



Pergamon

Aggression and Violent Behavior
9 (2004) 165–227

**AGGRESSION
AND
VIOLENT
BEHAVIOR**

Measures of aggressive behavior: Overview of clinical and research instruments

Alina Suris^{a,b,*}, Lisa Lind^a, Gloria Emmett^a, Patricia D. Borman^c,
Michael Kashner^{a,b}, Ernest S. Barratt^d

^a*Department of Veterans Affairs, North Texas Health Care System, Dallas, TX, USA*

^b*University of Texas Southwestern Medical Center, Dallas, TX, USA*

^c*Foothills Medical Centre, Calgary, Alberta, Canada*

^d*University of Texas, Medical Branch at Galveston, Galveston, TX, USA*

Received 21 December 2001; accepted 23 October 2002

Abstract

This overview of current aggressive measures is offered as an aid for selection of task-appropriate instruments to meet the needs of both clinicians and researchers. The article provides a general overview of selected aggression instruments and is intended to provide readers with information, such as intended purpose of the instrument, general descriptive information, characteristics of the samples used, and psychometric properties, to assist in identifying instruments that may best suit their clinical and/or research needs. It is also offered as a tool to assist clinicians in selecting such measurement instruments for use in their practice and in understanding results of research studies. Selected instruments have also been categorized to differentiate between those that reflect state or trait characteristics and based on method of administration. Measures were included or not included in this article primarily based on frequency of usage in research and/or clinical settings and potential clinical utility.

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Keywords: Aggressive behavior; Clinical and research instruments; State–trait characteristics

* Corresponding author. Mental Health Service (116A), Department of Veterans Affairs, North Texas Health Care System, 4500 South Lancaster Road, Dallas, TX 75216, USA. Tel.: +1-214-857-0358.

E-mail address: Alina.Suris@med.va.gov (A. Suris).

1. Introduction

The development of a cohesive, generally applicable theory of aggression has progressed from early paradigm definitions, through a period of competing theories, and into its current phase of paradigmatic clarification. Responding to a rising level of violence in past decades, researchers developed theories based on observation and have since attempted to produce measurable evidence of observationally derived theories (see [Tedeschi & Felson, 1994](#), for a critique of aggression theories). Earliest efforts to assess anger and aggression were based on clinical interviews, projective techniques, and behavioral observations (see [Spielberger, Reheiser, & Sydeman, 1995](#)). In the 1950s, psychometric scales began to be developed to measure aggressive hostility (e.g., [Buss & Durkee, 1957](#); [Cook & Medley, 1954](#)). The need to distinguish between hostility and anger began to be recognized in the 1970s with the development of the Reaction Inventory ([Evans & Stangeland, 1971](#)), Anger Inventory ([Novaco, 1975](#)), and the Anger Self-Report ([Zelin, Adler, & Myerson, 1972](#)). Recent research initiatives in the field of aggression reflect this clarification phase, and a critical part of this process involves the availability of reliable and valid measurement tools.

In a recent review of the literature, only a handful of comprehensive overviews of aggression instruments were found (see [Bech & Mak, 1995](#); [Gothelf, Apter, & van Praag, 1997](#); [Jackson & Paunonen, 1980](#); [Matthews, Jamison, & Cottingham, 1985](#); [Morrison, 1988](#); [Parker & Bagby, 1997](#)). Given that much has been added in the intervening period, the purpose of this article is to provide clinicians and researchers a general overview of information regarding instruments asserting to measure aggressive behavior referenced in the current literature. The selection is far from exhaustive, but it is intended to provide clinicians and researchers with a wide range of instruments with a focus on information such as conceptualization of the target behavior, method of data collection, characteristics of individuals being assessed, general description of instruments, and psychometric properties to assist readers in identifying instruments that may best suit their clinical and/or research needs. It is also offered as a tool to assist clinicians in selecting measurement instruments for use in their practice and in understanding results of research studies. Measures were included or not included in this article primarily based on frequency of usage in research and/or clinical settings and potential clinical utility. The list is not exhaustive but is representative.

2. Conceptual issues

What is aggression? According to [Berkowitz \(1993\)](#), *aggression* refers to goal-directed motor behavior that has a deliberate intent to harm or injure another object or person. [Bandura \(1973\)](#), on the other hand, did not conceptualize aggression to include intentions, but instead considered aggression as harmful behavior that violates social norms. [Buss and Perry \(1992\)](#) defined *verbal* and *physical aggression* as the motor components of behavior that involve hurting or harming others. [Barratt \(1991\)](#) further classified aggression into three categories: premeditated, medically related, and impulsive aggression. The distinction between premedi-

tated (proactive) and impulsive (reactive) aggression has been made by others (Dodge, 1991; Vitiello, Behar, Hunt, Stuff, & Ricciuti, 1990).

Although the general consensus is that aggression refers to behavior, *anger*, *aggression*, and *hostility* have been used interchangeably by some researchers and clinicians, while defined as distinctively different by others. There is a possible lack of conceptual differentiation between the terms used to represent target behaviors (Coccaro, 1997), which has led to confusion in differentiating between predictor and criterion measures. This lack of clarity may be representative of the theoretical overlap of concepts, or it may be that some terms represent behavioral manifestations of the higher level organizing principles represented by other terms (e.g., the possibility that *violence* may be a behavioral manifestation of the conceptual principle of *aggression*). Lack of definitional clarity may likely represent disagreement among researchers in defining aggression, likely due to the large body of multidisciplinary data that consists of discipline-specific models and definitions (Barratt & Slaughter, 1988). Even within the field of psychiatry, there is no generally accepted definition of aggression. For example, the DSM-IV-TR (American Psychiatric Association, 2000) mentions aggression in regard to features of intermittent explosive disorder, but states that aggressive behavior can occur with other mental disorders, and it does not give a specific definition of aggression.

The variety of measurement tools that have been implemented in studies reflects the multifaceted nature of the construct of aggression as it currently stands. Some instruments are used to independently measure not only the manifest behaviors themselves, but also the variables underlying and precipitating aggression. Such variables include irritability, impulsivity, hostility, and anger attacks (Buss & Durkee, 1957; Buss & Perry, 1992; Coccaro, Harvey, Kupsaw-Lawrence, Herbert, & Bernstein, 1991; Eysenck, Pearson, Easting, & Allsopp, 1985; Fava et al., 1991). The difficulty in utilizing these self-report indicators of aggression is that they often share elements of higher order constructs and, as such, are interrelated to the degree that they share common variance.

In contrast to the difficulty of overlapping indicators for selecting a single comprehensive assessment tool for aggression, researchers appear to have implicitly chosen certain populations to study. For example, prisoners have served as a consistent source of information in various studies (Mehrabian, 1997; Plutchik & vanPraag, 1990; Posey & Hess, 1984). Early criminological researchers investigated the relationship between aggression and criminality. Biological determinism was thought to predestine some individuals to violent lifestyles (Sigler, 1995). Other aggression research has focused on psychiatric populations (Bech, 1994; Palmstierna, Lassenius, & Wistedt, 1989; Patel & Hope, 1992). Studies with criminals, on one hand, and psychiatric patients, on the other, often illustrate two views of aggression and impulsivity described as state versus trait. For example, because aggression is assumed to be part of a convict's lifestyle and predetermined biologically, it is seen as a trait; psychiatric inpatients, conversely, may be viewed as simply experiencing an aggressive episode as a state condition. However, state and trait aggression are present in both patients and inmates.

Multiple measures of aggression may be useful in clarifying the exact manifestation of a characteristic or tendency, as well as in identifying the contribution of each variable to the underlying construct. The exceptionally broad variety of aggression measures, however, has

led Barratt, Stanford, Kent, and Felthous (1997) to conclude that much of the diversity in predictor and criterion measures is due to a fundamental lack of general agreement regarding basic theoretical models. Unable to find conceptual construct agreement, studies often operationalize violence and aggression differently. Such practices contribute to the low correlations with criterion measures although the instruments were administered to similar populations and for measuring the same but seemingly elusive conceptual construct (Gottfredson & Hirschi, 1994). The psychometric properties of the assessment tools, as represented by reliability and validity coefficients, then, become of central importance in evaluating and selecting aggression instruments for both clinical and research purposes.

3. Measurement issues

How aggression is defined and measured can potentially influence the selection of measurement instruments, research outcomes, and clinical decisions. There are numerous measurement issues to consider when selecting an assessment technique. It is necessary to understand the underlying assumptions and measurement properties of the criteria being used when conducting research, reviewing research results, and during clinical utilization of such instruments, given that criterion measures should be related to behavior. The more directly and specifically behavioral acts are measured, the greater the utilitarian value of the criterion measures. Further, aggressive acts can be measured by considering their frequency, intensity, type of act (e.g., impulsive, premeditated), target of the act, and patterns or cycles. This list is not exhaustive and applies primarily to individual aggression and not group aggression.

Another consideration when describing measures of aggression is the method of administration. Methods vary considerably (e.g., structured laboratory environment, observation, and self-report) and each may utilize a specific psychological process in determining the measurement. For example, self-report questionnaires rely to some extent on the respondent's memory and introspective analysis of past behaviors. Laboratory behavioral measures may allow for current aggressive behavior to be observed; however, the observed behaviors may not necessarily be generalizable to everyday life aggression. Measurement tools relying on observation by an independent source may provide a more unbiased estimate of aggressive behavior than will self-report measures, although this can be confounded by rater characteristics such as lack of observer training and/or observer bias.

Additional confounding variables in measurement include descriptor characteristics and scoring subtleties. For example, temporal descriptors range from generalities such as "in the past" to specific instructions such as "in the last 7 days." Some scales are specifically designed to assess aggression, while others simply include an aggression subscale as part of their measurement targets. Differences in scoring are also apparent, with some focused on quantifying in terms of frequency and duration while others use Likert-type scales. Finally, some of the most significant differences in measurement tools involve the nature of the construct (state versus trait), method of data collection, utilization of participant population, and statistical implications of the possible range of scores. These will be further discussed

below. In addition, the reader is referred to [Table 3](#), which provides a general overview of the titles of selected measures of aggression, anger, hostility, and impulsivity (as specified by the developers), including number of items for each measurement, identifying information or original literature citation, and description of scales or factors.

3.1. State versus trait

Implicit in the literature is a debate concerning the permanence and immutability of psychological constructs such as anger and aggression ([Allen & Potkay, 1981](#)). This debate is reflected in the choice of a time frame for questions. Attitudes that are consistent across an extended time frame and characterological in nature, often identified by the qualifier, “in the past,” are trait variables. More transient symptoms with recent onset may be representative of less enduring, state variables. Implicit in whether aggression are viewed as state or trait characteristics is evidence of model and system contexts that provide guidance for making decisions related to the possibility of change. Viewing aggression as either state or trait also influences development of treatment recommendations and interventions: Whether rehabilitation is an option depends on whether one holds the view that aggressive tendencies can be changed ([Wilson, 1984](#)). Awareness of the grounding of a given measurement tool in a state or trait construct may allow for more informed and appropriate choices to be made, thus increasing the potential for result and conclusion integrity. [Table 1](#) provides a differentiated list of state and trait aggression assessment tools.

3.2. Method of data collection

Several factors may influence choice of method for data collection. These may include cost, experimenter bias, social desirability, sample size and accessibility, and degree of impairment of participants. Choice of method is significant to the state versus trait issue, since some types of data collection may tend to be more effective in gathering one or the other characteristic. Overall, it may be important to assess aggressive behavior utilizing multiple sources to increase ecological validity. [Table 2](#) identifies measurement tools according to method of collection, as described below.

