

## THE CLINICAL ANGER SCALE: PRELIMINARY RELIABILITY AND VALIDITY

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This article reports preliminary evidence for the development and validation of the Clinical Anger Scale (CAS), an objective self-report instrument designed to measure the syndrome of clinical anger. Factor analysis of the CAS confirmed a unidimensional item structure; reliability analyses also demonstrated adequate internal consistency and test-retest stability for the CAS; other results indicated that the CAS was unrelated to social desirability influences. Additional findings indicated that clinical anger was associated positively with several anger-related concepts (e.g., trait anger, state anger, anger-in, anger-out, anger-control) and that the CAS was related in predictable ways to people's psychopathological symptoms, personality traits, and early family environments. Implications for future research and therapeutic assessment with the Clinical Anger Scale are discussed.

During the course of the past several years a number of professionals have investigated the phenomena of anger (e.g., Averill, 1983; Biaggio, 1980; Biaggio & Maiuro, 1985; Biaggio, Supples, & Curtis, 1981; Feshbach, 1986; Rubin, 1986; Spielberger, Jacobs, Russell, & Crane, 1983). Most of this work has been conducted within the context of hostility and aggression (see Geen, 1990, for an overview), and a variety of important conceptual distinctions have been made between anger and both hostility and aggression. Some work also has distinguished the experience of anger itself from events and experiences that provoke anger (e.g., Ben-Zur & Breznitz, 1991; Snell, McDonald, & Koch, 1991). Other distinctions have been addressed in research that has developed and used such standardized instruments as the Buss-Durkee Hostility Inventory (Buss, 1961; Buss & Durkee, 1957), the Reaction Inventory (Evans & Stangeland, 1971), the Anger Self-Report Scale (Zelin, Adler, & Myerson, 1972), the Anger Inventory (Novaco, 1975), the Multidimensional Anger Inventory (Siegel, 1985), the Subjective Anger Scale (Knight, Ross, Collins, & Paramenter, 1985), the Anger Expression Scale (Spielberger et al., 1985), the State-Trait Anger Scale (Spielberger et al., 1983), the Anger Discomfort Scale (Sharkin & Gelso, 1991), and the Awareness and Expression of Anger Indicator (Catchlove & Braha, 1985). This literature, with the distinctions emphasized by each respective instrument, has contributed to greater understanding of the phenomena of anger.

Interestingly, none of the extant instruments concerned with measuring anger directly assesses *clinical anger*. By contrast, for some time practitioners have discussed the importance of studying the concept of clinical anger from a therapeutic perspective (Alschuler & Alschuler, 1984; Rubin, 1986; Sharkin, 1988). Sharkin (1988), for example, has described the need for reliable and valid measures to help in the effective treatment of clients with clinical anger. Although the therapy literature on client anger makes reference to the importance of measuring and treating clinical anger, no research instrument currently exists that would directly facilitate this line of investigation. Thus, an instrument specifically designed to measure clinical anger is needed. The purpose

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of the present investigation was to develop an objective self-report instrument designed to measure the syndrome of clinical anger. It was anticipated that the development of such a clinical tool might lead to greater insight into the nature of clinical anger by helping professionals study the extent to which their clients may be influenced by the various symptoms of clinical anger.

Clinical anger was conceptualized as a syndrome that consists of several symptoms that can vary in their intensity and strength (cf. Biaggio & Maiuro, 1985; Spielberger et al., 1983; Spielberger et al., 1985) and that can produce severe health risks (Hardy & Smith, 1988; Spielberger et al., 1985). The chronic, pervasive aspects of clinical anger were presumed to include affective, cognitive, physiological, motoric, and behavioral manifestations (e.g., fatigue, irritability, rage). Individuals who are high in clinical anger were expected to report affective feelings of anger about their present life, themselves, their future, others, and things in general. In addition, it was anticipated that they would report that their clinical anger interferes with their social relations, their ability to make decisions, and their capacity to pursue effective work relations and accomplishments. In addition, people afflicted with this affective disorder were expected to report appetite, health, thinking, and sexual interference from their syndrome of clinical anger. In brief, clinical anger was defined as a syndrome that consists of debilitating, global, and chronic symptoms of anger and includes affective (e.g., rage, irritability), cognitive (decision interference), physiological (e.g., fatigue), social (e.g., interpersonal dysfunctions), and behavioral (e.g., ineffective work relations and accomplishments) manifestations.

