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State and trait anxiety revisited

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Abstract

State and trait anxiety theory and assessment are reviewed. The person (trait anxiety) and the situation are important in determining levels of state anxiety. The facet of trait anxiety and the stressful situation must be congruent in order to evoke increases in state anxiety. The multidimensional interaction model is reviewed and empirical research is presented. A discussion of anxiety viewed in a dimensional versus a categorical conceptualization is presented. Misconceptions regarding the multidimensionality of trait anxiety are discussed. Finally, it is concluded that anxiety should be viewed as a dimensional construct and that the multidimensionality of state and trait anxiety should be considered in both theory and assessment. © 2001 Elsevier Science Inc. All rights reserved.

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1. Introduction

Anxiety is a pervasive variable that permeates Western civilization and theory and practice in psychology and psychiatry. It is a core construct in all personality theories involving the self-concept. The twentieth century has been labeled the age of anxiety by authors (Camus, 1947), poets (W.H. Auden, 1947), musicians (Leonard Bernstein, 1949), and psychologists (Rollo May, 1977). If this is true for the 20th century, it will probably be more so with all the ambiguities and uncertainties that our society entails. Anxiety has a long history but a short past.

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Cicero (BCE, Before the Common Era, cited in Lewis, 1970) distinguished between *anxietas* (an abiding predisposition) and *angor* (a transitory emotional outburst or response). The concept of fear is apparent in ancient Egyptian hieroglyphics (Cohen, 1969).

The concept of anxiety actually originated in the Classical Greek period (McReynolds, 1975) and conceptually developed in parallel to the self-concept and self-awareness in Western thought. Anxiety "has been influenced by the cultural milieu in terms of both the situational encounters that elicit anxiety, and the manner and style in which the experience of anxiety is perceived and understood" (Endler, 1997, p. 137). Of course, anxiety was at the core of Freud's (1920) theories.

Anxiety is an ambiguous construct because it has been conceptualized in many ways. Aubrey Lewis (1970) defined anxiety "as an emotional state, with the subjectively experienced quality of fear as a closely related emotion" (p. 77). Lewis points out that the emotion is unpleasant, negative, is out of proportion to the threat, is future directed, and involves both subjective aspects and manifest bodily disturbances. Anxiety has been defined as a trait, a state, a stimulus, a response, a drive, and as a motive.

In 1966, Spielberger suggested that conceptual anxiety could be introduced to multifaceted definitions of anxiety by distinguishing trait anxiety from state anxiety. Spielberger defined trait anxiety as an individual's predisposition to respond, and state anxiety as a transitory emotion characterized by physiological arousal and consciously perceived feelings of apprehension, dread, and tension. The distinction between trait and state anxiety is analogous to the distinction between potential and kinetic energy.

Since the mid-sixties, the trait–state distinction has received wide recognition in the psychological literature (cf., Dreger, 1985; Endler, 1983, 1997; Spielberger, 1985). The state–trait anxiety distinction and the reevaluation of models of personality have contributed to the interaction model of personality. The state–trait distinction has gained prominence within the interaction model.

Let us first discuss Freudian conceptualizations of anxiety, then discuss the trait–state distinction in more detail, and then discuss the trait–state distinction within the context of the multidimensional interaction model of anxiety (Endler, 1997). We will also discuss empirical research relevant to this model and distinctions between normal (psychometric) anxiety and diagnostic classification of psychopathological anxiety.

2. Freudian conceptions of anxiety

Freud (1924) distinguished among objective or reality anxiety, neurotic anxiety, and moral anxiety. Objective or reality anxiety referred to the fear of a stimulus that was objectively dangerous (i.e., a fire or a hurricane, or someone pointing a gun at you). Neurotic anxiety referred to an id versus

ego conflict, moral anxiety to an id versus superego conflict. According to Reiss (1997), "Neurotic anxiety is a signal that unconscious material is threatening to enter consciousness, whereas objective anxiety is indicated by realistic dangers, such as a physical attack or a robbery" (p. 202). Moral anxiety involves a conflict between id impulses and superego prohibitions; one's conscience is in conflict with one's unconscious desires. For objective anxiety the fear is proportionate to the objective threat; for neurotic and moral anxiety, the reactions are not. According to Reiss, "the psychodynamic concept of neurotic anxiety implies presence of trait anxiety" (p. 202).

3. Traits and consistency

The classical definition of trait (Allport, 1937), (particularly trait anxiety), implies a generalized and enduring predisposition to react to many situations in a consistent manner. Trait theorists believe in individual differences. Although no one accepts the concept of absolute consistency (a person behaves at the same level of anxiety across all situations), most trait theorists believe in relative consistency (the rank order of persons with respect to anxiety is consistent across all situations). Others (Endler, 1983, 1988, 1993; Magnusson & Endler, 1997) postulate the notion of coherence, namely persons behave in a lawfully and coherent manner without being consistent in the relative or absolute sense.