3.2.1. Self-report

The self-report questionnaires on hostility and aggression have been developed for use with a variety of populations, including in- and outpatients. Examples include the Aggression Questionnaire ([Buss & Perry, 1992](#)), Buss–Durkee Hostility Inventory ([Buss & Durkee, 1957](#)), and Cook–Medley Hostility Scale ([Cook & Medley, 1954](#)). Caveats about using self-rating scales include that answers may be distorted by social desirability and that questions frequently relate to self-description, giving less information about actual behavioral events ([Fisher & Katz, 2000](#)).

[Bech and Mak \(1995\)](#) point out that the social desirability bias of a participant may affect the self-reporting of aggression. An inverse relationship has been found between measures of social desirability and hostility measures: Subjects motivated by need for social approval may

Table 1
State and trait measures of aggression, anger, hostility, and impulsivity

Measure type	Measure title	
State	Anger Attacks Questionnaire	Modified Overt Aggression Scale
	Anger Self-Report	Modified Taylor Aggression Task
	Brief Agitation Rating Scale	Overt Aggression Scale
	Brief Psychiatric Rating Scale	Point Subtraction Aggression Paradigm
	Calgary General Hospital-Aggression Scale	Rating Scale for Aggressive Behavior in the Elderly
	Cohen-Mansfield Agitation Inventory	Report Form for Aggressive Episodes
	Continuous Performance Task	Scale for the Assessment of Aggressive and Agitated Behaviors
Trait	Driving Anger Scale	Staff Observation of Aggression Scale
	Lions Scale	Duke Social Support Index
	Abusive Violence Scale	Early Experience Questionnaire
	Aggression Inventory	Expagg Questionnaire
	Aggression Questionnaire	Eysenck's Personality Questionnaire-II
	Anger Expression Scale	Feelings and Acts of Violence
	Anger, Irritability, Assault Questionnaire	
	Anger Questionnaire	Gender Role Conflict Scale
	Attitudes Toward Aggression	Hand Test
	Barratt Impulsivity Scale-11	Hostility and Direction of Hostility Questionnaire
	Brief Anger–Aggression Questionnaire	Intermittent Explosive Disorders Module
	Brown–Goodwin Assessment for Life History of Aggression	Interpersonal Hostility Assessment Technique
	Buss–Durkee Hostility Inventory	Millon Clinical Multiaxial Inventory (MCMI-III)
	Conflict Tactics Scale	Motivation Assessment Scale
	Draw-A-Person Test	Multidimensional Anger Inventory
	Driving Anger Scale	MMPI-Overcontrolled Hostility Scale
	NEO-Personality Inventory	Novaco Anger Inventory
	Past Feelings and Acts of Violence	Suicide and Aggression Scale
	Physical Aggression Scale	Thematic Apperception Test
	Prediction of Aggression and Dangerousness in Psychotic Patients	Tridimensional Personality Questionnaire
Reaction Inventory	Verbal Aggressiveness Scale	
Risk of Eruptive Violence Scale	Violence Scale	
State and Trait	Aggressive Acts Questionnaire	1.7 Impulsiveness Questionnaire
	Brief Symptom Inventory	State–Trait Anger Expression Inventory-2
	Clinical Anger Scale	State–Trait Anger Scale
	Novaco's Anger Scale	Suicide and Aggression Survey
		Violence and Suicide Assessment Form

not recognize or report as much hostility and may not be as aggressive as those to whom social approval is less important (Biaggio, 1980; Selby, 1984). In addition, on scales with high levels of face validity, respondents may bias their responses and “fake” more or less aggression, depending on their outcome motivations (Posey & Hess, 1984).

3.2.2. *Observer-rated*

The observer scales, designed to measure episodes or acts of aggressive behavior, include Overt Aggression Scale (OAS, Yudofsky, Silver, Jackson, Endicott, & Williams, 1986), Social Dysfunction and Aggression Scale (SDAS, Wistedt et al., 1990), and Staff Observation Aggression Scale (SOAS, Palmstierna & Wistedt, 1987). The goal of scales such as these is to obtain a description of separate aggressive events through direct observation and/or inquiry. The amount of exposure to aggression an observer has experienced, however, may affect the ratings. In addition, interobserver reliability may be hard to obtain across settings.

3.2.3. *Projective tests*

Many projective assessment tools include aggression scales, and these have been used in a variety of studies. The Hand Test (Wagner, 1961) was developed to detect potentially aggressive behavior among individuals. Wanamaker and Reznikoff (1989) used cards 1, 3BM, 4, 9MB, and 10 of the Thematic Apperception Test (TAT) to assess aggression levels in participants following exposure to music. Posey and Hess (1984) used the Draw-A-Person Test to assess the relative sensitivity of subtlety or obviousness of items to response sets. Projective tests may be most effectively used as part of a multimodal assessment battery that includes more traditional psychometric tools and several raters and coding schemes (Lewis & Cook, 1968).

Historically, some researchers and clinicians have expressed concerns about the reliability and validity of projective techniques (see McCrae & Costa, 1990). Although projective techniques vary in their psychometric properties, all generally provide a nonthreatening stimulus, are easily understood, do not require sophisticated verbal skills by the respondent, and can assist in the establishment of rapport in the assessment relationship. Perhaps more importantly, the utilization of projective techniques allows the assessor to observe the subject's response to an unstructured situation.

3.2.4. *Behavioral laboratory measures*

Laboratory behavioral tasks are often employed to measure aggression in a controlled setting. These instruments may be computer-based and measure reactions in real time, sometimes measuring brain waves or cognitive activity. Laboratory instruments that have been reported to have been used for measuring aggression include continuous performance tasks (CPT), such as the Integrated Visual and Auditory CPT (IVA, Sanford & Turner, 1994), frontal-lobe function tasks (Lau, Pihl, & Peterson, 1995), behavioral disinhibition tasks, such as the Taylor Task (Taylor, 1967), and interactive response to provocation tasks, such as the Point Subtraction Aggression Paradigm (PSAP, Cherek, 1981). Impulsivity has also been measured using extinction, reward-choice, and response disinhibition/attentional paradigms (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). Laboratory techniques can also include direct measures of physiological activity, such as assays for cortisol blood levels or brain activity scans. However, it is important to consider whether aggression or impulsivity observed in a laboratory setting has ecological validity generalizable to everyday life.

Table 2

Administrative methods for measures of aggression, anger, hostility, and impulsivity

Measure type	Measure title	
Interview	Aggression Risk Profile	Life History of Aggression
	Anger Irritability Assault Questionnaire	Structured Clinical Interview for the DSM-III/IV
	Conflict Tactics Scale	Suicide and Aggression Survey
Laboratory	Interpersonal Hostility Assessment Technique	
	Aversive Stimulation Aggression Model	Go/No-Go Learning Task
	Buss Teacher–Learner Task	Point Subtraction Aggression Paradigm
Observational	Continuous Performance Task	Single-Photon Emission Coaxial Tomography
	Cortisol levels	Taylor Aggression Task, Modified
	Brief Agitation Rating Scale	Rating Scale for Aggressive Behaviour in the Elderly
	Brief Psychopathological Rating Scale	Rating Scale for Aggressive Behaviour in the Elderly—Chinese Version
	Brown–Goodwin Assessment for Life History of Aggression	Report Form for Aggressive Episodes
	Calgary General Hospital Aggression Scale	Scale for the Assessment of Aggressive and Agitated Behaviors
	Cohen-Mansfield Agitation Inventory	Social Dysfunction and Aggression Scale
	Modified Overt Aggression Scale	Staff Observation Aggression Scale
	Motivation Assessment Scale	Violence Scale
	Observation Scale for Aggressive Behaviors	Violence and Suicide Assessment Form
Projective	Overt Aggression Scale	
	Prediction of Aggression and Dangerousness in Psychotic Patients	
	Draw-A-Person	
	Hand Test	
	Picture-Frustration Study	
Self-report	Thematic Apperception Test	
	Rorschach	
	Abusive Violence Scale	Life History of Aggression
	Aggression Inventory	Millon Clinical Multiaxial Inventory-III
	Aggression Questionnaire	Minnesota Multiphasic Personality Inventory
	Anger Attacks Questionnaire	Multidimensional Anger Inventory
	Anger, Irritability, Assault Questionnaire	NEO Personality Inventory
	Anger Self-Report Inventory	Novaco Anger Inventory
	Attitudes Toward Aggression Scale	Novaco Anger Scale
	Barratt Impulsiveness Scale	Overcontrolled Hostility Subscale
Brief Anger–Aggression Questionnaire	Past Feelings and Acts of Violence Scale	
Brief Symptom Inventory	Physical Aggressiveness Scale	
Buss–Durkee Hostility Inventory	Reaction Inventory	
Buss–Perry Aggression Inventory	Risk of Eruptive Violence Scale	

Table 2 (continued)

Measure type	Measure title	
Self-report	Clinical Anger Scale	State–Trait Anger Expression Inventory-2
	Conflict Tactics Scale	State–Trait Anger Scale
	Cook–Medley Hostility Subscale	Temperament and Character Inventory
	Driving Anger Scale	Tridimensional Personality Questionnaire
	Expagg Questionnaire	Verbal Aggressiveness Scale
	Eysenck Personality Questionnaire	

3.2.5. Interview measures

Interview tools and techniques include unstructured clinical interviews, in which participant response and orientation of interviewer may determine the direction and outcome of the interview, semi-structured interviews that combine a predetermined format with clinical skill and interpretation, and structured interviews, in which the interviewer relies on standardized questions to elicit information, such as the Structured Clinical Interview for the DSM-IV (SCID-IV, [First, Spitzer, Gibbon, & Williams, 1997](#)). Each has specific advantages and disadvantages that should be considered in relation to the goal of the study. Less-structured interviews allow the participant to be queried for supplemental information. However, the amount and quality of information may be influenced by the particular dyad dynamics of the face-to-face encounter. The format of semi-structured interviews increases interrater reliability, and reliability is generally most robust in a structured format. Interview tools frequently employed include: Abusive Violence Scale ([Hendrix & Schumm, 1990](#)), Intermittent Explosive Disorders Module ([Coccaro, 1998](#)), Life History of Aggression ([Coccaro, Berman, & Kavoussi, 1997](#)), and Suicide and Aggression Scale ([Korn et al., 1992](#)).

3.3. Populations and scoring

The issues associated with a choice of study population are focused on applicability or appropriateness for selected populations and generalizability of results across samples in different studies. [Matthews et al. \(1985\)](#) notes that because some measures were developed on specific inpatient populations, their pathology floor level may be too high to adequately measure lower levels of anger and hostility in nonclinical populations. An additional concern with scoring is that dichotomous response categories (such as those used in the Buss–Durkee Hostility Inventory) are less sensitive to progressive levels of change in aggressive states. Further, the lack of a statistical mean in dichotomous scoring limits subsequent analysis possibilities.