A first step in research on the concept of clinical anger is the construction of a reliable and valid instrument for assessing the various symptoms of this syndrome. Previous research associated with other clinical-related instruments was consulted in the preparation of the items for the Clinical Anger Scale (e.g., Beck, Epstein, Brown, & Steer, 1988; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The initial items were reviewed and discussed not only with professional psychology instructors, but also with a group of undergraduate psychology majors and graduate counseling students. Then, after revision of several items, the final version of the Clinical Anger Scale was prepared and administered to several samples. Although the Clinical Anger Scale is intended primarily for use with individuals who are suffering from major levels of clinical anger (e.g., outpatients and inpatients), this preliminary investigation was conducted on college students. The Clinical Anger Scale should be relevant to college students because they sometimes encounter an academic atmosphere that can foster and precipitate considerable anger (Lopez & Thurman, 1986; Sharkin & Gelso, 1991).

Several specific analyses were conducted to examine the psychometric properties of the Clinical Anger Scale. Factor analysis was conducted to examine the factorial validity of the instrument; correlations were computed with Crowne-Marlowe Social Desirability Scale (Crowne & Marlowe, 1960, 1964) and the EPI Lie Scale (Eysenck & Eysenck, 1968) to examine scale contamination; and reliability coefficients were computed to examine the internal consistency and stability of the CAS. Also, preliminary evidence for the convergent validity of the CAS was obtained by examining its relation with Spielberger's various anger-related instruments: trait-anger, state-anger, anger-in, anger-out, and anger-control (Spielberger et al., 1983; Spielberger et al., 1985; Spielberger, Krasner, & Solomon, 1988). A series of positive correlations was expected because clinical anger should be characterized by higher levels of both state and trait anger, as well as by anger expressed inwardly and out toward others. By contrast, a negative association was expected between anger control (Spielberger et al., 1985) and clinical anger because those with clinical levels of anger should have difficulty in controlling the public expression of their privately felt feelings of anger.

An ancillary purpose of the present study was to provide additional preliminary evidence for the CAS's validity by examining some personality, psychopathological symptomatology, behavioral, and early family correlates of clinical anger. We theorized that

people with greater clinical anger would be more likely to possess personality traits associated with emotional lability. Hence, clinical anger was expected to show a positive relationship with neuroticism (Eysenck & Eysenck, 1968, 1969) and a negative relationship with emotional stability (Goldberg, 1990, in press). Early family experiences also may influence an individual's current level of clinical anger (Burrowes & Halberstadt, 1987; McGonigle, Smith, Benjamin, & Turner, 1993; Sharkin & Gelso, 1991). Specifically, it was anticipated that early family patterns of cohesion and expressiveness would be less likely and that early family patterns of excessive control and conflict would be more likely to be frustrating to individuals. Thus, clinical anger was expected to be correlated negatively with familial cohesion and expression, but correlated positively with familial control and conflict. Finally, as conceived herein, clinical anger is characterized by difficulty in handling one's outer social and inner private experiences. Thus, we also expected to find that higher levels of clinical anger would be correlated positively with a history of acting out and neurotic behaviors (Spence, Helmreich, & Holahan, 1979), interpersonal defensiveness (Snell & Finney, 1991), and other clinical symptomology (Derogatis, 1983).

## METHOD

### *Subjects*

Data were collected from six samples, each of which is described below. In exchange for their participation, the subjects received either extra credit points in their course or else partially fulfilled a course requirement. The number of subjects in the analyses reported below occasionally varies because not all subjects in each sample completed every item on all of the instruments.

