low because biological responses are situation specific and can only be elicited in the presence of certain stimuli.

The use of more "natural" stimuli such as audio-visual and in-vivo techniques would probably be most arousing. Death-related stimuli which should be considered are slides or movies of death-related scenes, an actual "field experience of death" such as Thauber, et al. (1976) used, and tape- or disc-recorded verbal stimuli. Studies have shown that there is a correlation between physiological measures and

self-reports of anxiety when the stress inducer is a film (Pillard, Carpenter, and Atkinson, 1966; Mordkoff, 1965). The use of film stimuli as the arousing stimulus may increase the relation between physiologically measured anxiety and self-reported anxiety. A replication of Boyer's (1964) study using changes in GSR or another measure to assess arousal upon presentation of a death-related film would provide useful data.

The limited size and characteristics of the population studied may have had an adverse effect on the results of the study. It is not clear whether the relative lack of success of this study is replicable and realistic or applies only to that small population.

The limited nature of previous studies and the inherent drawbacks in physiological assessment point to the need for further research with physiological indices of death anxiety. To date only GSR, heart rate, and blood pressure have been used to assess death anxiety. It is also apparent that more research must be done to determine the usefulness of physiological indices of anxiety for the external validation of any kind of anxiety scale. No studies have yet been performed with any other indices of arousal than the above. The biofeedback literature would appear to be the best starting point for this research.

Future research would perhaps obtain different results if a number of individuals of both sexes chosen from a non-college population were used. Additional research might focus on the changes in physiological indices of arousal between individuals judged to be phobic and individuals judged to be non-phobic. Varying the characteristics of the population would also confirm the relatively great

internal consistency of the paper and pencil scale used in the current research.

Research into the behavioral assessment of death anxiety is in its infancy and deserves a great deal of further exploration. A replication of this study using the 44 items found to be internally consistent, with greater control of some of the above-mentioned extraneous variables and using audio-visual stimuli as an elicitor of physiologically measured death anxiety, is in order. Exploration of physiological measures of death anxiety is indicated, as is additional exploration of paper and pencil scales of death anxiety. This basic research would lend much to a replication of the current study.

Appendix A

### Items Derived from Original Scales

Items from Sarnoff and Corwin's (1959) scale: 1 through 3.

Items from Templer's (1970) Death Anxiety Scale: 1 through 15.

Items from Dickstein's (1972) Death Concern Scale: 1 through 30.

Items from Nelson and Nelson's (1975) scale: 1 through 20.

Items from Pandey's (1975) scale: 1 through 40.

Appendix B

## 102-Item Death Anxiety Scale with Instructions

Answer the following questions either agree (1) or disagree (2) according to which answer is correct for you. Please do not omit any questions. Be sure to erase thoroughly if you wish to change an answer. Please answer each question as honestly as you can.

1. I tend to worry about the death toll when I travel on highways.
2. I find it difficult to face up to the ultimate fact of death.
3. I find the preoccupation with death at funerals upsetting.
4. Seeing a dead body would not bother me.
5. I would want the best casket available so my body would be well protected.
6. I would not mind working with dying persons.
7. I would willingly talk to a dying person about his coming death if he wished to discuss it.
8. Children should be protected from death as long as possible.
9. Everyone in his right mind is afraid to die.
10. Viewing the body in an open casket is a good practice.
11. I am very much afraid to die.
12. The thought of death seldom enters my mind.
13. It doesn't make me nervous when people talk about death.
14. I dread to think about having to have an operation.
15. I am not at all afraid to die.
16. I am not particularly afraid of getting cancer.
17. The thought of death never bothers me.
18. I am often distressed by the way time flies so very rapidly.
19. I think dying persons should be in a hospital even if they

are not receiving any real treatment.