3.4. Predictive validity

There is a need in some clinical and social settings to be able to predict the potential for aggression. This is sometimes referred to as potential for dangerousness, which has been defined by some as, “a propensity for an individual to inflict serious or life-threatening injury

Table 3
Overview of measurement instruments

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Aggression Inventory	A modification of <i>Olweus Multifaceted Aggression Inventory</i> (Olweus, 1986; Olweus, Mattsson, Schalling, & Low, 1980) originally developed with adolescent boys. The Aggression Inventory was developed as a variant of the inventory to measure stable aggressive reaction patterns in adult men and women. Modifications were developed by adding behaviors that were reported by adult subjects during in-depth interviews about their past and current aggressive behaviors and by rewording items from original Olweus inventory to be appropriate for adults.	28 items Self-report Five-point Likert scale Trait measure	305 undergraduate Psychology students: 155 men 150 women <i>M</i> age = 20.5 years Range 18–42 97% Caucasian	<p><i>Reliability:</i> <i>Internal consistency:</i> Physical $\alpha=.86$, Verbal $\alpha=.75$, Impulsive $\alpha=.69$, Impatient $\alpha=.69$, Avoid $\alpha=.64$</p> <p><i>Factor analysis:</i> 1. Physical (29.4%) 2. Impulsive (12.2%) 3. Verbal (8.8%) 4. Impatient (6.5%) 5. Avoid (5.5%)</p> <p>Four factors (Gladue, 1991b): 1. Physical (32.6% for men, 5.6% for women) 2. Verbal (12.7% for men, 33.9% for women) 3. Impulsiveness/ Impatient (8.4% for men, 15.2% for women) 4. Avoid (4.9% for men, 5.3% for women)</p>	Gladue (1991a)

Aggression
Questionnaire

Revised Buss–Durkee Hostility Inventory (Buss & Durkee, 1957) to address weak psychometric properties and inconsistent findings across analyses possibly due to the lack of test–retest reliability and the true–false format of BDHI. One major advance of the Aggression Questionnaire in comparison to the BDHI is the use of factor analytic techniques in the construction of the instrument. 52 items were initially used (consisting of original BDHI items as well as new ones); exploratory factor analysis yielded four factors, which was supported by results of a confirmatory factor analysis.

29 items
Self-report
Five-point
Likert scale
Trait measure

1253 Intro to
Psychology
Students:
612 men
641 women
(three successive
samples of 406,
448, and 300
subjects)
Range = 18–20

Reliability:
Internal consistency:
Total score $\alpha=.89$,
Physical Aggression
 $\alpha = .85$,
Verbal Aggression $\alpha=.72$,
Anger $\alpha=.83$,
Hostility $\alpha=.77$,
Test–retest:
9-week period
Total score=.80
Physical Aggression=.80
Verbal Aggression=.76
Anger=.72
Hostility=.72

Validity:
Strong correlation between
the Aggression
Questionnaire, and
extraversion (self-report
and peer nominations)
(moderate correlations were
found for verbal, anger, and
hostility)

Factor analysis:
1. Physical Aggression
2. Verbal Aggression
3. Anger
4. Hostility

Buss and Perry
(1992)

Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Aggressive Acts Questionnaire	<p>It was developed as a research tool to test construct validity of impulsive and premeditated aggression. Subjects are asked to list the four most extreme aggressive acts that they have committed in the last 6 months along with the approximate date, duration, and time of day. The person then responds to the 22 items for each act (up to four acts).</p> <p>It was developed from semi-structured interview that distinguishes between premeditated and impulsive aggression (Barratt, Stanford, Felthous, & Kent, 1997; Barratt, Stanford, Kent, et al., 1997). Impulsive aggression was characterized in part by feelings of remorse and by thought confusion, whereas premeditated aggression was related to social gain and dominance.</p>	<p>22 items</p> <p>Self-report</p> <p>Five-point Likert scale</p> <p>Trait and State measure</p>	<p>216 college students at two universities:</p> <p>42 males</p> <p>174 females</p> <p><i>M</i> age for males = 29</p> <p><i>M</i> age for females = 27</p>	<p><i>Reliability:</i></p> <p><i>Internal consistency:</i></p> <p>$\alpha = .55$ on all four factors extracted. α's for Factor 1 = .75, 2 = .94, 3 = .48, 4 = .55</p> <p><i>Validity:</i></p> <p>The self-report measure of anger (especially anger-out) and motor and attentional impulsiveness were significantly related to impulsive aggression, but not to premeditated aggression</p> <p>Anger had a low order but significant relationship with the Mood factor, while hostility and anger-in had low level relationships with the Agitation factor</p> <p><i>Factor analysis:</i></p> <ol style="list-style-type: none"> 1. Impulsive Aggression 2. Mood the day the act occurred 3. Premeditated Aggression 4. Agitation 	<p>Barratt, Stanford, Dowdy, Liebman, and Kent (1999)</p>

Anger Attacks
Questionnaire

Self-report of incidents of anger outbursts characterized as 1 (irritability during the past 6 months), 2 (overreaction to minor annoyances with anger), 3 (occurrence of one or more attacks during the previous month), 4 (inappropriate anger and rage directed at others during an anger attack) and four or more of the following: tachycardia, hot flashes, chest tightness, paresthesia, dizziness, shortness of breath, sweating, trembling, panic, feeling out of control, feeling like attacking others, attacking physically or verbally, throwing or destroying objects.
Was designed as an ad-hoc instrument for assessing the presence of anger and was administered to patients already participating in clinical trials.

Seven items
Self-report
State measure

79 consecutive
outpatients
with major
depressive
disorder:
25 men
54 women
M age = 38.8 years
Range = 18–35

Validity:
Concurrent:
(Fava &
Rosenbaum, 1999):
Patients with anger attacks
have significantly higher
scores on hostility, anxiety,
somatic symptoms, and
psychological distress on
Symptom Questionnaire
compared to those without
anger attacks.
28–44% of patients with
some form of depression
reported anger attacks,
0% of normal controls.
The prevalence of anger
attacks in the group of
depressed patients was
significantly higher
($P < .05$) than that of
normal controls.

Fava et al.
(1991)

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Anger, Irritability, Assault Questionnaire (AIAQ)	Purports to assess impulsive aggression and was formed from two subscales of Buss–Durkee Hostility Inventory (BDHI; Buss & Durkee, 1957) and Anger subscale of Affective Lability Scale (ALS; Harvey, Greenberg, & Serper, 1989). It primarily focuses on the inability to control aggression. It has three continuous subscales: Labile anger, Irritability, and Assault. The domains were chosen for their association with serotonin dysfunction in impulsive–aggressive patients. Revised version has two new subscales: Indirect and Verbal Assault.	28 items Self-report Four-point Likert scale Trait measure	22 subjects: 15 males 7 females with current or past personality disorders or major depressive disorder <i>M</i> age = 46.7 years 20 controls: 10 male 10 female	<i>Reliability:</i> <i>Test–retest:</i> 1-week period for three subscales subjects=.57–.93 controls=.66–.98 <i>Validity:</i> <i>Concurrent:</i> Scores for subscales significantly correlated with scores for same population on BDHI and ALS Correlations in expected directions with Overt Aggression Scale (Yudofsky et al., 1986). Patients scored significantly higher than controls on each of the subscales for BDHI, ALS, and the AIAQ.	Coccaro et al. (1991)
Anger Self-Report (ASR)	It was developed to differentiate between the awareness and expression of anger. It yields separate scores for Awareness of Anger, Expression of Anger (three subscales: General, Physical, and Verbal Expression), Guilt, Condemnation of Anger, and Mistrust.	64 items Self-report Six-point Likert-type scale State measure	82 psychiatric patients 67 college students	<i>Reliability:</i> <i>Internal consistency:</i> The split-half reliability coefficients for inventory scores ranged from .64 to .82.	

Test–retest: Over a 2-week interval, the reliability coefficients for the Awareness of Anger scale and the Expression of Anger scale were both .54. The coefficients for the Expression subscales were .45 for General, .63 for Physical, and .35 for Verbal (Biaggio, Supplee, & Curtis, 1981).

Validity:

Concurrent: Correlations between anger and expression scores from the ASR and Buss–Durkee total were: (awareness=.66; expression=.64); Reaction Inventory (awareness=.43; expression=.20); and NAI (awareness=.42) (Biaggio, 1980).

Physical expression scale correlated .41 with assaultive acts on PAS. Verbal expression scale correlated .31 with anger, belligerence, and negativism. ASR guilt scale correlated .48 with suicidal thoughts and .33 with depression–inferiority (all P 's < .05).

(continued on next page)

Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Anger Self-Report (ASR)				Differences between the students and patients on the ASR were highly significant, with the exception of the Mistrust–Suspicion Scale.	
Barratt Impulsiveness Scale (BIS 11)	<p>Latest revision of BIS (Barratt, 1959) and BIS-10 (Barratt, 1985) that assesses general impulsiveness while taking into account the multifactorial nature of the personality construct. Designed primarily as research instrument to aid in the description of impulsivity.</p> <p>It has been proposed that the personality trait of impulsiveness is related to one form of aggression, which has been labeled “impulsive aggression.”</p> <p>The BIS-11 looks at impulsivity in terms of three domains: Motor, Nonplanning, and Attentional.</p>	<p>30 items</p> <p>Self-report</p> <p>Four-point Likert-type scale</p> <p>Trait measure</p>	<p>412 Intro to Psychology students:</p> <p>130 males</p> <p>279 females</p> <p>248 psychiatric inpatients:</p> <p>164 substance abuse disorder (110 males, 54 females)</p> <p>84 general psychiatry patients (39 males, 45 females)</p> <p>73 male prison inmates</p> <p>from security prison</p>	<p><i>Reliability:</i></p> <p><i>Internal consistency:</i></p> <p>college students: $\alpha=.82$;</p> <p>substance abuse patients: $\alpha=.79$;</p> <p>psychiatric patients: $\alpha=.83$;</p> <p>prison inmates: $\alpha=.80$</p> <p><i>Validity:</i></p> <p><i>Discriminant:</i></p> <p>BIS-11 scores were significantly different between three groups (college, psychiatric patients including substance abuse, and inmates).</p> <p><i>Concurrent:</i></p> <p>BIS-11 was significantly correlated with all BDHI subscales except Assault. Highest correlation was between Irritability and Impulsiveness (P's < .05)</p> <p>(Stanford, Greve, & Dickens, 1995)</p>	<p>Patton, Stanford, and Barratt (1995)</p>

Brief Agitation Rating Scale (BARS)

Derived from the Cohen-Mansfield Agitation Inventory (CMAI) and was developed as a brief means to assess the presence and severity of physically aggressive, physically nonaggressive, and verbally agitated behaviors in an elderly nursing home residence.

10 items
Observational
State measure

232 residents of
a long-term
care facility for
Jewish elderly:
36 male
196 female
M age = 86 years
Range = 65–102
M length of
stay = 3.5 years

Factor analysis:
six first-order:
Attention, Motor
Impulsiveness,
Self-control, Cognitive
Complexity, Perseverance,
Cognitive Instability
three second-order:
Attentional Impulsiveness,
Motor Impulsiveness, Non
planning Impulsiveness

Reliability:
Internal consistency:
calculated for the 10 items
across three shifts. Day
shift: $\alpha=.74$; evening shift:
 $\alpha=.82$; night shift: $\alpha=.80$
Interrater: Intraclass
correlation between rater
pairs was .73
Correlation with CMAI
total score: *r*'s for day=.95,
evening=.94, night=.95

Finkel, Lyons,
and Anderson
(1993)

Validity:
Concurrent: Significantly
correlated with Behavioral
Pathology in Alzheimer's
Disease (Behave-AD;
Reisberg, Franssen, and
Clan, 1989) and Behavioral
Syndromes Scale for De-
mentia (BSSD; Devanand,
Brockington, Moody,
Brown, & Sackeim, 1992)

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Brief Anger–Aggression Questionnaire (BAAQ)	Rationally developed by constructing items representative of the content of the BDHI subscales of Assault (Ass), Indirect Hostility (Ind), Irritability (Irr), Negativism (Neg), Resentment (Res), and Verbal Hostility (Verb). Measure of overtly expressed anger characterized by generalized irritability and a tendency to act aggressively.	Six items Self-report Trait measure	30 Battersers 26 General Assaulters 37 Mixed Assaulters <i>M</i> age = 32.13 years 66% White 28% Black 26 Controls	<i>Reliability:</i> <i>Test–retest reliability:</i> $r = .84$ <i>Validity:</i> <i>Concurrent:</i> Items correlated (Ass) .66, (Ind) .58, (Irr) .57, (Neg) .49, (Res) .60, and (Verb) .52 with matching BDHI subscales. BAAQ and BDHI total scores correlated .78.	Maiuro, Vitaliano, and Cahn (1987)
Brief Symptom Inventory (BSI)	Shortened version of SCL-90-R (Derogatis, 1977) that generates three global and nine primary psychological symptom dimensions including Somatization (SOM), Obsessive–compulsive (O-C), Interpersonal Sensitivity (I-S), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic Anxiety (PHOB), Paranoid Ideation (PAR), and Psychoticism (PSY).	53 items Self-report Five-point Likert scale	four normative samples: 1002 adult psychiatric outpatients (425 males, 577 females); (66% Caucasian) 974 adult nonpatients (494 males, 480 females)	<i>Reliability:</i> <i>Internal consistency:</i> α coefficients for all nine dimensions ranged from .71 on the Psychoticism dimension to .85 on Depression. <i>Test–retest:</i> coefficients range from a low of .68 for Somatization to .91 for Phobic Anxiety. Stability coefficients of .90 over time.	Derogatis (1993)

Three Indices:

1. Global Severity Index (GSI)
2. Positive Symptom Total (PST)
3. Positive Symptom Distress Index (PSDI)

Standard administration time is reportedly 8–10 minutes.