*Sample 1.* During the fall of 1986, a sample of 177 subjects (43 males, 112 females, 22 gender not specified) volunteered to participate in a research study on psychology. These individuals averaged 23.93 years of age ( $SD = 6.5$ ). This sample completed the CAS and a measure of acting-out behaviors, neurotic behaviors, and psychological defensiveness (described below).

*Sample 2.* In the fall of 1990, a sample of 183 subjects (67 males, 114 females, 2 gender not specified) participated in an investigation concerned with individual tendencies. These individuals were 22.99 years of age ( $SD = 6.56$ ), with approximately equal representations of freshmen, sophomores, juniors, and seniors. Only about 10% of the sample was non-Caucasian, and about 22% of the sample was (or had been) married. This sample completed the CAS, the Eysenck Personality Inventory, the Goldberg Big-5 Scale, the State-Trait Anger Inventory, the Anger Expression Scale, the Symptom Checklist-90 (Revised), and a measure of social desirability (described below).

*Sample 3.* During the spring of 1991, 131 subjects (49 males, 81 females, 1 gender not specified) volunteered to participate in a research study on anger as one way of fulfilling a course requirement. These subjects were 21.17 years of age ( $SD = 5.03$ ), 77% were freshmen and sophomores, only 14 were married, and only 20 were non-Caucasian. This sample completed the CAS, the Family Environment Scale, the State-Trait Anger Inventory, and the Anger Expression Scale (described below).

*Sample 4.* During the spring and fall of 1987, 405 subjects (104 males, 301 females) volunteered to participate in a research study on anger and personality. This was the largest of the CAS samples and, thus, was used to examine the internal consistency and factor structure of the CAS items. These subjects averaged 24.13 years of age ( $SD = 6.08$ ), and approximately 22% of the sample were married.

*Sample 5.* During the fall of 1987, 235 individuals (55 males, 165 females, and 15 who chose not to identify their gender) volunteered to complete the CAS (and several other questionnaires unrelated to the present investigation) as one way of fulfilling

a course requirement. They averaged 24.59 years of age ( $SD = 6.58$ ), and 25% of the sample was married.

*Sample 6.* During the spring of 1991, 39 (31 females, 8 males) subjects in an undergraduate psychology course volunteered to participate in a psychology study on individual tendencies (average age = 24.79  $SD = 7.01$ ). These individuals completed the Clinical Anger Scale during the second week of the semester and then were retested 3 weeks later.

### *Procedure*

As soon as they arrived at the testing room, all subjects were asked to read an informed consent form. Those who volunteered to participate (all subjects did so) then were asked to complete several assessment instruments (discussed below). The subjects completed the experimental material during either a single 1-hour or 2-hour session. All subjects were thanked for their participation and then were debriefed.

### *Measures*

*Clinical Anger Scale (CAS).* An objective self-report instrument was designed to measure the psychological symptoms presumed to have relevance for the understanding and treatment of clinical anger. Twenty-one sets of statements were prepared for this purpose. In writing these groups of items, the format from one of Beck's early instruments was used to design the Clinical Anger Scale (Beck, 1963, 1967; Beck et al., 1961). The symptoms of anger measured by the CAS items involved: anger now, anger about the future, anger about failure, anger about things, angry-hostile feelings, annoying others, angry about self, angry misery, wanting to hurt others, shouting at people, irritated now, social interference, decision interference, alienating others, work interference, sleep interference, fatigue, appetite interference, health interference, thinking interference, and sexual interference. Subjects were asked to read each of the 21 groups of statements (4 statements per group) and to select the single statement that best described how they felt (e.g., item 1: A = I do not feel angry, B = I feel angry, C = I am angry most of the time now, and D = I am so angry all the time that I can't stand it). Each cluster of statements was scored on a 4-point Likert scale, with A = 0, B = 1, C = 2, D = 3. The four statements in each cluster varied in symptom intensity, with more intense clinical anger associated with statement D. Subjects' responses on the CAS were summed so that higher scores corresponded to greater clinical anger (21 items; range 0 - 63).