20. I like the thought of walking through a graveyard.
21. Everyone should fight against death as much as possible.
22. I could sleep in the room with a dead body.
23. I am afraid to be put to sleep for an operation.
24. Being alone in a completely dark room for several hours would be relaxing to me.
25. It does not make me nervous when people talk about death.
26. I would hate to visit a dying friend.
27. I could lie down in a coffin without experiencing any negative feelings.
28. I worry a lot about dying a painful death.
29. I think about my own death.
30. I think about the death of loved ones.
31. I think about dying young.
32. I think about the possibility of my being killed on a city street.
33. I have fantasies of my own death.
34. I think about death just before I go to sleep.
35. I think of how I would act if I knew I were to die within a given period of time.
36. I think about how my relatives would act and feel upon my death.
37. When I am sick I think about death.
38. When I am outside during a lightning storm I think about the possibility of being struck by lightning.
39. I think people should first become concerned about death when they are old.
40. I am much more concerned about death than those around me.

41. Death hardly concerns me.
42. My general outlook just doesn't allow for morbid thoughts.
43. I fear dying a painful death.
44. The subject of life after death troubles me greatly.
45. I am really scared of having a heart attack.
46. I often think about how short life really is.
47. I shudder when I hear people talking about a World War III.
48. The sight of a dead body is horrifying to me.
49. I feel that the future holds nothing for me to fear.
50. I worry about dying suddenly.
51. I find myself overburdened by life in general and wish I could escape by dying.
52. Funerals in general make me sad.
53. I believe that when the body dies, the soul dies also.
54. I laugh about death.
55. The thought of dying excites me.
56. I consider my life the most precious thing I have.
57. Death seems to be the only escape from worldly trouble.
58. I am depressed when I hear of somebody's death.
59. I strongly doubt that there is existence of any kind after death.
60. To me, death seems restful.
61. I think seriously about death.
62. I dislike going to funerals.
63. I feel that some parts of life are worse than death.
64. I believe that the soul dies, as does the body, in the case of suicide.
65. I feel I would like to die just to see what it is like.
66. Death seems far removed from my everyday life.

67. Corpses frighten me.
68. I feel that I could kill someone without feeling guilty.
69. The prospect of my own death arouses anxiety in me.
70. The prospect of my own death depresses me.
71. The prospect of the death of my loved ones arouses anxiety in me.
72. The knowledge that I will surely die does not in any way affect the conduct of my life.
73. I envision my own death as a painful, nightmarish experience.
74. I am afraid of being dead.
75. Many people become disturbed at the sight of a new grave but it does not bother me.
76. I am disturbed when I think about the shortness of life.
77. Thinking about death is a waste of time.
78. Death should not be regarded as a tragedy if it occurs after a productive life.
79. The inevitable death of man poses a serious challenge to the meaningfulness of human existence.
80. The death of the individual is ultimately beneficial because it facilitates change in society.
81. I have a desire to live on after death.
82. To me, death is the only way to reach a true union with God.
83. The death of a relative disturbs me.
84. I feel attracted to death.
85. I would rather die than be crippled.
86. I am aware of being afraid to die.
87. I feel attracted to places of death (e.g., cemeteries, scenes of serious accidents, etc.).

88. I feel that life really isn't worth living.
89. I am fairly indifferent towards death.
90. I feel certain that life is worth living.
91. I would rather endure any suffering than die.
92. I joke about death.
93. Being in funeral parlors makes me uneasy.
94. I visualize death as a state free from turmoil, a state of peace.
95. Death seems to me the most terrible thing that can happen to a person.
96. I think about death without any direct outside suggestion of it (e.g., reports of auto deaths, obituaries, etc.).
97. I envy people who have died.
98. I am afraid of dying alone.
99. I am afraid of dying in the dark.
100. I do not believe in death.
101. I have never been to a funeral.
102. A close relative of mine has died.

Appendix C

## Word List Read to Subjects

1. Bassoon
2. Initial
3. Funeral
4. Seal
5. Death
6. Moisture
7. Bird
8. Burial
9. Compromise
10. Suicide
11. Delay
12. Government
13. Integral
14. Murder
15. Nomination
16. Panel
17. Casket
18. Posture
19. Social
20. Cancer
21. Tilt
22. Cemetery
23. Vendor
24. Partition
25. Native
26. Eternity
27. Healthful
28. Generous
29. Discourage
30. Corpse

Appendix D

## Items Valid According to Mean Percent SCC

## Item

10. Viewing the body in an open casket is a good practice.
16. I am not particularly afraid of getting cancer.
18. I am often distressed by the way time flies so very rapidly.
21. Everyone should fight against death as much as possible.
32. I think about the possibility of my being killed on a city street.
36. I think about how my relatives would act and feel upon my death.
39. I think people should first become concerned about death when they are old.
41. Death hardly concerns me.
49. I feel that the future holds nothing for me to fear.
62. I dislike going to funerals.
63. I feel that some parts of life are worse than death.
68. I feel that I could kill someone without feeling guilty.
77. Thinking about death is a waste of time.
78. Death should not be regarded as a tragedy if it occurs after a productive life.
86. I am aware of being afraid to die.