Psychological distress is viewed by author as falling between state and trait

423 adult psychiatric inpatients
2408 adolescent nonpatients
(*M* age = 15.8)
58% White
30% Black

Validity:

Convergent:

Coefficients $\geq .30$ between the nine dimensions of the BSI and the clinical scales of the Minnesota Multiphasic Personality Inventory (MMPI) and the Wiggins content scales of the MMPI

Predictive:

Predictive validity studies have been conducted in the areas of screening, cancer, PNI, psychopathology, pain assessment/management, HIV, HTN, therapeutic interventions, and general clinical studies that indicate good predictive validity.

Factor analysis:

nine factors accounted for 44% of variance:

Psychoticism,
Somatization, Depression,
Hostility, Phobic Anxiety,
Obsessive–Compulsive,
Anxiety (Panic Anxiety),
Paranoid Ideation, and
Anxiety (General)

(continued on next page)

Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Brown–Goodwin Assessment for Life History of Aggression (BGA)	Purpose is to obtain a history of actual aggressive behavior (verbal and/or physical). Aggressive thoughts, attitudes, and fantasies are precluded. Assesses behavior during the “last 6 months” and “ever in life.”	16 items Observational Five-point scale Trait measure	26 hospitalized, personality-disordered men with histories of aggressive, violent, and impulsive behavior <i>M</i> age = 22.1 years Control group consisted of 26 active duty male hospital employees <i>M</i> age = 23.7 years	<i>Reliability:</i> <i>Internal consistency:</i> Aggression $\alpha=.91$; Antisocial behavior and consequences of Aggressive Behavior $\alpha=.76$. <i>Validity:</i> Subjects who had been given personality diagnoses that are generally associated with more behavioral impulsivity (e.g., antisocial, explosive) had a significantly higher mean aggressions score ($P < .001$) and lower 5H1AA ($P < .001$) when compared to the subjects with personality diagnoses generally associated with less behavioral impulsivity (e.g., passive–aggressive, OCD).	Brown, Goodwin, Ballenger, Goyer, and Major (1979)

The subjects with a history of at least one suicide attempt had a significantly higher mean aggression score ($P < .01$), <5H1AA ($P < .01$), and a higher MHPG ($P < .025$) than the subjects with no history of suicide attempts

Factor analysis:
(Coccaro, Berman, Kavoussi, & Hauger, 1996)

- Three factors:
1. Aggression
 2. Self-injurious and suicidal behavior
 3. Antisocial behavior and consequences of Aggressive Behavior

Reliability: Buss and Durkee (1957)
Internal consistency: Kuder–Richardson 20 coefficients for overt hostility and covert hostility scales were .76 and .72, respectively (Bendig, 1962).
Test–retest: 2-week interval, α ranged from .64 to .78; reliability of the total hostility score=.82 (Biaggio et al., 1981)

Buss–Durkee Hostility Inventory (BDHI)	Provides information on seven subclasses of hostility, which are summed to yield a measure of global hostility. Also contains a guilt scale that shares no items with hostility scale items. Eight subscales: Assault, Indirect Hostility, Irritability, Negativism, Resentment, Suspicion, Verbal Hostility, and Guilt. The subclasses of hostility were developed on a rational basis. Also produces a Total score. Historically, it is the most frequently used measure of trait aggression.	75 items Self-report True/false format Trait measure	Initial sample included 85 college men and 88 college women
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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Buss–Durkee Hostility Inventory (BDHI)	Results of factor analyses since original study have yielded inconsistent results (see Bendig, 1962; Bushman, Cooper, & Lemke, 1991; Felsten, 1995). To address these inconsistent findings, Buss and Perry (1992) developed a revised measure referred to as the Aggression Questionnaire. Some of the BDHI original items were retained, whereas others were modified and/or new ones added. A likert response format was also added (see Buss & Perry in this table for more information).			<p><i>Validity:</i></p> <p><i>Concurrent:</i> Correlations between BDHI and other anger measures include: Anger-Self report (.66), Reaction Inventory (.45), & NAI (.39). The covert hostility subscale was significantly related to Rorschach hostile content ($r=.14$) (Singh & Sehgal, 1979).</p> <p><i>Predictive:</i></p> <p>Shown to have predictive validity in a variety of clinical samples, such as delinquent adolescents (Romney & Syverson, 1984), violent prisoners (Gunn & Gristwood, 1975), and aggressive men (Barnett, Fagan, & Booker, 1991)</p> <p><i>Factor analysis:</i></p> <ol style="list-style-type: none"> 1. Resentment and Suspicion for men Resentment, Suspicion, and Guilt for women—attitudinal component (often referred to as neurotic hostility) 	

<p>Calgary General Hospital (CGH) Aggression Scale</p>	<p>It was derived from the SOAS (Palmstierna & Wistedt, 1987). It was developed to measure aggressive events from mild to severe and to reflect behaviors exhibited by all types of patients. Three components: isolated aggressive behavior, verbal aggressive behavior, and physical aggressive behavior Unique characteristics: identifies even mild forms of aggression (e.g., cursing); includes provocations and measures to stop; has an item regarding intentional destruction of property; has an item to reflect the occurrence of self-destructive behavior; and operational definitions are included on the scale.</p>	<p>one form completed for each incident of aggression Observational Each form includes four main categories (Provocation, Isolated Aggressive Behavior, Interactive Aggressive Behavior, and Method of Intervention) Global ranking of severity is assigned to every incident, up to 12 points State measure</p>	<p>671 inpatients in three psychiatric wards or locked forensic unit in the hospital 264 forms were completed on a total of 89 patients from four units</p>	<p>2. Assault, Indirect Hostility, Irritability, and Verbal Hostility for both sexes, with the addition of negativism for women—motor component (often called expressive hostility)</p>	<p><i>Reliability:</i> <i>Interrater reliability:</i> study using nine vignettes rated by 10 staff members yielded intraclass correlation coefficient of .83 (total score); Verbal aggression=.62; Physical aggression=.66. Isolated aggression=.66. When cursing/swearing was removed as a category of aggressive behavior on the isolated aggression scale, kappa increased to .87.</p>	<p>Arboleda-Florez, Crisanti, Rose, and Holley (1994)</p>
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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Clinical Anger Scale (CAS)	<p>Designed to measure the syndrome of clinical anger.</p> <p>Clinical anger was conceptualized as syndrome that consists of global, debilitating, and chronic symptoms of anger and includes cognitive, affective, physiological, behavioral, and social manifestations.</p> <p>Initial items were discussed among professional psychology staff and students; after revision of items they were administered to several samples. The CAS is intended primarily for use with individuals who are suffering from major levels of clinical anger.</p>	<p>21 items</p> <p>Self-report</p> <p>Four-point scale</p> <p>State and Trait measure</p>	<p>Six samples of students:</p> <p>177 subjects (43 males, 112 females, 22 not specified); <i>M</i> age = 23.93 years</p> <p>183 students (67 males, 114 females, 2 NOS); <i>M</i> age = 22.99 years</p> <p>131 students (49 males, 81 females, 1 NOS); <i>M</i> age = 21.17 years</p> <p>405 subjects (104 males, 301 females); <i>M</i> age = 24.13 years</p> <p>235 students (55 males, 165 females, 15 NOS); <i>M</i> age = 24.59 years</p>	<p><i>Reliability:</i></p> <p><i>Internal consistency:</i> $\alpha = .95$ for males; and $\alpha = .92$ for females</p> <p><i>Test-retest:</i></p> <p>$r = .85$ for males; $r = .77$ for females; and $r = .78$ for males and females</p> <p><i>Validity:</i></p> <p><i>Convergent:</i></p> <p>Significant correlations between CAS and State-Trait Anger Scale anger in and anger out (.36–.61); symptoms of SCLR-90-R (.39–.68); Eysenck Personality Inventory (extraversion/introversion—-.29 and neuroticism .28); and BIG-5 Personality Traits (–.19 to –.25)</p> <p><i>Divergent:</i></p> <p>Significant negative correlations between CAS and State-Trait Anger Scale anger control (–.23 to –.27).</p> <p><i>Factor analysis:</i> Confirmed a unidimensional item structure</p>	Snell, Gum, Shuck, Mosley, and Hite (1995)

			39 undergraduate psychology students (8 males, 31 females); <i>M</i> age = 24.79 years		
Cohen-Mansfield Agitation Inventory (CMAI)	CMAI items are divided into three groups: Aggressive behaviors, physically nonaggressive behaviors, and verbally agitated behaviors.	29 operationally defined behaviors Observational Seven-point scale State measure	408 nursing home residents: 92 male 316 female <i>M</i> age = 85 years Range = 70–99	<p><i>Reliability:</i> <i>Interrater:</i> Agreement rates for each behavior on the CMAI for three sets of raters averaged=.92, .92, and .88.</p> <p><i>Factor analysis:</i></p> <ol style="list-style-type: none"> 1. Aggressive behaviors 2. Physically nonaggressive behaviors 3. Verbally agitated behaviors 	Cohen-Mansfield, Marx, and Rosenthal (1989)
			2445 nursing home residents from Sydney, Australia 68.5% female <i>M</i> age = 80.4 years	<p><i>Reliability:</i> <i>Internal consistency:</i> Cronbach's α=.74, .82, and .63 for day, evening, and night shifts, respectively</p> <p><i>Interrater reliability:</i> =.82 for Total For subscales: aggressive behaviors=.85, physically nonaggressive behaviors=.73, and verbally agitated behaviors=.47</p>	Miller, Snowdon, and Vaughan (1995)

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Cohen-Mansfield Agitation Inventory (CMAI)				<p><i>Validity:</i> <i>Concurrent validity:</i> High associations between CMAI and BEAM-D ($r = .91$ for day shift, $P < .01$) and b/w CMAI and NHBPS ($r = .89$ for day shift, $P < .01$)</p> <p><i>Factor analysis:</i> Results used to run factor analysis on 26 of the items, explaining 37.6% of the variance, which resulted in three factors:</p> <ol style="list-style-type: none"> 1. Verbal and physical aggressive behaviors 2. Physical restlessness 3. Verbally disruptive behaviors 	
Conflict Tactics Scale (CTS)	The most widely used instrument for research on intrafamily violence. It purports to assess self-report of tactics engaged during conflict with a partner within the past year. The three theoretically based tactics measured by the CTS: reasoning, verbal aggression, and violence. It contains a list of actions that a family member might use in a conflict with another member. Response categories ask	18 items Self-administered or interview Six-point scale Items are further subdivided into “minor” (K, L, M) and “severe” (N–S) violence	Nationally representative sample of 2143 couples	<p><i>Reliability:</i> <i>Internal consistency:</i> α coefficients for perpetrator–victim relationship for child–child (Reasoning: $\alpha = .56$; Verbal Aggression $\alpha = .79$; Physical Aggression $\alpha = .82$); parent-to-child (Reasoning: $\alpha = .69$; Verbal Aggression $\alpha = .77$; Physical Aggression $\alpha = .62$); child-to-parent</p>	Straus (1979, 1990)

for how many times each action has occurred during the past year.