*State-Trait Anger Scale.* The State-Trait Anger Scale (STAS; Spielberger et al., 1983) contains two separate subscales, each of which includes 15 items. The state anger scale measures the amount of anger a person is feeling at the time of the administration of the STAS (i.e., general and immediate feelings of anger), and the trait anger subscale measures any enduring, chronic feelings of anger (i.e., dispositional feelings of anger). Higher scores corresponded to greater state and trait anger, respectively.

*Anger Expression Scale.* The Anger Expression Scale (AES; Spielberger et al., 1985) was designed to measure how people express anger when they are provoked. This 20-item scale consists of the following subscales: anger-in, in which the feelings of anger are experienced but held in (i.e., suppressed); anger-out, in which anger is expressed outwardly toward other people and the environment; and anger-control, in which people control the experience and expression of anger. Higher scores corresponded to greater amounts of anger-in, anger-out, and anger-control, respectively.

*Social Desirability.* The Crowne-Marlowe Social Desirability Scale (Crowne & Marlowe, 1960, 1964) measures the extent to which people's responses to self-report instruments are influenced by the tendency to respond in a socially desirable fashion. Higher scores corresponded to a greater tendency to make socially desirable responses on instruments.

*Acting Out and Neurotic Behaviors.* A measure of acting-out and neurotic behaviors (Spence et al., 1979) also was used in the present investigation. This instrument was designed to measure (1) acting out or sociopathic behavior, consisting of several items concerned with such behaviors as alcohol and drug use, misdemeanors, lying, verbal and physical fights, and school misbehavior; and (2) emotional distress of a more neurotic behavioral nature, consisting of items concerned with the frequency of feeling nervous, tense, fearful and anxious; and other items concerned with feeling depressed, uncertain about life goals, dissatisfied with one's social life, dissatisfied with life in general, and voluntary seeking of professional help for psychological problems. For both the measure of acting-out and neurotic behaviors, higher scores indicated greater amounts of each respective behavioral tendency.

*Eysenck Personality Inventory.* The Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1968) includes two major scales: The N scale measures neurotic tendencies, such as anxiousness, tenseness, guilt feelings, and depression; and the E scale measures extraverted tendencies, such as sociability, activity, liveliness, and sensation seeking. The EPI also includes a lie scale, which is intended to assess the propensity to "fake good." (Cf. Haapasalo, 1990.) Evidence for the EPI's reliability and validity is summarized in Eysenck and Eysenck (1968, 1969). Higher scores indicated greater neuroticism, extraversion, and impression management (i.e., lying) tendencies.

*Interpersonal Defensiveness Scale.* The Interpersonal Defensiveness Scale (IDS; Snell & Finney, 1991) was designed to measure interpersonal defensive tendencies, defined as an exaggerated concern with protecting one's social image, misinterpreting reactions from others as a personal affront, and rationalizing as well as justifying one's own actions (e.g., "If others find fault with me, they better be prepared to argue."). Cronbach alpha for this instrument was .89 ( $n = 132$ ). The IDS was scored so that higher scores corresponded to greater interpersonal defensiveness.

*Symptom Checklist 90 (Revised).* The SCL-90-R was developed by Derogatis (1983) as a multidimensional self-report measure of the symptoms of clinical psychopathology. As such, it reflects a person's current psychological symptoms and yields separate scores for the following indices: somatization, interpersonal sensitivity, obsessive symptoms, depression, anxiety, hostility, paranoid ideation, phobic anxiety, psychosis, and a global severity index (GSI). Derogatis describes the GSI as the best single SCL-90-R measure of a person's current level of psychological disturbance because it consists of the total of all the other symptom dimensions on the SCL-90-R. Higher scores on the GSI and the other SCL-90-R subscales corresponded to greater amounts of each symptomology.