Appendix E

## Items Valid According to Log Mean Percent SCC Transformation

## Item

2. I find it difficult to face up to the ultimate fact of death.
7. I would willingly talk to a dying person about his coming death if he wished to discuss it.
19. I think dying persons should be in a hospital even if they are are not receiving any real treatment.
21. Everyone should fight against death as much as possible.
36. I think about how my relatives would act and feel upon my death.
83. The death of a relative disturbs me.

Appendix F

## Items Valid According to Square Root Mean Percent SCC Transformation

## Item

8. Children should be protected from death as long as possible.
16. I am not particularly afraid of getting cancer.
18. I am often distressed by the way time flies so very rapidly.
21. Everyone should fight against death as much as possible.
23. I am afraid to be put to sleep for an operation.
36. I think about how my relatives would act and feel upon my death.
41. Death hardly concerns me.
42. My general outlook just doesn't allow for morbid thoughts.
49. I feel that the future holds nothing for me to fear.
50. I worry about dying suddenly.
56. I consider my life the most precious thing I have.
62. I dislike going to funerals.
68. I feel that I could kill someone without feeling guilty.
74. I am afraid of being dead.
78. Death should not be regarded as a tragedy if it occurs after a productive life.
86. I am aware of being afraid to die.

Appendix G

## Items Found to be Internally Consistent

- Item
3. I find the preoccupation with death at funerals upsetting.
  11. I am very much afraid to die.
  14. I dread to think about having to have an operation.
  18. I am often distressed by the way time flies so very rapidly.
  28. I worry a lot about dying a painful death.
  29. I think about my own death.
  31. I think about dying young.
  32. I think about the possibility of my being killed on a city street.
  33. I have fantasies of my own death.
  35. I think of how I would act if I knew I were to die within a given period of time.
  36. I think about how my relatives would act and feel upon my death.
  37. When I am sick I think about death.
  38. When I am outside during a lightning storm I think about the possibility of being struck by lightning.
  40. I am much more concerned about death than those around me.
  43. I fear dying a painful death.
  44. The subject of life after death troubles me greatly.
  45. I am really scared of having a heart attack.
  46. I often think about how short life really is.
  47. I shudder when I hear people talking about a World War III.
  48. The sight of a dead body is horrifying to me.
  50. I worry about dying suddenly.
  52. Funerals in general make me sad.
  55. The thought of dying excites me.

57. Death seems to be the only escape from worldly trouble.
58. I am depressed when I hear of somebody's death.
61. I think seriously about death.
65. I feel I would like to die just to see what it is like.
67. Corpses frighten me.
69. The prospect of my own death arouses anxiety in me.
70. The prospect of my own death depresses me.
73. I envision my own death as a painful, nightmarish experience.
74. I am afraid of being dead.
76. I am disturbed when I think about the shortness of life.
79. The inevitable death of man poses a serious challenge to the meaningfulness of human existence.
82. To me, death is the only way to reach a true union with God.
84. I feel attracted to death.
85. I would rather die than be crippled.
86. I am aware of being afraid to die.
87. I feel attracted to places of death (e.g., cemeteries, scenes of serious accidents, etc.).
90. I feel certain that life is worth living.
96. I think about death without any direct outside suggestion of it (e.g., reports of auto deaths, obituaries, etc.).
97. I envy people who have died.
98. I am afraid of dying alone.
101. I have never been to a funeral.