There have been three versions:

1. *Form A*: self-administered questionnaire used with sample of college students in 1971–1972
 2. *Form N*: expanded list of violent acts and was used in face-to-face interviews with the 1975 Family Violence Survey
 3. *Form R*: used in 1985 Family Violence Resurvey with additional items for choking, burning, or scalding, and slightly different response categories
- Modified versions also exist (see Cascardi, Avery-Leaf, O’Learly, & Slep, 1999; Caulfield & Riggs, 1992; Pan, Neidig, & O’Leary, 1994).

Trait measure

(Reasoning: $\alpha=.64$; Verbal Aggression $\alpha=.77$; Physical Aggression $\alpha=.78$); husband-to-wife

(Reasoning: $\alpha=.50$; Verbal Aggression $\alpha=.80$; Physical Aggression $\alpha=.83$); wife-to-husband (Reasoning: $\alpha=.51$; Verbal Aggression $\alpha=.79$; Physical Aggression $\alpha=.82$); and couple (Reasoning: $\alpha=.76$; Verbal Aggression $\alpha=.88$; Physical Aggression $\alpha=.88$)

Validity:

Concurrent:

Moderate level of concurrent validity as measured by rates of family violence as reported by students and their parents (Bulcroft and Straus, as cited in Straus, 1990).

Construct:

CTS is successful in obtaining high rates of occurrence for socially unacceptable acts of verbal and physical aggression.

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Driving Anger Scale	Driving anger is the extent to which anger is experienced in driving-related contexts. 53 potentially provocative situations were developed by interviewing faculty and students about things that angered them while driving. Six reliable subscales: Hostile Gestures, Illegal Driving, Police Presence, Slow Driving, Discourtesy, and Traffic Obstructions.	33 items (long form) 14 items (short form) Self-report Five-point scale Trait measure	1526 college freshman: 724 males 802 females Modal age = 18 years	<i>Reliability:</i> <i>Internal consistency:</i> Hostile Gestures ($\alpha=.87$), Illegal Driving ($\alpha=.80$), Police Presence ($\alpha=.79$), Slow Driving ($\alpha=.81$), Discourtesy ($\alpha=.81$), and Traffic Obstructions ($\alpha=.78$) Total long form $\alpha=.90$; Total short form $\alpha=.80$ <i>Alternate Forms:</i> Correlation of .95 between short and long version Subscales all correlated positively, suggesting a general dimension of driving anger as well as a situation-specific anger.	Deffenbacher, Oetting, and Lynch (1994)
Hand Test	Projective assessment technique developed to detect potentially aggressive behavior among individuals. Consists of ten 3×5 cards, nine of which consist of a drawing of a human hand in a semi-ambiguous pose. For each card, the subject is asked to explain what the hand is doing. The tenth card is blank and requires the subject to imagine a hand and describe what it is doing.	10-item oral response projective test Trait measure	Normative samples include: 1. 100 college students 53 males 47 females M age = 23.91 years	<i>Reliability:</i> <i>Internal consistency:</i> Spearman–Brown split-half reliabilities ranged from .85 to .92. <i>Interrater:</i> Percent of agreement for three pairs of scorers: 80%, 78%, and 83% (Wagner, 1983). Another study (Maloney & Wagner, 1979) reported interscorer agreement ranging from .71 to 1.00.	Wagner (1961, 1983)

Four major scoring categories (Interpersonal, Environmental, Maladjustive, and Withdrawal) are further divided into 15 basic scores to further define action tendencies. Aggression (AGG) is a response type categorized under Interpersonal responses.

There are also five summary scores, two of which are the Acting-Out ratio (AOR) and Acting-Out Score (AOS), which represents a person's estimated potential for exhibiting aggressive or antisocial behavior.

Age range =
17–60

85% White
15% Black

2. Individuals diagnosed with personality disorders, anxiety disorders, and somato form disorders, Schizophrenia, organic brain syndromes, and mentally retarded adults

Test–retest: Coefficients ranged from .51 to .89 for Quantitative subcategories, from .60 to .86 for the combined scores, and from .30 to .80 for the summary scores for a 2-week interval (Wagner, 1983).

Validity:

Construct: The AOR has been shown to differentiate delinquents from normals (Wagner, 1962), the institutionalized status of delinquents (Bricklin, Piotrowski, & Wagner, 1962), and poor institutionalized status of delinquents (Azcarate & Gutierrez, 1969).

Predictive: The AOS and AGG scores significantly differentiated delinquent recidivists from nonrecidivists (Wetsel, Shapiro, & Wagner, 1967).

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Hand Test				The AOS score also significantly differentiated assaultive from nonassaultive delinquents (Wagner & Hawkins, 1964).	
Life History of Aggression (LHA)	Adapted from Brown–Goodwin History of Lifetime Aggression (Brown et al., 1979) with some items deleted (i.e., some items related to behavior during military service) and new items added (verbal assault, assault against property, self-injurious behaviors, and suicide attempts). It measures Aggression, Social Consequences, and Antisocial Behavior, and Self-directed Aggression.	10 item categories Clinician and self-rated Six-point scale Trait measure	252 nonpsychotic, nonbipolar subjects of both genders 165 personality disordered subjects of both genders (70 of which also met criteria for a current Axis I Disorder) 63 Normal control subjects did not meet criteria for any past or current Axis I or II disorder	<i>Reliability:</i> <i>Internal consistency:</i> LHA total $\alpha=.88$; Aggression $\alpha=.87$; Consequences/Antisocial behavior $\alpha=.74$; Self-directed aggression $\alpha=.47$. <i>Test–retest:</i> LHA Total $r=.91$; Aggression $=.80$; Consequences/Antisocial behavior $=.89$; Self-directed $=.97$. <i>Interrater:</i> LHA Total $r=.95$; Aggression $r=.94$; Consequences/Antisocial behavior $r=.88$; Self-directed aggression $r=.84$.	Coccaro et al. (1997)

Millon Clinical Multiaxial Inventory (MCMI-III)	Omnibus inventory designed to help clinicians assess DSM-IV-related personality disorders and clinical syndromes.	175 items True/false format Self-report Trait-measure	Adult inpatient and outpatient clinical sample	<p><i>Validity:</i> <i>Concurrent:</i> Significant Correlates with BDHI aggression scores: LHA Total $r=.68$; Aggression $r=.69$; Consequences/ Antisocial behavior $r=.52$; Self-directed $r=.25$ (P's < .001). Significant correlates with OAS-M aggressions cores: LHA Total $r=.45$; Aggression $r=.52$; (P's < .001). LHA scores were significantly higher for: personality disorder versus controls ($P < .001$); dramatic versus nondramatic cluster PD ($P < .001$); borderline versus nonborderline PD ($P < .001$); and antisocial versus nonantisocial PD ($P < .001$).</p> <p><i>Reliability:</i> <i>Internal consistency:</i> Cronbach's α for Clinical Scales range from .66 to .90. α exceed .80 for 20 of the scales.</p>	Millon (1997)
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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Millon Clinical Multiaxial Inventory (MCMI-III)	<p>It has 11 Clinical Personality Pattern scales, 3 Severe Personality Pathology scales, 7 Clinical Syndromes scales, 3 Severe Syndrome scales, 3 Modifying scales, and 1 Validity Index</p> <p>Scales assessing aggression: 6B Aggressive (Sadistic). 8A Negativistic (Passive–Aggressive)</p> <p>Used for adults 18 years and older</p> <p>Is not appropriate for use with nonclinical populations given that norms are based on clinical samples.</p>		<p>998 males and females with variety of diagnoses</p> <p>Inmate correctional sample</p> <p>1676 males and females</p>	<p><i>Test–retest:</i> Results range from .82 to .96. The median stability coefficient was .91 for a 5- to 14-day retesting period.</p> <p><i>Validity:</i></p> <p><i>Concurrent:</i> Those high on self-defeating style made one suicidal gesture; presented problems, such as leaving treatment more frequently for inappropriate reasons (Hyer, Davis, Woods, Albrecht, & Boudewyns, 1992). MCMI-III Scale 6B was significantly correlated with Hostility on the SCL-90-R ($P < .01$), with MMPI-2 Scale Pd ($P < .05$), and MMPI-2 scales Pa and Ma ($P < .01$) MCMI-III Scale 8A was significantly correlated with BDI total ($P < .01$), Interpersonal Sensitivity and Hostility as measured by SCL-90-R (P's $< .01$).</p>	

Minnesota
Multiphasic
Personality
Inventory-2
(MMPI-2)

MMPI-2 is restandardized version of the original MMPI, and is an empirically based personality assessment instrument developed to assist with the diagnosis of mental disorders.

Includes 8 Validity scales, 10 Clinical scales, 15 Content scales, 27 Component scales, 20 Supplementary scales, 31 Clinical subscales, 5 Superlative self-presentation scales, 5 PSY-5 scales, and various special or setting specific indices.

Content Scale:

ANG = Anger

Content component scales:

ANG1 = Anger: Explosive Behavior

ANG2 = Anger: Irritability

Supplementary Scales:

Ho = Hostility

O-H = Overcontrolled Hostility

AGGR = Aggressiveness

(See below for more information)

Setting-specific Indices:

Megargee Classification

Cooke's Disturbance Index

567 items

True/false format

Self-report

Available in booklet form,

cassette

tape, and computer-based

administration

Trait measure

2600 adults from diverse geographic regions across the United States

1138 males

>82% White

>11% Black

>3% Native American

>3% Hispanic

>1% Asian

1462 females

>81% White

>13% Black

>11% Black

>3% Native American

>3% Hispanic

>1% Asian

Range = 18–80

Discriminant: Scale 6B shows an inverse relationship with Dependent and Compulsive High scorers on self-defeating style scored low on MMPI scales Ego Strength and Hostility

Reliability:

Internal consistency: α for Basic Scales range from .37

(Pa) to .85 (Pt, Sc) for males and from .37 (Mf) to

.87 (Pt) for females α for Anger scale was .76 for males and .73 for females

Test-retest: Correlation coefficients for Basic Scales ranged from .67 (Pa)

to .92 (Si); coefficients for Anger scale ranged from

.82 to .85

Validity:

Concurrent: ANG scale was significantly related to Trait Anger of the STAXI

in male and female college students (Ben-Porath,

McCully, & Almagor,

1993), and the Hostility

scale of the SCL-90-R in

male and female psychiatric patients (Archer,

Kilpatrick, & Bramwell,

1996).