*Family Environment Scale.* The Family Environment Scale (FES; Billings & Moos, 1983; Moos & Moos, 1981) is a self-report inventory designed to measure several aspects of family environment. It consists of 90 true-false questions divided into 10 subscales. Three of the FES subscales concern internal aspects of the family's interpersonal relationship (i.e., cohesion, expression, and conflict). Another group of 5 subscales reflects a family emphasis on developmental directions and is concerned with goal orientation and personal growth (independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, and moral-religious emphasis). The two remaining subscales (i.e., organization and control) are related to system maintenance; they measure aspects of family structure, such as planning family activities and the rules/regulations used to run the family (Moos & Moos, 1981). Higher scores on each of the 10 FES subscales corresponded to a stronger family emphasis or orientation for each respective subscale.

*Goldberg Big-5 Scale.* The Goldberg Big-5 instrument (Goldberg, 1990, in press) includes five scales designed to assess the following personality attributes (each with 10 items): (1) extraversion-introversion, measured by tendencies such as forcefulness, spontaneity, and sociability; (2) agreeableness-pleasantness, measured by tendencies like

politeness, cooperation, and flexibility; (3) conscientiousness, measured by tendencies such as reliability, responsibility, and organization; (4) emotional stability, measured by attributes such as security, contentedness, and stability; and (5) intellect-sophistication, measured by traits such as reflectiveness, curiosity, and perceptiveness. Higher scores corresponded to greater amounts of each respective personality trait.

## RESULTS

The results are presented in several major sections. The first section presents the psychometric analyses of the Clinical Anger Scale. Included in this section are the factor analysis results, the reliability results, and several validity results. Section two then presents the ANOVA analyses conducted to examine the effect of gender on the CAS. The third section reports the research evidence for the convergent validity of the CAS. This section presents the correlations between the CAS and Spielberger's anger-related instruments. Section four includes the results of the analyses conducted to examine the relationship between the CAS and the measures of psychopathological symptoms, personality traits, and unhealthy behaviors (i.e., the acting out and neuroticism indices). The fifth and final section describes the relationship between the CAS and the measure of early family atmosphere (FES).

### *Psychometric Results for the CAS*

To examine the psychometric properties of the Clinical Anger Scale, a series of factor analyses with communality estimates and with iteration (principal axis with varimax rotation) was conducted using sample 4. The unrotated and rotated results are shown in Table 1.

Table 1  
*Psychometric Properties of the Clinical Anger Scale (CAS)*

Clinical Anger Scale item-labels	Item-total coefficients			Factor analysis loadings		
				Unrotated		Rotated
	A	M	F	I	II	I
1. Angry now	.74	.83	.68	<u>.76</u>	-.23	<u>.76</u>
2. Angry about Future	.70	.74	.65	<u>.71</u>	-.02	<u>.60</u>
3. Angry about Failure	.13	.19	.11	.14	.19	.01
4. Angry about Things	.75	.83	.70	<u>.78</u>	-.22	<u>.77</u>
5. Angry-Hostile Feelings	.79	.88	.72	<u>.83</u>	-.30	<u>.85</u>
6. Annoying Others	.54	.53	.52	<u>.54</u>	-.06	.48
7. Angry about Self	.62	.58	.64	<u>.64</u>	-.03	<u>.54</u>
8. Others Cause My Misery	.56	.59	.53	<u>.56</u>	-.02	.48
9. Want to Hurt Others	.60	.68	.55	<u>.62</u>	-.03	<u>.53</u>
10. Shout at People	.66	.79	.57	<u>.70</u>	-.18	<u>.68</u>
11. Irritated Now	.67	.76	.60	<u>.68</u>	-.03	<u>.58</u>
12. Social Interference	.57	.58	.59	<u>.60</u>	.06	.46
13. Decisioning Interference	.73	.80	.68	<u>.75</u>	.17	<u>.52</u>
14. Alienating Others	.76	.83	.70	<u>.78</u>	-.15	<u>.73</u>
15. Work Interference	.68	.72	.64	<u>.69</u>	.15	.49
16. Sleep Interference	.69	.76	.63	<u>.70</u>	.29	.42
17. Fatigue	.74	.78	.73	<u>.77</u>	-.03	<u>.65</u>