4. Multidimensionality of state and trait anxiety

Whereas Freud (1924), Spielberger (1983, 1985) and Taylor (1953) conceptualize trait anxiety as being unidimensional, and Spielberger (1985) conceptualizes state anxiety as unidimensional, it is our contention (Endler, 1997; Endler, Edwards, & Vitelli, 1991; Endler, Edwards, Vitelli, & Parker, 1989; Endler, Parker, Bagby, & Cox, 1991) to conceptualize and empirically demonstrate that both trait and state anxiety are multidimensional constructs. There are at least four facets of trait anxiety: social evaluation, physical danger, ambiguous, and daily routines; and two facets of state anxiety: cognitive-worry and autonomic-emotional (see Fig. 1). Prior to discussing the multidimensional interaction model of anxiety, let us distinguish psychometric from diagnostic assessments (DSM-IV) of anxiety.

5. Psychometric measures vs. DSM-IV assessments of anxiety

The medical model is of a typological or categorical nature as is exemplified in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition

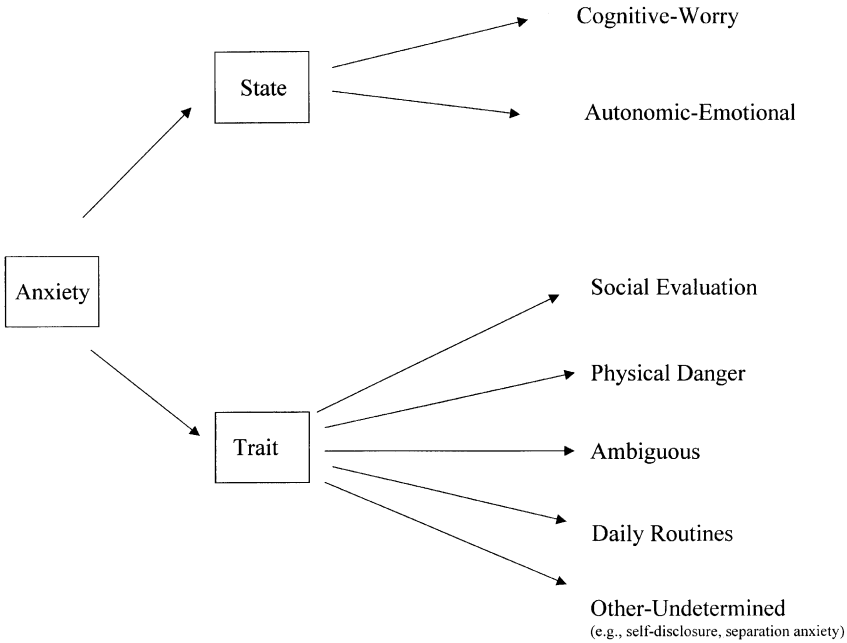

Fig. 1. The multidimensionality of state and trait anxiety.

(DSM-IV; American Psychiatric Association, 1994). There are 12 categories of anxiety disorders in this fourth edition. To be diagnosed with an anxiety disorder, a patient must meet a certain number of the criteria for that disorder. If the patient falls short (i.e., does not meet enough of the criteria) the patient is not diagnosed with the anxiety disorder.

The psychological model is of a dimensional nature. Anxiety and depression, for example, are viewed as existing on a continuum. People experience varying amounts of anxiety. Those at the upper end of the continuum are affected in their social and/or emotional and/or occupational functioning. This view is consistent with a psychometric approach to the assessment of anxiety. Spielberger (1983) developed the State–Trait Anxiety Inventory (STAI) which assesses both state and trait anxiety as unidimensional. Endler et al. (1991) developed the Endler Multidimensional Anxiety Scales (EMAS) which assess both state and trait anxiety as multidimensional and also assess the perception of the stressful situation. The state scale consists of a cognitive-worry and an autonomic-emotional component. The trait scales assess the predisposition to experience anxiety in the following situations: social evaluation, physical danger, ambiguous, and daily routines. There are also scales which assess the degree to which one experiences the symptoms of particular anxiety disorders as outlined in the DSM-IV (American Psychiatric Association, 1994).

6. Continuum vs. qualitative difference

Anxiety can be conceptualized as lying on a continuum. One end of the continuum represents a low amount of anxiety, the middle represents a higher level of anxiety and the other end of the continuum represents a severe level of anxiety. Anxiety disorders are at the end representing a severe level of anxiety. Another view of anxiety is not in line with a continuum, but rather anxiety disorders are viewed as being qualitatively different from a normal level of anxiety. The debate between the continuity hypothesis and the qualitative difference hypothesis is not simply limited to anxiety, but occurs in many areas of psychology and psychiatry. This issue has been raised with depression and, as well, quite extensively with personality disorders (Axis II disorders from the DSM-IV).

It was common for proponents of the categorical (or qualitative difference) viewpoint to demonstrate that symptoms for a disorder were bimodally distributed (Everitt, 1981; Fleiss, 1972). The existence of a bimodal distribution was taken as sufficient (but not necessary) evidence that a disorder was qualitatively different from similar symptoms experienced at a lower level. The underlying assumption was thus that symptoms of a dimensional illness could not be distributed in such a manner. Grayson (1987) showed that, while a categorical illness would necessarily have a bimodal distribution, a dimensional illness could also be bimodally distributed. Thus, a bimodal distribution of symptoms that represent a clinical disorder is not sufficient evidence to conclude that the disorder is qualitatively different.