## References

- Alexander, I. E., Colley, R. S., and Adlerstein, M. Is Death a Matter of Indifference? The Journal of Psychology, 1957, 43, 277-283.
- Alexander, I. E., and Adlerstein, A. M. Affective Responses to the Concept of Death in a Population of Children and Early Adolescents. The Journal of Genetic Psychology. 1958, 93, 167-177.
- Anthony, S. The Child's Discovery of Death. New York: Harcourt, 1940.
- Bendig, A. W. The Development of the Short Form of the Manifest Anxiety Scale. Journal of Consulting Psychology, 1956, 20, 384.
- Boyer, J. I. The Construction and Partial Validation of a Scale for the Measurement of the Fear of Death. Dissertation Abstracts, 1964, 25, 2041.
- Byrne, D. The Repression-Sensitization Scale: Rationale, Reliability, and Validity. Journal of Personality, 1961, 29, 334-349.
- Collett L. J., and Lester, D. The Fear of Death and the Fear of Dying. The Journal of Psychology, 1969, 72, 179-181.
- Dickstein, L. S. Death Concern: Measurement and Correlates. Psychological Reports, 1972, 30, 563-571.
- Dickstein, L. S., and Blatt, S. J. Death Concern, Futurity, and Anticipation. The Journal of Consulting Psychology, 1966, 30, 11-17.
- Durlak, J. A. Measurement of the Fear of Death: An Examination of Some Existing Scales, Journal of Clinical Psychology, 1972, 28, 545-547.
- Durlak, J. A. Relationship Between Various Measures of Death Concern and Fear of Death. Journal of Consulting and Clinical Psychology, 1973, 41, 162.
- Edelberg, R. Electrical Properties of the Skin. In C. C. Brown (Ed.), Methods in Psychophysiology. Baltimore, Williams and Wilkins Co., 1967.
- Edelberg, R. Electrical Activity of the Skin: Its Measurement and Uses in Psychophysiology. In N. Greenfield and R. Sternbach (Eds.), Handbook of Psychophysiology. New York, Holt, Rinehart, and Winston, 1972.
- Engel, B. T. Response Specificity. In N. Greenfield and R. Sternbach (Eds.), Handbook of Psychophysiology. New York, Holt, Rinehart, and Winston, 1972.

- Goldfried, M. R., and Sprafkin, J. N. Behavioral Personality Assessment. Morristown, N. J., General Learning Press, 1974.
- Golding, S. L., Atwood, G. E., and Goodman, R. A. Anxiety and Two Cognitive Forms of Resistance to the Idea of Death. Psychological Reports, 1966, 18, 359-364.
- Handal, P. J. The Relationship Between Subjective Life Expectancy, Death Anxiety, and General Anxiety. The Journal of Clinical Psychology, 1969, 39-42.
- Handal, P. J., and Rychlak, J. F. Curvilinearity Between Dream Content and Death Anxiety and the Relationship of Death Anxiety to Repression-Sensitization. Journal of Abnormal Psychology, 1971, 77, 11-16.
- Hardt, D. V. Development of an Investigatory Instrument to Measure Attitudes Toward Death. Journal of School Health, 1975, 45, 96-99.
- Katkin, E. S. The Relationship Between Manifest Anxiety and Two Indices of Autonomic Response to Stress. Journal of Personality and Social Psychology, 1965, 2, 324-333.
- Kallman, W. M., and Feuerstein, M. Psychophysiological Procedures. In A. Ciminero, K. Calhoun, and H. Adams (Eds.), Handbook of Behavioral Assessment. New York, John Wiley and Sons, Inc., 1977.
- Lester, D. Fear of Death of Suicidal Persons. Psychological Reports, 1967, 20, 1077-1078.
- Lester, D. Experimental and Correlational Studies of the Fear of Death. Psychological Bulletin, 1967, 67, 27-36.
- Lester, D. Attitudes Toward Death and Suicide in a Non-Disturbed Population. Psychological Reports, 1971, 29, 386.
- Lester, D. Studies in Death Attitudes: Part Two. Psychological Reports, 1972, 30, 440.
- Livingston, P. B., and Zimet, C. N. Death Anxiety, Authoritarianism, and Choice of Specialty in Medical Students. The Journal of Nervous and Mental Disease, 1965, 140, 222-230.
- Martin, B. The Assessment of Anxiety by Physiological Behavioral Measures. Psychological Bulletin, 1961, 58, 234-255.
- Meissner, W. W. Affective Responses to Psychoanalytic Death Symbols. The Journal of Abnormal and Social Psychology, 1958, 56, 295-299.
- Mordkoff, A. M. The Relationship Between Psychological and Physiological Responses to Stress. Psychosomatic Medicine, 1965, 26, 135-150.