Table 1 (continued)

Clinical Anger Scale item-labels	Item-total coefficients			Factor analysis loadings		
				Unrotated		Rotated
	A	M	F	I	II	I
18. Appetite Interference	.59	.65	.58	<u>.61</u>	.30	.34
19. Health Interference	.71	.83	.63	<u>.74</u>	.12	<u>.54</u>
20. Thinking Interference	.63	.76	.56	<u>.64</u>	.21	.41
21. Sexual Interference	.60	.55	.65	<u>.62</u>	.12	.44
Alpha	.94	.95	.92	—	—	—
Standardized item alpha	.94	.96	.93	—	—	—
Eigenvalue	—	—	—	10.00	1.14	9.53
Percent of variance	—	—	—	47.60	5.40	45.40

Note. — *N* for both males and females = 379. A = all subjects; M = males; F = females. Loadings greater than  $|\mathbf{.50}|$  are underlined.

An inspection of Table 1 indicates that for the unrotated matrix, all of the CAS statements except item 3 loaded above  $|\mathbf{.30}|$  on factor solution 1. (The eigenvalue was 10.00 with 47.6% of the variance explained.) Although the eigenvalue for the second solution was 1.14, it explained only 5.4% of the variance. Table 1 also shows that the varimax-rotated matrix only had one single factor solution. (The eigenvalue was 9.53 with 45.4% of the variance explained.) Separate factor analyses for females and males were quite similar to this pattern of results.

The internal consistency for the 21 items on the Clinical Anger Scale was analyzed by means of Cronbach alpha and yielded reliability coefficients of .94 for males and females together, .95 for males only, and .92 for females only. The corrected item-total coefficients are presented in Table 1. All the item-total correlations exceeded  $|\mathbf{.30}|$  except for item 3 (anger about failure), which had item-total coefficients of .13, .19, and .11, respectively, for the total sample, males only, and females only. (Although the item-total coefficient for item 3 was low, it was decided nonetheless to retain this item in the computation of the total CAS score, pending the results of additional investigations on future clinical samples.) In addition to conducting internal reliability analyses, test-retest analyses also were performed. The correlations between the two administrations of the CAS were .85 for males, .77 for females, and .78 for both males and females. Finally, to determine whether people's scores on the Clinical Anger Scale were contaminated by some type of response bias, the CAS was correlated with a measure of social desirability and with the EPI Lie Scale. The results indicate that the CAS was independent of the tendency to respond in a socially desirable fashion and was largely independent of the EPI Lie scores. (The only exception was the Lie scale for females, but this correlation only accounted for 4% of the overall variability in the scores.)

In brief, this information indicates that the CAS was largely unifactorial in nature, adequately reliable, and essentially uncontaminated by social desirable and lying tendencies.

### *Gender Effects and Norms for the CAS*

According to social stereotypes about gender, anger is an affect that characterizes men more than women. A series of ANOVAs for samples 1, 2, 3, 4, and 5 was conducted on the CAS to examine whether men and women would report different degrees of clinical anger. In these analyses, gender was treated as the independent variable, and

the CAS was regarded as the dependent variable. The results provided no evidence that males and females differ in terms of the syndrome of clinical anger (all  $ps > .05$ ).