There is a growing body of literature in the personality disorder field showing that disordered personality lies on a continuum with normal personality (Livesley, Schroeder, Jackson, & Jang, 1994). Empirically, scores on personality inventories for general population participants and for disordered personality participants have been found to be continuous, with no evidence of bimodality (Livesley, Jackson, & Schroeder, 1992). Furthermore, ratings of Axis II criteria made on psychiatric patients and relatives of psychiatric patients are supportive of a dimensional model (Zimmerman & Coryell, 1990). Additionally, there is considerable overlap among the criteria for the diagnosis of the various personality disorders, partially leading to high comorbidity rates. The high comorbidity rates within the personality disorders and also high comorbidity between Axis I disorders and Axis II disorders is often taken as evidence of the dimensional nature of DSM diagnoses (Livesley et al., 1994; Widiger, 1991).

If personality disorders are qualitatively different from normal personalities, one would expect impairment in functioning only at the personality disorder level. Nakao et al. (1992) assessed functional impairment in patients who had been diagnosed with a personality disorder and participants who did not meet the diagnostic requirements. They found that impairment was distributed in a continuous nature. It was not the case that only those that had been diagnosed experienced impairment in functioning, thus providing evidence for the dimen-

sional conceptualization. Additional evidence comes from the significant relationships between measures of normal personality such as the NEO Personality Inventory-Revised (Costa & McCrae, 1992) or the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1994) and measures of personality disorder (Jang, Livesley, & Vernon, 1999; Livesley et al., 1994). Finally, studies of behavioral genetics have shown similar heritability rates for both normal personality traits and disordered personality traits (Plomin, Chuiper, & Loehlin, 1990). Thus, evidence in the personality disorder field points to the conclusion that a dimensional approach is most fitting and that disordered personalities are "maladaptive, extreme variants of common personality traits" (Widiger, 1998, p. 865).

This research has shown that a dimensional approach to personality disorders is more appropriate than a categorical system. Widiger (1993) suggested an alternative approach based on the five-factor model of personality and outlined the main arguments in favor of remaining with a categorical model. These arguments generalize outside of the personality disorder area, and are relevant to debates in other areas (i.e., anxiety research) surrounding categorical versus dimensional approaches. The categorical approach is familiar and traditional in psychiatry. Categories are helpful in communication and have a simplifying quality: a patient either has a disorder or a patient does not have a disorder. The dimensional approach results in more information. Furthermore, clinical decisions regarding treatment are generally made with respect to a binary choice as to whether or not a patient has a disorder.

Like personality disorders, the continuity of both depression and anxiety has also been of question and therefore researched. Depression and anxiety are separate constructs but they do co-occur (Endler, Denisoff, & Rutherford, 1998). For depression, the main issue is whether there is a linear relationship between mild, moderate, and severe depression. Moreover, does mild depression found and studied in university students belong on the same continuum as severe clinically diagnosed depression? Coyne (1994) presented the issue that comparing clinical depression with the mild form of depression found in students may be a trivialization of a serious disorder. Flett, Vredenburg, and Krames (1997) tested the continuity hypothesis for depression in four domains: phenomenological, typological, etiological, and psychometric. Overall, most of the evidence supported a continuum model (Flett et al., 1997). Research in the psychometric area provided support for discontinuity, however, Flett et al. point out that this result may have been due to the specific measures used to assess depression in the various studies.

These issues are relevant for anxiety as well. There are positive features of anxiety. Anxiety acts as a warning signal for impending danger or harm. Anxiety can also induce motivation. Some anxiety is therefore adaptive and this (low) level of anxiety represents one end of the continuum. A moderate level of anxiety represents the middle of the continuum. Finally, the various anxiety disorders (representing a severe amount of anxiety that interferes with daily

functioning and is highly maladaptive) represent the other (high) end of the continuum. Cox and Endler (1991) have discussed a panic–anxiety continuum. Clinical and nonclinical panickers experience a qualitatively similar form of anxiety. Research on anxiety based on a diagnostic or categorical approach artificially divides presence and absence of an anxiety disorder and therefore does not take into account the full spectrum of the anxiety variable (Brown, Chorpita, & Barlow, 1998).

7. Assessment of trait anxiety

Endler, Hunt, and Rosenstein (1962) presented an analysis of trait ratings and then applied this analysis specifically to anxiety. People generally do not agree as to the degree which any given trait is exhibited by an individual. Impressions are based on the types of responses an individual displays and the situations in which the individual makes these responses. The personality of the rater also plays a role. A rater is biased by his or her own view of the trait in question. Furthermore, the sample of situations that a rater views the individual in is also an important factor.