- Nelson, L. D., and Nelson, C. C. A Factor Analytic Inquiry Into the Multidimensionality of Death Anxiety. Omega, 1975, 6, 171-177.
- Pandey, R. E. Factor Analytic Study of Attitudes Toward Death Among College Students. International Journal of Social Psychiatry, 1974-1975, 21, 7-11.
- Pillard, R. C., Carpenter, J., Atkinson, K. W., and Fisher, S. Palmar Sweat Prints and Self-Ratings as Measures of Film-Induced Anxiety. Perceptual and Motor Skills, 1966, 23, 771-777.
- Raskin, D. C. Attention and Arousal. In Prokasy, W. F., and Raskin, D. C. (Eds.), Electrodermal Activity in Psychological Research, New York, Academic Press, 1973.
- Rapaport, D., Gill, M., and Schafer, R. Diagnostic Psychological Testing. Vol. 1. Chicago: Year Book, 1945.
- Ray, J. J., and Najman, J. Death Anxiety and Death Acceptance: A Preliminary Approach. Omega, 1974, 5, 311-315.
- Rhudick, P. J., and Dibner, A. S. Age, Personality, and Health Correlates of Death Concern in Normal and Aged Individuals. Journal of Gerontology, 1961, 16, 44-49.
- Sarnoff, I., and Corwin, S. M. Castration Anxiety and the Fear of Death. Journal of Personality, 1959, 27, 374-385.
- Schilder, P. The Attitudes of Murderers Toward Death. Journal of Abnormal and Social Psychology, 1936, 31, 348-363.
- Sidowski, M. Experimental Methods and Instrumentation in Psychology, New York, McGraw-Hill, 1966.
- Stern, J. A., and Janes, C. L. Personality and Psychopathology. In Prokasy, W. F., and Raskin, D. C. (Eds.), Electrodermal Activity in Psychological Research, New York, Academic Press, 1973.
- Templer, D. I. The Construction and Validation of a Death Anxiety Scale. The Journal of General Psychology, 1970, 82, 165-17.
- Templer, D. I. The Relationship Between Verbalized and Non-Verbalized Death Anxiety. The Journal of Genetic Psychology, 1971, 119, 211-214.
- Templer, D. I., and Ruff, C. F. Death Anxiety Scale Means, Standard Deviations, and Embedding. Psychological Reports, 1971, 29, 173-174.
- Thauberger, P. C., Thauberger, E. M., and Cleland, J. F. The Avoidance of the Ontological Confrontation of Death and Physiological Measures in a Field Setting Simulating a Death Atmosphere. Social Science and Medicine, 1976, 10, 527-533.

- Tolor, A., and Reznikoff, M. Relation Between Insight, Repression-Sensitization, Internal-External Control, and Death Anxiety. Journal of Abnormal Psychology, 1967, 72, 426-430.
- Venables, P. H., and Christie, M. J. Mechanisms, Instrumentation, Recording Techniques, and Quantification of Responses. In Prokasy, W. F., and Raskin, D. C. (Eds.), Electrodermal Activity in Psychological Research, New York, Academic Press, 1973.
- Wallace, M. Future Time Perspective in Schizophrenia. Journal of Abnormal and Social Psychology, 1956, 52, 240-245.
- Welsh, G. S. Factor Dimensions A & R. In G. S. Welsh and E. G. Dahlstrom (Eds.), Basic Readings in the MMPI in Psychology and Medicine. Minneapolis, Univ. Minnesota Press, 1956.
- Welsh, G. S. An Anxiety Index and an Internalization Ratio for the MMPI. In G. S. Welsh and E. G. Dahlstrom (Eds.), Basic Readings in the MMPI in Psychology and Medicine. Minneapolis, Univ. Minnesota Press, 1956.
- Zuckerman, M. The Development of an Affective Check List for the Measurement of Anxiety. Journal of Consulting Psychology, 1960, 24, 457-462.