### *Convergent Validity Findings for the CAS*

Preliminary evidence for the validity of the Clinical Anger Scale was determined by examining the correlations between the CAS and the scores on Spielberger's anger-related

Table 2

*Correlations between the Clinical Anger Scale and Several Other Validity-related Tendencies*

Validity-related measures	CAS	<i>n</i>
<b>Spielberger Anger-related Measures</b>		
STAS State Anger (Sample 3)	.61†	(122)
STAS State Anger (Sample 2)	.56†	(114)
STAS Trait Anger (Sample 3)	.55†	(125)
STAS Trait Anger (Sample 2)	.55†	(114)
Anger Expression-out (Sample 3)	.44†	(125)
Anger Expression-out (Sample 2)	.36†	(114)
Anger Expression-in (Sample 3)	.45†	(125)
Anger Expression-in (Sample 2)	.41†	(113)
Anger Expression-control (Sample 3)	-.27†	(125)
Anger Expression-control (Sample 2)	-.23**	(114)
<b>Symptom Checklist 90-Revised: (Sample 2)</b>		
Somatization	.39†	(114)
Obsessive Symptoms	.40†	(114)
Interpersonal Sensitivity	.53†	(114)
Depression	.56†	(114)
Anxiety	.52†	(114)
Hostility	.68†	(114)
Phobic Anxiety	.45†	(114)
Paranoid Ideation	.50†	(114)
Psychosis	.51†	(114)
Global Severity Index	.63†	(114)
Acting Out: (Sample 1)	.36†	(124)
Neuroticism: (Sample 1)	.35†	(123)
Interpersonal Defensiveness: (Sample 1)	.17*	(124)
<b>Family Environment Scale: (Sample 3)</b>		
Cohesion	-.33†	(123)
Expression	-.35†	(123)
Conflict	.27†	(123)
Independence	-.12	(123)
Achievement Orientation	.02	(123)
Intellectual-Cultural Orientation	-.03	(123)
Active Recreational Orientation	-.16*	(123)
Moral-Religious Emphasis	-.07	(123)
Organization	-.02	(123)
Control	.32†	(123)
<b>Eysenck Personality Inventory: (Sample 2)</b>		
Extraversion-Introversion	-.29†	(110)
Neuroticism	.28***	(110)
<b>BIG-5 Personality Traits: (Sample 2)</b>		
Extraversion-Introversion	-.19*	(110)
Pleasantness-Agreeableness	-.19*	(110)
Conscientiousness	.03	(110)
Emotional Stability	-.25***	(110)
Intellect-Sophistication	-.07	(110)

Note. — Higher scores indicate greater clinical anger and greater amounts of each of the other respective tendencies.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ . † $p < .001$ .



instruments. These correlations are shown in Table 2. As expected, the scores on the Clinical Anger Scale were correlated positively and strongly with the two subscales on the State-Trait Anger Scale. Moreover, the Clinical Anger Scale was correlated positively with the subscales on the Anger Expression Scale, although the relationships were not always as strong or as significant as for the State-Trait Anger Scale. These findings provide support for the convergent validity of the Clinical Anger Scale.

#### *Additional Validity Findings for the CAS*

This section presents the results of analyses conducted to examine the relationship between the CAS and the measures of psychopathological symptoms, personality traits, and other unhealthy behaviors (i.e., acting out and neuroticism indices). These results are shown in Table 2.

**Psychopathological symptoms.** As an inspection of Table 2 indicates, the Clinical Anger Scale was correlated positively with the full range of symptoms measured by the SCL-90-R. Also, as one might expect, individuals who reported greater clinical anger reported an elevated number of psychological symptoms associated with hostility. In brief, clinical anger was associated positively with a broad array of general psychopathological symptoms.

**Personality traits.** The Clinical Anger Scale also was correlated with two personality instruments, the Eysenck Personality Inventory and the Goldberg Big-5 Scale. As can be seen in Table 2, clinical anger was correlated positively with Eysenck's neuroticism scale and correlated negatively with Eysenck's extraversion scale and the Big-5 measures of extraversion, pleasantness-agreeableness, and emotional stability. Thus, feelings of clinical anger were associated in a predictable pattern with measures of dispositional personality attributes.

**Unhealthy behaviors.** Table 2 also shows the correlations between the Clinical Anger Scale and the measures of acting-out behaviors, neurotic behaviors, and interpersonal defensiveness. As expected, clinical anger was associated positively with all three measures of psychologically unhealthy behaviors. Thus, people who were characterized by more intense clinical anger reported engaging in a greater number of misdirected and inappropriate behaviors (e.g., lying, fighting, thefts, drug use); being more uncertain and dissatisfied with their social and personal life; and acting in a more suspicious and defensive manner about the intentions of others.