For anxiety, it is important to consider anxious responses and situations that would evoke them (Endler et al., 1962). Once those are determined, then one has to consider what would be rated as a higher level of anxiety. Endler et al. (1962) outlined five variables that would be relevant, although not an exhaustive list. It may be that anxious responses are displayed in a greater proportion and in a greater variety of situations. It may be that the number of anxious responses would be the criterion to determine the level of trait anxiety or alternatively, the intensity of the anxious responses. Another variable that may be considered is the duration of the anxious responses. Finally, the fearfulness of the situations which evoke the anxious responses may also be considered in a determination of trait anxiety.

The Situation–Response Inventory of Anxiousness was based on this type of analysis (Endler et al., 1962; Shedletsky & Endler, 1974). This measure provided descriptions of 11 situations for individuals to respond to. A subsequent factor analysis yielded three factors: interpersonal situations, personal danger situations, and ambiguous situations. These now represent three of the four facets assessed by the EMAS–Trait scales. Endler and Okada (1975) developed the Situation–Response Inventory of General Trait Anxiousness to assess trait anxiety in the three situations stated above, plus a fourth situation to assess anxiousness in innocuous or daily routine situations. This was subsequently revised, with the addition of a social evaluation dimension which was later determined to be tapping a similar construct as the interpersonal situations dimension. The interpersonal situations facet was therefore dropped, thus leaving the four facets of trait anxiety currently assessed by the EMAS (Endler et al., 1991; see Fig. 1).

8. Assessment of state anxiety

Hoy and Endler (1969) developed the Behavioral Reactions Questionnaire to assess state anxiety. A factor analysis revealed that state anxiety is multidimensional. This, along with current theory indicating the multidimensionality of state anxiety (Sarason, 1975), led to the development of the Present Affect Reactions Questionnaire (Endler, 1980). This inventory was developed to assess the two components of state anxiety that currently are assessed by the EMAS, namely, cognitive-worry and autonomic-emotional (see Fig. 1).

Additionally, it is important to assess anxiety using more than one method. In addition to self-report measures, one can use behavioral assessment techniques, physiological measures, and ratings by others (Magnusson & Endler, 1977).

9. Multidimensional interaction model of anxiety

Endler (1983) discussed the interaction model of personality which posits that personality is a function of the interaction of both person and situation variables. Behavior cannot be independent of heredity and behavior also cannot be independent of environment (Endler, 1989; Endler & Parker, 1992). The interaction model of anxiety is a subset of the interaction model of personality. Within this model, it is assumed that both state anxiety (A-State) and trait anxiety (A-Trait) are multidimensional. For a person by situation interaction to induce an increase in A-State, the threatening situation must be congruent with the facet of A-Trait being investigated. For example, physical danger A-Trait would interact with a physical danger situation in increasing levels of A-State. Physical danger A-Trait would not be expected to interact, for example, with a social evaluation situation. In other words, interactions are not expected when the stressful situation is not congruent with the facet of A-Trait under investigation.

There have been many empirical tests of the interaction model of anxiety, both in laboratory settings and in real-life situations (Endler, 1997). For example, Endler, Crooks, and Parker (1992) assessed the interaction model in a group of military personnel. The facet of A-Trait being investigated was physical danger. The military personnel were administrated the EMAS-S and EMAS-T in a neutral situation. They were then given the EMAS-S and the EMAS-P just prior to parachute jumping. The EMAS-P is a short questionnaire that is included to get a sense of the participants' evaluation of the stressful situation. There was a significant person by situation interaction when situational physical danger was congruent with physical danger A-Trait. No interactions occurred when the person and situation variables were not congruent (e.g., social evaluation, ambiguous, and daily routines).

Similar tests of the interaction model of anxiety have been carried out for all of the facets of A-Trait. There have been studies evaluating the interaction model of anxiety in social evaluation situations and ambiguous situations.

Trotter and Endler (1999) assessed the interaction model in a competitive equestrian situation in a sample of adolescent girls. The girls were administered the EMAS–State, Trait and Perception scales during practice and then again during preparation for a horse jumping competition. Based on discussions with participants and their responses on the Perception scale, the situation was determined to be a social evaluation situation. There was a significant social evaluation A-Trait by situation (i.e., social evaluation situation) interaction. No interactions occurred when the Person (A-Trait) and the Situation (A-State) variables were not congruent.

Another test of the interaction model of anxiety was conducted with an ambiguous situation. Flett, Endler, and Fairlie (1999) administered the EMAS–State, Trait and Perceptions scales to students at a large Canadian University in October of 1995, when the province of Quebec was threatening separation from Canada. They were administered the scales on the day of the referendum (October 30, 1995), and then 1 week later they were administered only the State and Perception measures in which the situation was an upcoming exam. The students perceived the referendum as being high in ambiguity. There was a significant interaction between Ambiguous A-Trait and the perception of ambiguous threat in inducing increases in level of A-State. Once again, no interactions occurred when the person by situation variables were not congruent.

Over 80% of these tests have provided support for the interaction model of anxiety (Endler, 1997). That is, differential hypotheses were confirmed in over 80% of the studies that have been conducted so far to test the interaction model of anxiety.