Hathaway and McKinley (1989)

Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Minnesota Multiphasic Personality Inventory-2 (MMPI-2)				ANG scale was related to the externalization of anger and lack of control of anger in male and female college students (Schill & Wang, 1990). <i>Discriminant:</i> Normal men with elevated scores on ANG scale had increased risks of coronary heart disease (Kawachi, Sparrow, Spiro, Vokonas, & Weiss, 1996)	
MMPI-2: Overcontrolled Hostility (O-H) Scale	Original O-H scale was constructed by identifying items that were answered differently by prisoners of different levels of assaultiveness. Items were scored so that higher scores on the scale were indicative of more assaultive (overcontrolled) persons. It provides a measure of an individual's capacity to tolerate frustrations without retaliation.	28 items True/false format Self-report Trait measure	four groups of men: 14 extremely assaultive prisoners 25 moderately assaultive prisoners 25 nonassaultive prisoners 46 normals	<i>Validity:</i> <i>Discriminant:</i> Prisoners whose crimes reflected overcontrolled hostility scored higher on the O-H scale compared to prisoners whose crimes reflected undercontrolled hostility. O-H scale was found to reliably discriminate between overcontrolled assaultive psychiatric patients and undercontrolled assaultive patients (White & Heilburn,	Megargee, Cook, and Mendelsohn (1967)

MMPI-2: Hostility Scale (Ho)	Originally developed by contrasting two groups of teachers who scored at two extremes on the Minnesota Teacher Attitude Inventory. Intent was to develop a scale that measures an individual's ability to work effectively with a group, maintain group morale, and establish rapport with others. MMPI-2 Ho scale was found to have four underlying dimensions: Cynicism, Hypersensitivity, Aggressive Responding, and Social Avoidance (Han, Weed, Calhoun, & Butcher, 1995)	50 items True/false format Self-report Trait measure	Minnesota teachers 100 males 100 females	<p>1995). However, Werner, Becker, and Yesavage (1983) found that the O-H scale was not correlated with assaultiveness in psychotic, male psychiatric patients.</p> <p><i>Reliability:</i> Cook and Medley (1954) <i>Internal consistency:</i> $\alpha=.86$</p> <p><i>Validity:</i> <i>Construct:</i> Ho scores were related to self-reported anger and hostility, neuroticism, social maladjustment, and ineffective coping style (Blumenthal, Barefoot, Burg, & Williams, 1987). Female workers who scored high on Ho scale reported more stressful job experiences, more daily tension, and greater inclination to outwardly express anger than low scorers (Houston & Kelly, 1989).</p>
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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
MMPI-2: Hostility Scale (Ho)				Ho scores were highly correlated with MMPI-2 scales CYN, K, TPA, and ASP (suggesting that it is a measure of cynicism) (Han et al., 1995).	
Modified Overt Aggression Scale (MOAS)	A psychometrically upgraded version of the Overt Aggression Scale (Yudofsky et al., 1986) developed to assess aggression in psychiatric populations. Assesses the four categories of aggression by psychiatric patients: 1. Verbal aggression 2. Aggression against property 3. Autoaggression 4. Physical aggression The MOAS was upgraded from a behavioral checklist (nominal scale) to a five-point rating system (ordinal or interval scale) that represents increased levels of severity and introduced a weighted total score that reflects overall seriousness of aggression.	20 items (5 items under each form of aggression) Requires rater to check the highest applicable rating point to describe the most serious act of aggression committed by the patient during the specified time period (usually past week)	Used two cohorts from psychiatric hospital in NY area: 1. 114 inpatients from SCU (secure care unit), ADM (new admits), and CHR (chronic care) 57 males 57 female <i>M</i> age = 32.9 years 2. 150 inpatients 43 male and 21 female	<i>Reliability:</i> <i>Internal consistency:</i> The rank ordering of the four component scales was fairly consistent across units (coefficient of concordance, $W=.68$). <i>Interrater:</i> Total score based on Pearson r between psychologist and social worker rater was .85 for patients from SCU and .94 for ADM patients (P 's < .001). <i>Test-retest:</i> Short-term longitudinal reliability (Days 1 and 2 versus Days 3 and 4) was .72 (P < .001) for full cohort of 114. On a unit-by-unit basis, significant short-term stability was found for SCU ($r=.91$, P < .001) patients.	Kay, Wolkenfield, and Murrill (1988)

Observational State measure	aggressive inpatient adults control group consisting of 39 male and 47 female inpatients from ADM and CHR	Using the contingency coefficient, significant stability was found for verbal aggression ($C=.52$, $P<.001$), aggression against property ($C=.18$, $P<.05$), and physical aggression ($C=.60$, $P<.001$), but not for autoaggression. At a 3-month follow-up, significant contingency coefficients were obtained for total aggression ($C=.41$, $P<.05$), and verbal aggression ($C=.41$, $P<.05$).
		<p><i>Validity:</i></p> <p><i>Discriminative validity:</i></p> <p>Overall prevalence of any form of aggression during a 1-week period of observation was 71.9% for the aggressive group, as compared with 22.1% for the control subjects ($\chi^2=25.21$, $P<.001$). There was a greater divergence among the four categories of aggression within the aggressive group.</p>

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Multidimensional Anger Inventory (MAI)	The MAI was developed to simultaneously assess the following dimensions of anger: frequency, duration, magnitude, mode of expression, hostile outlook, and range of anger-eliciting situations. Items selected on basis of face validity, some of which were adopted from existing anger inventories and rephrased as necessary. Other items were conceptually based and written specifically for the MAI. Interest was in identifying items that may be relevant to hypertension and coronary vascular disease.	38 items Self-report Five-point scale Trait measure	two samples: College sample (74 males, 124 females) 288 male factory workers <i>M</i> age = 54.8 years	<p><i>Reliability:</i> <i>Internal consistency:</i> Overall α for college sample=.84, overall α for factory sample=.89 The only α coefficient below acceptable level was for the anger-out dimension in the factory sample (.41) Alphas for subscales (Riley & Treiber, 1989): AIB=.64; AOB=.64; HO=.64; ROA=.78; GA=.80 <i>Test-retest:</i> 3- to 4-week interval ($r=.75$)</p> <p><i>Validity:</i> <i>Concurrent:</i> The MAI Anger-arousal score was significantly related to the Harburg Anger-In/Anger-Out Scale (Harburg et al., 1973) duration score ($r=.23$, $P < .01$), Harburg magnitude score ($r=.34$, $P < .01$), and the Novaco magnitude score ($r=.27$, $P < .01$). The Anger-Eliciting situations score was correlated ($r=.59$, $P < .01$) with Novaco anger-situations score.</p>	Siegel (1986)

NEO Personality Inventory (NEO PI-R)

General inventory developed to assess personality traits across a full range of normality and pathology. Hostility subscale distinguishes individuals who are hot-tempered, angry, and easily frustrated from those who are even-tempered and slow to take offense. Of the 30 facet scales, the *Angry Hostility* (N2) facet assesses the tendency to experience anger and related states. It measures the person's readiness to experience anger; whether the anger is expressed depends upon the person's level of Agreeableness. Disagreeable people often score high on this scale.

240 statements
Two forms:
 S = Self-report
 R = Observer-report
 Self-report
 Trait measure

500 men and 500 women were selected from the following three samples:
 1. 405 people in the Augmented Baltimore Longitudinal Study of Aging (ABLSA) who were part of the 1989 normative sample

Correlations between Trait Anxiety Scale of STAI and MAI dimensions yielded correlations with anger arousal, anger-in, anger-eliciting situations, and hostile outlook ($P < .001$).

Factor analysis:

1. Anger Arousal
2. Range of Anger-Eliciting situations
3. Hostile Outlook
4. Anger-in
5. Anger-out

Reliability:

Internal consistency: α ranged from .56 to .81 in self-reports and from .60 to .90 in observer ratings. Coefficient α for Angry Hostility (N2) Scale was .75 for self-report and .82 for observer rating. *Test-retest:* 3-month retest reliability using a subset of college students on NEO-FFI scales indicated .79, .79, .80, .75, and .83 for N, E, O, A, and, C respectively. A 6-year longitudinal study of N, E, and O scales showed stability

Costa and McCrae (1992)

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
NEO Personality Inventory (NEO PI-R)	Antagonistic hostility is indicated by low scores on the Agreeableness domain, especially the A1: Trust and A4: Compliance facets of A.		<p>2. 329 ABLSA participants who completed the NEO PI-R by computer administration between 1989 and 1991</p> <p>3. 1539 people who took part in a national study of job performance</p>	<p>coefficients ranging from .68 to .83 in both self-reports and spouse ratings.</p> <p><i>Validity:</i> <i>Concurrent:</i> Felsten (1995) found relationships between expressive hostility and traits of the five-factor model. Subjects scoring higher on aggression/hostility used escape avoidance and confrontational coping styles (McCormick & Smith, 1995). <i>Predictive:</i> The A scale has been shown to be negatively related to the interview-based ratings of hostility that predict Coronary Artery Disease (CAD), which suggests that antagonism as measured by this scale may put individuals at increased risk for CAD</p> <p><i>Factor analysis:</i> five factors: Neuroticism (N), Extroversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C)</p>	

Novaco Anger Inventory (NAI) (Also known as Novaco Provocation Inventory; NPI)	Composed of descriptions of anger-provoking incidents and assesses anger reactions to a wide range of provocations. Items were intuitively derived and were partially based on interviews with students about the things that make them angry. Developed to provide a general index of anger responsiveness across a vast range of situations and to serve as a guide for interview assessments.	90 items in original version; 80 items in most recent version Self-report Five-point scale Trait measure	34 subjects (graduate and undergraduate students, university staff members, and residents of a large community) 18 males 16 females M age = 23.32 years Range = 17–42	<p><i>Reliability:</i></p> <p><i>Internal consistency:</i> In a preliminary study using 138 males and 138 female undergraduates: the Cronbach $\alpha = .94$ for males and $.96$ for females.</p> <p><i>Test–retest:</i> University students range from $r = .83$ for a 1 month interval to $r = .89$ for a 1-week interval. With felons over a 1-month interval, $r = .74$ (Selby, 1994).</p> <p><i>Validity:</i></p> <p><i>Concurrent:</i> NAI correlated with BDHI total (.39), Anger Self-report Inventory, awareness (.42), and RI (.82) (Biaggio, 1980).</p> <p><i>Construct:</i> NAI scores were significantly correlated with the BDHI ($r = .462$), Personality Research Form-Abasement Scale [PRFAB] ($r = -.368$), Per. Res. Form-Dependence Scale [PRFDE] ($r = .503$), Per. Res. Form-Aggression Scale [PRFAG] ($r = .413$), and the Balanced Inventory of Desirable Responding [BIDRIM] ($r = -.256$) (Huss, Leak, & Davis, 1993).</p>	Novaco, 1975
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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Novaco Anger Inventory (NAI) (Also known as Novaco Provocation Inventory; NPI)				<p><i>Predictive:</i> Selby (1984) found that a 25-item subset of the NPI discriminated between violent and nonviolent criminals with 90% accuracy.</p> <p><i>Factor analysis:</i> three factors (Novaco,1994):</p> <ol style="list-style-type: none"> 1. Injustice/unfairness 2. Frustration/clumsiness 3. Physical affronts 	
Novaco's Anger Scale (NAS)	<p>Developed with goal of linking assessment of anger to general conception of cognitive, arousal, and behavioral domains linked by feedback mechanisms.</p> <p>Each domain is separately assessed; results are summed to generate aggregate scores for each domain</p> <p>NAS is constructed into two parts:</p> <ol style="list-style-type: none"> 1. Part A: contains the clinically oriented scales (three domains, each with four subscales). 2. Part B: Abbreviated Improvement of the Novaco Provocation Inventory intended to provide an index of anger intensity and generality across a range of potentially provocative situations (five subscales). <p>Scale was intended for use with mentally disordered persons</p>	<p>73 items</p> <p>Self-report</p> <p>Part A = 48 items rated on three-point scale</p> <p>Part B = 25 items rated on Four-point scales</p> <p>State and Trait measure</p>	<p>45 patients from three hospitals, nominated by staff as having very serious anger problems</p> <p>158 patients:</p> <p>69.9% male</p> <p>30.1% Female</p> <p>M age = 31.6 years</p> <p>63.6% White, 20.8% Black, 11% Hispanic</p>	<p><i>Reliability:</i></p> <p><i>Internal consistency:</i> Part A=.95; Part B=.95, and Total=.97.</p> <p><i>Domains:</i> Cognitive=.82; Arousal=.88; Behavioral=.89</p> <p><i>Test–retest:</i> Part A (.84), Part B (.86), Total (.86)</p> <p><i>Validity:</i></p> <p><i>Concurrent:</i> NAS Total correlates .82 with the BDHI total, .84 with Spielberger Trait scale, .68 with Cook–Medley, .78 with Caprara Irritability, and .47 with Barrett Impulsivity total.</p>	Novaco, 1994

Significant correlations with Novaco and Thacker LOCS anger rating index were found for NAS Total ranging from $r=.21$ to $.24$. *Discriminant validity:* NAS Suspicion Scale was more strongly correlated (.61) with Buss–Durkee Suspicion subscale than any other BDHI scale. *Predictive validity:* The NAS indices and alternative scales were correlated with number of criminal convictions for violence against persons (.34 with NAS Part A, .36 with Hostile Attitude, .37 with Duration) violence against property, and sex crimes; GAF scale; and use of emergency procedures (restraints, seclusion, PRN medications) to control violent behavior. Prospective validity analysis of NAS and the Spielberger State Anger Scale indicated that all parts and domains were significantly related ($P < .001$).