#### *Family Environments and the CAS*

The relationships between the Clinical Anger Scale and a measure of early family environment, the Family Environment Scale, also were examined. An inspection of the results in Table 2 reveals that clinical anger was associated negatively with a family history of cohesion, expressiveness, and shared recreational activities, but was related positively to an early history of family conflict and exaggerated family control. No other correlations were statistically significant.

### DISCUSSION

The need for a reliable and valid instrument capable of assessing the symptoms of clinical anger led to the construction and preliminary validation of the Clinical Anger Scale. The Clinical Anger Scale was designed specifically to measure the array of psychological, physiological, affective, cognitive, motoric, and behavioral symptoms that constitutes the syndrome of clinical anger. Preliminary evidence for the validity of the CAS was demonstrated in a series of analyses that showed that clinical anger was related in a systematic and interpretable manner with measures of state anger, trait anger, anger control, and anger expressed inwardly and outwardly. Moreover, other findings revealed

that people's feelings of clinical anger were associated predictably with a number of distinct personality characteristics, psychopathological symptoms, and inappropriate as well as problematic interpersonal behaviors.

The reliability and validity findings presented in the present investigation appear to provide preliminary evidence that encourages the use of the Clinical Anger Scale among both researchers and mental health practitioners. For example, this assessment instrument could be used in the context of a stress inoculation approach to anger (Novaco, 1975, 1977, 1979), research on the interpersonal expression of anger (Holt, 1970; Spielberger et al., 1985), an examination of the role of anger in hypertension and coronary heart disease (Diamond, 1982; Musante, MacDougall, Dembroski, & Costa, 1989; Spielberger et al., 1985; Yuen & Kuiper, 1991), therapeutic work concerned with violent behavior (Rothenberg, 1971), the therapeutic treatment of clinical anger (Deffenbacher, McNamara, Stark, & Sabadell, 1990; Deffenbacher, Story, Start, Hogg, & Brandon, 1987; Hazaleus & Deffenbacher, 1986), and the study of gender-related aggressiveness and anger (Frodi, Macaulay, & Thome, 1977; Smith et al., 1989).

In addition, the Clinical Anger Scale seems to provide a way to study the role of clinical anger among both clients and nonclients (Rubin, 1986; Tavris, 1982). In clinical settings, the CAS could provide information helpful for understanding clients, the planning of treatment, and the assessment of therapeutic progress. Client scores on the CAS could be compared with nonclinical groups (or against CAS norms, when they have been established). When administered at several points in time, the Clinical Anger Scale also can provide valuable information about clinical status and treatment response. Moreover, in nonclinical settings, the CAS may prove useful in identifying individuals who have clinical levels of anger or those who are at risk for developing clinical anger. In addition, the CAS could be administered easily in mental health, prison, educational, and other types of settings to screen for anger symptomatology. In this sense, the CAS may prove to be useful in applied settings in which the measurement of clinical anger is deemed necessary and helpful (Sharkin, 1988).

An important caveat is in order here. It is vital to make the distinction between the assessment of the severity of clinical anger symptomatology and any formal diagnosis of clinical anger. Clearly, it would be improper to diagnose a clinical anger disorder with the Clinical Anger Scale or any other self-report instrument. The most appropriate method for deriving a diagnosis is a clinical interview designed to determine whether individuals meet the criteria specified by some nosological system (e.g., the DSM-III-R). The problem with most currently recognized classification systems is that they lack a diagnostic class for clinical anger (cf. clinical depression). Nonetheless, although the CAS was not designed to yield a diagnosis, it may provide a standardized assessment of the symptomatology that is clinically relevant to anger. The present research represents an initial step toward the study of these and other important topics associated with clinical anger.

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