10. Interaction model of stress, anxiety, and coping

In the early 1990s, the interaction model was extended beyond anxiety to integrate the processes of stress, anxiety, and coping. The term stress originated in the field of physics, and was used to refer to a mechanical force acting on a body and strain was the reaction to stress (Harris & Levey, 1975). The term stress is also used in physiology. Situations that are perceived as threatening result in physiological arousal. This fight–flight response is adaptive because it acts as a warning signal for the organism to respond (Cannon, 1932). Selye (1976) defined stress as a "non specific response of the body to any demand" (p. 472). Lazarus (1976) suggested that stress occurs when demands placed on an individual exceed his or her resources.

Coping can be viewed as a response to external stressful events (Billings & Moos, 1981; Folkman & Lazarus, 1980). A coping style is a characteristic manner of responding to stressful situations (Endler & Parker, 1994). There are three basic coping styles: task-oriented coping, emotion-oriented coping, and avoidance-oriented coping (Endler & Parker, 1999). Task-oriented coping refers to focussing on solving the problem or attempting to change the situation.

Emotion-oriented coping refers to a person orientation and can include such responses as emotional responses or self-preoccupation (Billings & Moos, 1981; Endler & Parker, 1999; Folkman & Lazarus, 1980). Avoidance-oriented coping refers to avoiding the stressful situation by seeking social support (i.e., social diversion) or distracting oneself with other tasks.

The multidimensional interaction model of stress, anxiety, and coping is process-oriented and involves both person variables and situation variables (Endler, 1997). Person variables include such components as trait anxiety (and other traits), vulnerability, physiological arousal, and other biological variables. Situation variables include stressful events, crises, traumas, and physical environments. Person variables can interact with one another. Situation variables can interact with one another. Person variables interact with situation variables leading to a perception of threat. This perception of threat leads to changes in state anxiety (and there is also feedback to both person and situation variables). The change in state anxiety then leads to reactions such as coping responses, defenses, illness, behavioral, and biological reactions (Endler, 1997). These reactions also feedback to person and situation variables.

More recently, there has been a focus on coping with illness. This is consistent with a focus of research on the consequences of anxiety (Endler, 1997). People use four main strategies for coping with health problems: Distraction, Palliative, Instrumental, and Emotional Preoccupation (Endler, Parker, & Summerfeldt, 1998). Distraction refers to strategies that take one's mind off the illness. Palliative coping refers to self-soothing strategies that are aimed at alleviating the unpleasant aspects of the illness. Instrumental coping involves task-oriented responses such as actively seeking out information about the health problem. Emotional Preoccupation coping is affective in nature and involves fixation on the emotional consequences of the health problem. The use of emotion-oriented coping has been found to be positively related to psychological distress, such as state anxiety, while the use of instrumental coping has been related to lower levels of state anxiety (for a review see Endler, Parker, & Summerfeldt, 1993).

11. Anxiety sensitivity and trait anxiety

Reiss (1997) compared anxiety sensitivity with trait anxiety. Anxiety sensitivity is defined as "a specific propensity to respond fearfully to the sensations of anxiety" (p. 201). Reiss, Peterson, Gursky, and McNally (1986) developed a self-report inventory, the Anxiety Sensitivity Index, to measure the construct fear of anxiety. Reiss differentiates trait anxiety as future anxiety that is based on anxiety from the past, whereas, anxiety sensitivity assesses beliefs about the consequences of anxiety. However, there is no empirical evidence for his differentiation. Reiss does not differentiate anxiety sensitivity from state anxiety, nor take into account the multidimensionality of both state and trait anxiety which has been in the literature for over a quarter of a century. Others believe that the anxiety

sensitivity construct is no different from trait anxiety (Lilienfeld, Turner, & Jacob, 1996); however this is an oversimplification which ignores the multidimensionality of trait anxiety.

Freud (1920) distinguished fear from anxiety; however, most researchers do not make this distinction. Reiss (1997), based on correlational data, distinguishes between anxiety and fear. He concludes that because fear and anxiety are only moderately related, these constructs are distinct; however, the difference between them is not explicitly defined. Spielberger does not differentiate between anxiety and fear. Reiss equates Spielberger's definition of trait anxiety with neuroticism, which is an oversimplification, and Reiss also states that Spielberger's conceptualization of state and trait anxiety is not based on observables. As just one example of an observable, Hodges (1968) investigated psychological threat and physical threat for participants who differed in levels of trait anxiety. It was found that participants who were high in trait anxiety responded with higher levels of state anxiety under the psychological threat situation but there was no relationship between trait and state anxiety for the physical threat situation. Spielberger's (1966, 1983) research program is based on empirical research.

Finally, Reiss (1997) concludes, "The concept of trait anxiety requires an objective specification of the circumstances under which the inferred propensity for state anxiety can be observed" (p. 211). The facets of trait anxiety are a specification of the circumstances (Endler, 1997; Endler et al., 1991). The multidimensional interaction model of anxiety explicitly discusses the relationship between state and trait anxiety and the importance of the situation. The EMAS scales were designed with this conceptualization of state and trait anxiety (Endler et al., 1991). An individual who is high on a specific facet of trait anxiety, when in a stressful situation that is congruent with that facet of trait anxiety, the individual's level of state anxiety will increase. There will be no increase in state anxiety if that individual is not in a stressful situation. Thus, the relationship between state and trait anxiety is dependent upon both the person and the situation.