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Overt Aggression Scale-Modified for Outpatients (OAS-M)	OAS-M was designed to assess various manifestations of aggressive behavior in outpatients. It includes a rating of the frequency/severity of overt behaviors during the past week. It examines the following: (1) Verbal Aggression, (2) Aggression against Objects, (3) Aggression against Others, (4) Aggression against Self, (5) Global Irritability, (6) Subjective irritability, (7) Suicidal Tendencies (Ideation and Behavior), (8) Intent of Attempt, and (9) Lethality of Attempt. It has three domains: <ol style="list-style-type: none"> 1. Aggression 2. Irritability 3. Suicidality 	25 items Observational State measure	22 outpatients 15 male 7 females <i>M</i> age = 46.7 years Diagnosed with either personality disorder (<i>n</i> = 16) or major depressive disorder (<i>n</i> = 6) 20 control subjects 10 male 10 female <i>M</i> age = 28.4 years	<i>Reliability:</i> <i>Interrater:</i> Intraclass correlations were significant for ratings by two clinical raters for OAS-M Total Aggression and OAS-M Irritability ($ICC \geq .91$, $P < .001$). <i>Test-retest:</i> Intraclass correlation for OAS-M Total Aggression and OAS-M Irritability on Time 1 and Time 2 (within 1–2 weeks period) was significant ($ICC = .46$, $P < .05$; $ICC = .54$, $P < .01$, respectively). <i>Validity:</i> <i>Concurrent:</i> The OAS-M item assessing overt Irritability correlated significantly with both relevant AIAQ (Coccaro et al., 1991) subscales (Labile Anger, $r = .50$, $P < .01$; Irritability, $r = .48$, $P < .025$).	Coccaro et al. (1991)

Past Feelings and Acts of Violence (PVAF)	Shortened form of the original scale by Plutchik, Climent, and Ervin (1976), which was a 36-item scale referred to as <i>Feelings and Acts of Violence</i> . Measures violence risk and uses cut off score of 4 to identify violence propensity. Asks subject if he or she has beaten family members, strangers, carried weapons, used weapons, been arrested, or lost his (her) temper easily.	12 items Self-report Four-point scales Trait measure	157 psychiatric patients 50% male <i>M</i> age = 33.14 years 21% with major depressive disorder 42% with Schizophrenia 48% history of at least one suicide attempt 84 college students 30% male <i>M</i> age = 33.14 years	<p><i>Reliability:</i> <i>Internal consistency:</i> $\alpha = .77$</p> <p><i>Validity:</i> <i>Concurrent:</i> Significant correlation with current or history of violence per hospital records with scores $\chi^2 = 7.04$ $P = .01$. Patients more violent than college students with mean scores significantly different ($p < .001$).</p> <p><i>Discriminate:</i> Discriminates significantly between violent and nonviolent individuals when examining at all means scores. A PFAV score of 4 correctly identified 75% of violent and 75% of nonviolent students (Plutchik and vanPraagg, 1989)</p>	Plutchik and vanPraagg (1990)
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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Point Subtraction Aggression Paradigm (PSAP)	Procedure used to measure aggressive, escape, and nonaggressive responding that uses the subtraction of money as an aversive stimulus. Subjects are paired with a fictitious person during experimental conditions, and provided with two or three response options: (1) responding to earn money, (2) responding to take money away from another subject earning money (referred to as the aggressive response), and (3) responding to protect their earnings from the other subject (referred to as escape response). The PSAP involves provocation, since subjects are provoked by having money taken away, and attribute the subtractions to the other person. Initially developed to examine the effects of drugs on human aggression in a laboratory situation.	Laboratory procedure, available via software program Subjects are read a printed set of instructions that describes the response requirements for response options and the immediate consequence State measure	8 subjects 7 males 1 female Range = 18–35	<i>Validity:</i> <i>Concurrent:</i> Aggressive responding in the laboratory was significantly correlated with the <i>Brown History of Violence</i> ($r=.72$, $P<.001$) and the Modified Overt Aggression Scale ($r=.73$, $P<.001$). <i>Concurrent validity:</i> Males with documented histories of violence made significantly more aggressive responses over six sessions than males with no histories of violence (Cherek, 1992). A direct relationship was found between the history of violence among male parolees and the frequency of aggressive responding using the PSAP in the laboratory (Cherek, Moeller, Schnapp, & Dougherty, 1997).	Cherek (1981)
Prediction of Aggression and Dangerousness in Psychotic Patients (PAD)	Rating Scale constructed to assess psychotic patients in relation to 29 situations or interactions; used to rate the potential of these interactions for precipitating aggressive behavior in psychotic patients.	29 items Observational Six-point scale Trait measure	10 secure-ward patients diagnosed with Schizophrenia in Norway: 6 males 4 females	<i>Reliability:</i> <i>Interrater:</i> Within-ward context interclass correlation=.85; outside-ward context interclass correlation=.87.	Bjorkly, 1993

The 29 situations are grouped into 7 main categories: physical contact, limit setting, problems of communication, changes and readjustments, persons, high-risk contact, and drugs/stimulants.

The patient's future aggression is predicted in relation to each of 29 situations on 2 six-point scales:

1. Predicted Occurrence: (predicted probability)
2. Predicted Severity: (predicted intensity)

Also has two aggregate scores:

1. $O \times S$ score = combined occurrence and severity score
2. D score = dangerousness

The complete version of the PAD helps to predict aggressive potential in relation to two contexts:

1. Outside ward: prediction of aggression if patient is discharged into society
2. Within-ward: prediction of aggression during next 6–12 months that patient continues to live in the same ward

M age = 36.9 years
Range = 22–60

Intraclass correlation coefficients were almost all significant for both individual and group ratings for predicting behavior in both the acute and better phases of illness (Bjorkly, Havik, & Loberg, 1996).

Validity:

Predictive validity:

Spearman rank-order correlations between PAD ratings and the subsequent occurrence of aggressive behavior in the next 1–2 years were all above .80 (Bjorkly, 1988).

Spearman rank correlation of .95 ($P=.001$) between predictions and actual occurrences of threats and assaults after a 12-month follow-up.

Spearman rank correlation of .78 between PAD assessment of precipitants of aggressive behavior and actual occurrence of precipitants of physical assaults in an 8-month follow-up period during the first year ($O \times S$ scores).

Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Rating Scale for Aggressive Behavior in the Elderly (RAGE)	Designed to measure aggressive behavior in psychogeriatric inpatients. It was developed to be completed by ward-based nursing staff. 19 items are concerned with specific kinds of behavior; one item is concerned with measures taken by staff to control aggressive behavior; and one item is a global rating of aggressive behavior, based on observation over a 3-day period. It incorporates different dimensions of aggressive behavior (verbal aggression, agitation, and physical aggression). There is also a Chinese version referred to as the CRAGE (Lam, Chui, & Ng, 1997).	21 items Observational four-point frequency scale State measure	90 inpatients on six psychogeriatric wards from two Oxford hospitals and two members of nursing staff from each ward 60% female M age = 81 years Range = 52–95 71% had dementia 13% chronic schizophrenia	<p><i>Reliability:</i> <i>Internal consistency:</i> $\alpha = .89$ <i>Split-half:</i> Guttman's coefficient = .88 <i>Interrater:</i> Pearson r for total score = .54 ($P < .001$), with a checklist the correlation was .94 ($P < .001$) <i>Test-retest:</i> median correlation for total score for 6 hours = .91, 7 days = .84, and 14 days = .88</p> <p><i>Validity:</i> <i>Concurrent:</i> Pearson r for total score compared with total number of recorded aggressive occurrences was .86 ($P < .001$). RAGE correlated .73 and .72 with CMAI and BARS, respectively (Shaw, Evans, & Parkash, 1998).</p> <p><i>Factor analysis:</i> Three factors were extracted that accounted for 56.5% of the variance: 1. Verbal Aggression 2. Physical Aggression 3. Antisocial behavior</p>	Patel and Hope (1992)

Reaction Inventory	Developed to isolate the specific stimulus situations that result in anger for individuals. The items were selected on an intuitive basis. The sum of values are computed to indicate the degree of anger.	76 items Self-report Five-point scale Trait measure	Four samples: 1. 45 undergraduates: 16 males 29 females Median age = 25 2. 31 undergraduates 10 males 21 females Median age = 22 3. 138 undergraduates 30 males 108 females Median age = 18 4. 61 nonstudents 28 males 33 females Median age = 26	<p><i>Reliability:</i> <i>Internal consistency:</i> $r=.95$ ($P<.01$)</p> <p><i>Validity:</i> <i>Concurrent:</i> degree of anger in two samples as measured by the <i>Reaction Inventory</i> was significantly related to the total score of BDHI (r's=.52 and .57).</p> <p><i>Factor analysis:</i> Ten factors were extracted and accounted for 50.5% of the variance:</p> <ol style="list-style-type: none"> 1. Minor chance annoyances 2. Destructive people 3. Unnecessary delays 4. Inconsiderate people 5. Self-opinionated people 6. Frustration in business 7. Criticism 8. Major chance annoyances 9. People being personal 10. Authority 	Evans and Stangeland (1971)
Risk of Eruptive Violence Scale (REV)	The REV (Mehrabian, 1996) identifies individuals who have a general tendency to act violently. It was constructed to help identify persons who erupt into sudden and unexpected episodes of violence.	35 items Self-report Nine-point scale Trait measure	<i>Study 1:</i> 35 inmates of juvenile lock-down facility M age = 16.8 years Range = 13–21 years	<p><i>Reliability:</i> <i>Internal consistency:</i> $\alpha=.98$ (Study 1); $\alpha=.95$ (Study 2)</p>	Mehrabian (1997)