12. Facets of trait anxiety

There are at least four facets of trait anxiety. The EMAS–Trait assesses social evaluation, physical danger, ambiguous, and daily routines trait anxiety (see Fig. 1; Endler et al., 1991). Social evaluation trait anxiety measures an individual's predisposition to have increases in state anxiety in situations where one is being observed or evaluated by others. Physical danger trait anxiety measures an individual's predisposition to respond with increases in state anxiety in situations where one may be physically hurt. Ambiguous trait anxiety relates to situations that are novel to an individual. Finally, daily routines trait anxiety is related to situations that involve an individual's daily routines and are innocuous.

Unlike state anxiety, the subscales of trait anxiety cannot be summed to get a general trait anxiety score. This concept has been previously misunderstood

(Endler & Parker, 1990). Researchers have summed the four trait scales in order to obtain a general trait anxiety score (Davis & Cowles, 1989). The EMAS–Trait scales do *not* assess a global trait anxiety construct. The facets of trait anxiety are to be interpreted separately.

Research is currently under way to expand the multidimensionality of the Trait scale to include other facets of trait anxiety. Separation anxiety and personal self-disclosure are the two areas that are currently being investigated. DSM-IV states that separation anxiety is rare in adults and does not specify criteria for diagnosis. Manicavasagar, Silove, and Curtis (1997), however, found that this disorder does occur in adults and presented a preliminary study to identify the symptoms of separation anxiety in adults. Their study was limited in that it used a media sampling technique in which they placed advertisements looking for people "whose major concerns were anxieties about separation from key attachment figures" (p. 275). Nevertheless, it appears that separation anxiety represents an additional facet of trait anxiety. In their study, two-thirds of participants reported that symptoms began in childhood and then reappeared later in life during stressful times or when there was a threat of loss, which is consistent with the interaction model of anxiety. Self-disclosure is the other area that we are currently researching. People are comfortable with varying levels of self-disclosure. A review of the literature has indicated that revealing secrets is generally advantageous; however, the situation should be taken into account before making that determination (Kelly & McKillop, 1996).

13. Conclusions

It is important to take into account the multidimensionality of both state and trait anxiety. Levels of state anxiety are dependent upon both the person (trait anxiety) and the stressful situation. The situation must be congruent with the dimension of trait anxiety in order to evoke increases in state anxiety. Four facets of trait anxiety have been previously presented and can be assessed with the EMAS (Endler et al., 1991). We are currently investigating the addition of two facets: separation anxiety and self-disclosure. It is also important to view and research anxiety as a dimensional, rather than a categorical construct. Furthermore, it is important to assess anxiety using various techniques. Beyond self-report, one can use behavioral and physiological measures and ratings by others. Finally, future research in this field can focus on longitudinal, genetic, and cross-cultural studies with clinical populations, especially those with anxiety disorders.

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References

Allport, G. W. (1937). *Personality.* New York: Holt.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders (DSM-IV)* (4th ed.). Washington, DC: American Psychiatric Association.

Auden, W. H. (1947). *The age of anxiety: A baroque eclogue.* New York: Random House.

Bernstein, L. (1949). *Second symphony, "the age of anxiety"* (Sheet music published in 1979 by Boosey and Hawkes, New York).

Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources among adults with unipolar depression. *Journal of Personality and Social Psychology*, *46*, 877–891.

Brown, T. A., Chorpita, B. F., & Barlow, D. H. (1998). Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology*, *107*, 179–192.

Camus, A. (1947). *La peste*. Paris: Gallimard. (English translation. *The plaque*. Translated by S. Gilbert, 1948).

Cannon, W. B. (1932). *The wisdom of body.* New York: Norton.

Cohen, J. (1969). *Personality dynamics*. Chicago, IL: Rand McNally.

Costa, P. T. Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO five-factor inventory (NEO-FFI): professional manual*. Odessa, FL: Psychological Assessment Resources.

Coyne, J. C. (1994). Self-reported distress: analog or ersatz depression? *Psychological Bulletin*, *116*, 29–45.

Cox, B. J., & Endler, N. S. (1991). Clinical and non-clinical panic attacks: an empirical test of a panic–anxiety continuum. *Journal of Anxiety Disorders*, *5*, 21–34.

Davis, C., & Cowles, M. (1989). Automated psychological testing: method of administration, need for approval, and measures of anxiety. *Educational and Psychological Measurement*, *49*, 311–320.

Dreger, R. M. (1985). Real and random P-technique analyses of the State-Trait Anxiety Inventory and their relation to R-technique analyses. *The Southern Psychologist, 2*, 17–28.

Endler, N. S. (1980). Person–situation interaction and anxiety. In: I. L. Kutash, & L. B. Schlesinger (Eds.), *Handbook on stress and anxiety: contemporary knowledge, theory and treatment* (pp. 361–372). Hillsdale, NJ: Lawrence Erlbaum Associates.

Endler, N. S. (1983). Interactionism: a personality model, but not yet a theory. In: M. M. Page (Ed.), *Nebraska Symposium on Motivation 1982: personality — current theory and research* (pp. 155–200). Lincoln, NE: University of Nebraska Press.

Endler, N. S. (1988). Interactionism revisited: A discussion of "On the Role of Situations in Personality Research". In: S. G. Cole, & R. G. Demaree (Eds.), *Applications of interactionist psychology. Essays in honor of Saul B Sells,* (pp. 179–188) Hillsdale, NJ: Lawrence Erlbaum Associates.

Endler, N. S. (1989). The temperamental nature of personality. *European Journal of Personality*, *3*, 151–165.

Endler, N. S. (1993). Personality: an interactional perspective. In: P. J. Hettema, & I. J. Deary (Eds.), *Foundations of personality* (pp. 251–268). Dordecht, the Netherlands: Kluwer Academic.

Endler, N. S. (1997). Stress, anxiety and coping: the multidimensional interaction model. *Canadian Psychology*, *38*, 136–153.

Endler, N. S., Crooks, D. S., & Parker, J. D. A. (1992). The interaction model of anxiety: An empirical test in a parachute jumping situation. *Anxiety, Stress and Coping, 5,* 301–311.

Endler, N. S., Denisoff, E., & Rutherford, A. (1998). Anxiety and depression: evidence for the

differentiation of commonly co-occurring constructs. *Journal of Psychopathology and Behavioral Assessment*, *20*, 149–171.

Endler, N. S., Edwards, J. M., & Vitelli, R. (1991). *Endler Multidimensional Anxiety Scales (EMAS): manual*. Los Angeles, CA: Western Psychological Services.

Endler, N. S., Parker, J. D. A., Bagby, R. M., & Cox, B. J. (1991). Multidimensionality of state and trait anxiety: Factor structure of the Endler Multidimensional Anxiety Scales. *Journal of Personality and Social Psychology, 60,* 919–926.

Endler, N. S., Edwards, J. M., Vitelli, R., & Parker, J. D. A. (1989). Assessment of state and trait anxiety: Endler Multidimensional Anxiety Scales. *Anxiety Research: An International Journal*, *2*, 1–14.

Endler, N. S., Hunt, J. McV., & Rosenstein, A. J. (1962). An S–R inventory of anxiousness. *Psychological Mongraphs: General and Applied*, *76*, 1–33.

Endler, N. S., & Okada, M. (1975). A multidimensional measure of trait anxiety: the S–R inventory of general trait anxiousness. *Journal of Consulting and Clinical Psychology*, *43*, 319–329.

Endler, N. S., & Parker, J. D. A. (1999). *Coping inventory for stressful situations (CISS): Manual* (2nd ed.). Toronto, Canada: Multi-Health Systems.

Endler, N. S., & Parker, J. D. A. (1990). The analysis of a construct that does not exist: misunderstanding the multidimensional nature of trait anxiety. *Educational and Psychological Measurement*, *50*, 265–271.

Endler, N. S., & Parker, J. D. A. (1992). Interactionism revisited: reflections on the continuing crisis in the personality area. *European Journal of Personality*, *6*, 177–198.

Endler, N. S., & Parker, J. D. A. (1994). Assessment of multidimensional coping: task, emotion, and avoidance strategies. *Psychological Assessment*, *6*, 50–60.

Endler, N. S., Parker, J. D. A., & Summerfeldt, L. J. (1993). Coping with health problems: conceptual and methodological issues. *Canadian Journal of Behavioural Science*, *25*, 384–399.

Endler, N. S., Parker, J. D. A., & Summerfeldt, L. J. (1998). Coping with health problems: developing a reliable and valid multidimensional measure. *Psychological Assessment*, *10*, 195–205.

Everitt, B. S. (1981). Bimodality and the nature of depression. *British Journal of Psychiatry*, *117*, 241–250.

Eysenck, H. J., & Eysenck, S. B. G. (1994). *Manual of the Eysenck personality questionnaire*. San Diego, CA: Educational and Industrial Testing Service.

Fleiss, J. L. (1972). Classification of the depressive disorders by numerical typology. *Journal of Psychiatric Research*, *9*, 141–153.

Flett, G. L., Endler, N. S., & Fairlie, P. (1999). The interaction model of anxiety and the threat of Quebec's separation from Canada. *Journal of Personality and Social Psychology*, *76*, 143–150.

Flett, G. L., Vredenburg, K., & Krames, L. (1997). The continuity of depression in clinical and nonclinical samples. *Psychological Bulletin*, *121*, 395–416.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, *21*, 219–239.

Freud, S. (1920). *General introduction to psychoanalysis*. New York: Boni & Liveright.

Freud, S. (1924). *A general introduction to psychoanalysis*. New York: Washington Square Press.

Grayson, D. A. (1987). Can categorical and dimensional views of psychiatric illness be distinguished? *British Journal of Psychiatry*, *151*, 355–361.