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Risk of Eruptive Violence Scale (REV)	Rationale was that individuals who are potentially violent may give the outward appearance of being withdrawn and quiet, but may experience seething anger and frustration because of their inability to hurt those that offend them. Therefore, a portion of the REV includes items dealing with persistent fantasies and wishes to harm, injure, or destroy others.		<i>Study 2:</i> 101 undergraduate 33 males 68 females	<i>Validity:</i> <i>Concurrent validity:</i> Correlation between REV scores and Brief Anger–Aggression Questionnaire, ($r=.74, P<.05$). <i>Construct validity:</i> Negative correlations with the Balanced Emotional Empathy Scale ($r = -.50, P<.05$) and Emotional Empathic Tendency Scale ($r = -.43, P<.05$) Violent history scores correlated .71 ($P<.05$) with REV scores. <i>Factor analysis:</i> yielded a unitary factor	
Scale for the Assessment of Agitated Behaviors (SAAB)	Developed as a means of systematic observations of aggressive behavior on psychiatric wards. For each event, a staff member records such information as: nature of aggressive event, location, initiator, target, severity of injury to initiator and victim, level of agitation of other pts. during event. Levels of severity of injury and agitation are operationally defined.	17 items Observational Scale varies depending on item State measure	49 patients treated on state hospital ward that specializes in violent behavior: 25 males 24 females	<i>Reliability:</i> <i>Interrater:</i> significant at $P<.001$; kappa ranged from .57 to 1.00. Correlation b/w observer ratings of aggression and level of agitation obtained by interview ($K=.57$), and staff response during on-site observation ($K=.65$) was also highly significant.	Brizer, Convit, Krakowski, and Volavka (1987)

State–Trait Anger Expression Inventory (STAXI-2)	Measures the experience, expression, and control of anger for adults and adolescents aged 16 years and older. It assesses components of anger in detailed evaluations of abnormal and normal personality, in addition to evaluating the contributions of components of anger to the etiology and progression of medical conditions. It consists of six scales, five subscales, and an Anger Expression Index that provides an overall measure of anger expression and control of anger. Scales and subscales: 1. State Anger (S-Ang) Feeling Angry (S-Ang/F) Feel Like Expressing Anger Physically (S-Ang/P) Feel Like Expressing Anger Physically (S-Ang/P) 2. Trait Anger Angry Temperament (T-Ang/T) Angry Reaction (T-Ang/R) 3. Anger Expression-Out (AX-O) 4. Anger Expression-In (AX-I) 5. Anger Control-Out (AC-O) 6. Anger Control-In (AC-I) 7. Anger Expression Index (AX Index)	57 items	1644 normal adults	<i>Concurrent validity:</i> Original T-anger Scale was significantly correlated with BDHI Total, MMPI Hostility (Ho) and MMPI Overt Hostility (Hv) (P 's < .01) in sample of college students and Navy recruits.	Spielberger (1999)
		Self-report Four-point scales that assess either the intensity of anger at a particular time or the frequency that anger is experienced, expressed, and controlled Can be administered individually or in group settings State and Trait Measure	667 males 977 females M age = 27 years Range = 16–63 276 hospitalized psychiatric patients 171 males 105 females Normative tables provide percentile and T-score conversions for gender and for three age groups: 16–19 years, 20–29 years, and 30 years and older	<i>Convergent validity:</i> Moderately high correlations were found between the AX-O scale and scores on the T-Anger scale and T-Ang/T subscale (r 's = .47 to .58, P 's < .001).	
				<i>Divergent validity:</i> STAXI Anger Expression scales were found not to be correlated with the State–Trait Personality Inventory (STPI) T-Curiosity scale.	
				<i>Predictive validity:</i> T-Anger scale has been found to predict elevations in blood pressure even after controlling for traditional risk factors (Markovitz, Matthews, Wing, Kuller, & Meilahn, 1991).	

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
State–Trait Anger Expression Inventory (STAXI-2)				<i>Factor analysis of STAXI-2:</i> 1. S-Ang 2. AC-1 3. AC-O 4. AX-1 5. AX-O 6. T-Ang/T 7. T-Ang/R	
State–Trait Anger Sale (STAS)	Designed to assess the intensity of anger as an emotional state and individual differences in anger proneness as a personality trait. Developed from a rational–empirical approach. Trait Anger (T-Anger) was conceptually defined as individual differences in the disposition to experience anger, which would be reflected in the frequency that State anger (S-Anger) was experienced over time. Two subscales: 1. S-Anger 2. T-Anger	20 items 10 on each subscale Self-report State and Trait measure	Normative data gathered on high school students, military recruits, college students, and working adults	<i>Reliability:</i> <i>Internal consistency:</i> Alpha coefficients for the S-Anger scale ranged from .88 to .95; For T-Anger high internal reliability was obtained (.81–.92) <i>Test–retest:</i> Modest test/retest reliability was found (.054) <i>Validity:</i> <i>Concurrent:</i> The T-anger scale was significantly correlated with BDHI total, and Hostility (Ho) ($P < .001$).	Spielberger, Jacobs, Russell, and Crane (1983)

Suicide and Aggression Survey (SAS)	<p>Clinical interview and research tool. Measures recent and past history of aggression in the form of suicidal/violent thoughts, gestures, and actions. Includes predisposing factors, precipitating events, underlying emotions, nature of aggressive acts, effects of act, and functions of act. It is possible to derive numerical values from the various scales to be used for research purposes.</p> <p>The interview is divided into five sections:</p> <ol style="list-style-type: none"> 1. General background information 2. Screening for suicide and violence 3. Ratings of suicidal and violent behavior 4. Contextual and cultural factors 5. Lifetime history of suicide and violence 	<p>A semi-structured clinical interview</p> <p>Includes a rating on a 100-pt scale of the individual's current and future potential for suicidal or violent acts</p> <p>State and Trait measure</p>	<p>20 inpatient adolescents in psychiatric hospital</p>	<p><i>Factor analysis:</i> For the S-Anger items, results suggest one factor for both males and females. For the T-Anger items, a two-factor solution for both males and females was found. These were referred to as Angry Temperament''(T-anger/T) and Angry Reaction (T-Anger/R).</p>	<p><i>Reliability;</i></p> <p><i>Interrater:</i> all correlations were >.90 when 25 interviews were rated by two psychiatrists. Two clinicians' ratings for risk of suicidal behavior: Product–Moment Correlations=.89</p>	<p>Korn et al. (1992)</p>
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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Verbal Aggressiveness Scale (VAS)	The VAS evolved from an interpersonal model of verbal aggression to facilitate research on the control and nature of aggression. Measures interpersonal verbal aggressiveness as a trait that predisposes people to attack the self-concept of others and/or their positions on topics of communication. 10 items are worded negatively Produces a score in the range of 20–100	20 items Self-report Five-point scale Trait measure	Over 600 Communication undergraduate students	<p><i>Reliability:</i> <i>Internal consistency:</i> $\alpha=.81$ <i>Test–retest:</i> correlation for 4-week time period=.82</p> <p><i>Validity:</i> <i>Concurrent:</i> The VAS was significantly correlated with the Verbal Hostility scale of BDHI ($r=.43$, $P < .001$) and Buss–Durkee Assault Scale ($r=.32$, $P < .001$) <i>Predictive:</i> The VAS was significantly correlated with the sum of the likelihood ratings of verbally aggressiveness messages in different social influence situations ($r=.69$, $P < .001$).</p> <p><i>Factor analysis:</i> One factor emerged</p>	Infante and Wigley (1986)
Violence and Suicide Assessment Form (VASA)	Structured clinical rating scale covering 10 areas: current violent thoughts, recent violent thoughts, past history of violent/antisocial/disruptive behavior, current suicidal thoughts, recent suicidal behaviors, past history of suicidal behaviors, support systems, ability to cooperate, substance abuse, and reactions during interview.	10 scales Observational Each item is weighted according to severity and/or frequency Trait and State measure	95 psychiatry ER patients: 50 discharged after visit 45 admitted to inpatient wards following visit	<p><i>Reliability:</i> <i>Internal consistency:</i> of Items 1–3 (violence) $\alpha=.68$; items 4–6 (suicide) $\alpha=.73$; all items $\alpha=.79$</p>	Feinstein and Plutchik (1990)

At the end of the scale, the clinician is asked to estimate the probability of the likelihood of suicidal ideation or behavior, and a separate estimate of the probability of violent ideation or behavior. The total score is conceptualized as a psychosocial distress index

Validity:
Discriminant: The VASA discriminated between admitted and discharged patients via total score, frequency of prior suicide attempts, and violent episodes. Optimum cutoff score of 11 distinguished 82% of the time between patients who were admitted and those who were discharged from the ER.
Predictive: Three items on the VASA (lifetime history of suicide attempts, lack of social support systems, and inability to cooperate with interviewer) significantly correlated with suicide risk in the hospital ($r=.41$). Number of suicide attempts reported on VASA is highly correlated with likelihood of violent behavior on the ward ($r=.60$).

Violence Scale (VS)

A behavioral rating scale that purports to measure aggressive and violent behavior towards self, others, and property. The VS was designed to index aggressive and violent behavior in hospital settings

15 items (three subscales, five items each)
 Observational

Two groups of psychiatric inpatients: 165 patients: 55% male
 M age = 38.89 years
 M education = 11.60 years

Reliability:
Internal consistency: $\alpha=.91$ (Study 1) and $.68$ (Study 2)
Test–retest: $r=.79$

Morrison (1993)

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Table 3 (continued)

Instrument	General information/purpose	Description	Sample	Psychometric properties	Reference
Violence Scale (VS)	Violence was defined as any verbal, nonverbal, or physical behaviors that were threatening to people (self or others) or that harmed or injured people, or destroyed property. Total range of possible scores is from 0 to 60.	Five-point scale Trait measure	98 patients: 57% male <i>M</i> age = 37.46 <i>M</i> education = 11.47 years	<i>Validity:</i> <i>Construct:</i> Predictive model testing indicated that three predicted relationships were supported (regarding inability to adhere to therapeutic and social rules). <i>Factor analysis:</i> Items loaded onto three factors: Others, Self, and Property.	

on other persons” (Bjorkly, 1993, p. 1365). The assessment of aggression and dangerousness has been examined using various types of measures, including projective techniques, observer-rated scales, and self-report questionnaires. Many omnibus instruments (e.g., MMPI-2, MCMI-III) were originally constructed to measure psychopathology and/or personality characteristics in general, but their ability to predict future aggressive behavior is inconclusive at best. In the past, research focused on assessment of potential aggression has been inconsistent, with many of the studies being retrospective rather than prospective (Monahan, 1988).

Use of a statistically reliable measurement instrument, appropriately chosen based on its applicability to the population being studied and the types of questions being asked, is central to effective research. For this review, construction information about each measure, including number of items, sample characteristics, and psychometric properties has been compiled. The information in Table 3 is intended to assist researchers and clinicians to select the instruments that best correspond to their specific needs. It should be noted that the table is not exhaustive, but instead includes a wide range of instruments referenced or used in the aggression research. The information provided for each instrument is only a summary of each instrument’s general purpose, description, sample characteristics, and synopsis of psychometric properties. If certain psychometric characteristics are not listed, it suggests that such properties were not easily found in a literature search. Readers are encouraged to refer to the original sources for additional detailed information.

4. Future directions

Construct definition and clarification in the study of aggression is complicated by a number of factors related to choice of instrumentation and participant population. Interviewer bias, social desirability, and operational definitions may all provide confounds to resulting integrity or generalizability. Researchers continue to develop more reliable and valid instruments. Improving psychometric assessments of aggressive behavior will not only help clarify the constructs in question, but will also help define applicability appropriateness for various populations under study. This overview of current aggressive measures is offered as an aid for selection of task-appropriate instruments to meet the needs of both clinicians and researchers. In addition, it is anticipated that this review will stimulate interest in both measurement development and concept definition and clarification.

Acknowledgements

This project was funded by a grant from the Department of Veterans Affairs Integrated Service Network-17 (Protocol #99-104 to Alina Suris) and an HSR&D Career Scientist Award (RCS 92-403 to Michael Kashner).

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