W. H., Harris, J. S. Levey (Eds.) (1975). *The new Columbia encyclopedia* (4th ed.). New York: Columbia Univ. Press.

Hodges, W. F. (1968). Effects of ego threat and threat of pain on state anxiety. *Journal of Personality and Social Psychology*, *8*, 364–372.

Hoy, E., & Endler, N. S. (1969). Reported anxiousness and two types of stimulus incongruity. *Canadian Journal of Behavioral Science*, *1*, 207–214.

Jang, K. L., Livesley, W. J., & Vernon, P. A. (1999). The relationship between Eysenck's P–E–N model of personality and traits delineating personality disorder. *Personality and Individual Differences*, *26*, 121–128.

Kelly, A. E., & McKillop, K. J. (1996). Consequences of revealing personal secrets. *Psychological Bulletin*, *120*, 450–465.

Lazarus, R. S. (1976). *Patterns of adjustment* (3rd ed.). New York: McGraw-Hill.

Lewis, A. (1970). The ambiguous word "anxiety". *International Journal of Psychiatry*, *9*, 62–79.

Lilienfeld, S. O., Turner, S. M., & Jacob, R. G. (1996). Further comment on the nature and measurement of anxiety sensitivity: a reply to Taylor (1996). *Journal of Anxiety Disorders*, *10*, 411–424.

Livesley, W. J., Jackson, D. N., & Schroeder, M. L. (1992). Factorial structure of traits delineating personality disorders in clinical and general population samples. *Journal of Abnormal Psychology*, *101*, 432–440.

Livesley, W. J., Schroeder, M. L., Jackson, D. N., & Jang, K. L. (1994). Categorical distinctions in the study of personality disorder: implications for classification. *Journal of Abnormal Psychology*, *103*, 6–17.

Magnusson, D., & Endler, N. S. (1977). Interactional psychology: present status and future prospects. In: D. Magnusson, & N. S. Endler (Eds.), *Current issues in interactional psychology* (pp. 3–36). Hillsdale, NJ: Lawrence Erlbaum Associates.

Manicavasagar, V., Silove, D., & Curtis, J. (1997). Separation anxiety in adulthood: a phenomenological investigation. *Comprehensive Psychiatry*, *38*, 274–282.

May, R. (1977). *The meaning of anxiety*. New York: W.W. Norton.

McReynolds, P. (1975). *Changing conceptions of anxiety: A historical review and a proposed integration*. Washington, DC: Hemisphere.

Nakao, K., Gundersen, J. D., Phillips, K. A., Tanaka, N., Yorifuji, K., Takaishi, J., & Nashimura, N. (1992). Functional impairment in personality disorders. *Journal of Personality Disorders*, *6*, 24–33.

Plomin, R., Chuiper, H. M., & Loehlin, J. C. (1990). Behaviour genetics and personality. In: L. A. Pervin (Ed.), *Handbook of personality theory and research* (pp. 225–243). New York: Guilford Press.

Reiss, S. (1997). Trait anxiety: it's not what you think it is. *Journal of Anxiety Disorders*, *11*, 201–214.

Reiss, S., Peterson, R. A., Gursky, D. M., & McNally, R. J. (1986). Anxiety sensitivity, anxiety frequency, and the prediction of fearfulness. *Behavior Research and Therapy*, *24*, 341–345.

Sarason, I. G. (1975). Anxiety and self-preoccupation. In: I. G. Sarason, & C. D. Spielberger (Eds.), *Stress and anxiety*, (vol. 2, pp. 27–44). Washington, DC: Hemisphere.

Selye, H. (1976). *The stress of life* (rev. ed.). New York: McGraw-Hill.

Shedletsky, R., & Endler, N. S. (1974). Anxiety: the state–trait model and the interaction model. *Journal of Personality*, *42*, 511–526.

Spielberger, C. D. (1966). The effects of anxiety on complex learning and academic achievement. In: C. D. Spielberger (Ed.), *Anxiety and behaviour* (pp. 361–398). New York: Academic Press.

Spielberger, C. D. (1983). *Manual for the state–trait anxiety inventory (form V)*. Palo Alto, CA: Consulting Psychologists Press.

Spielberger, C. D. (1985). *Anxiety, cognition and affect: a state–trait perspective*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Taylor, J. A. (1953). A personality scale of manifest anxiety. *Journal of Abnormal and Social Psychology*, *48*, 285–290.

Trotter, M., & Endler, N. S. (1999). An empirical test of the interaction model of anxiety in a competitive equestrian setting. *Personality and Individual Differences, 27*, 861–875.

Widiger, T. A. (1991). Personality disorder dimensional models proposed for DSM-IV. *Journal of Personality Disorders*, *5*, 386–398.

Widiger, T. A. (1993). The DSM-III-R categorical personality disorder diagnoses: a critique and an alternative. *Psychological Inquiry*, *4*, 75–90.

Widiger, T. A. (1998). Four out of five ain't bad. *Archives of General Psychiatry*, *55*, 865–866.

Zimmerman, M., & Coryell, W. (1990). Diagnosing personality disorders in the community: a comparison of self-report and interview measures. *Archives of General Psychiatry*, *47*, 527–531.