

AAVA

**ANGER-AGGRESSION-VIOLENCE
ASSESSMENT**

An Inventory of Scientific Findings

Risk & Needs Assessment, Inc.
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PREFACE

Anger-Aggression-Violence Assessment (AAVA) research and development began in 1990 and has continued. The AAVA is designed to meet the needs of client screening and assessment. The copyrighted AAVA database ensures continued research and development. The AAVA is a brief, easily administered and automated (computer scored) test that is designed for determining appropriate client supervision levels, assessing client risk, identifying needs, establishing a standardized client database and facilitating client understanding. It includes true/false and multiple-choice items and can be completed in 30 minutes. The AAVA contains 7 empirically based scales: Truthfulness, Alcohol, Drugs, Anger, Aggression, Violence, and Stress Coping Abilities. The AAVA has been researched on clients, college students, outpatients, inpatients, job applicants, chemical dependency clients, probationers and others.

The AAVA report explains client's attained scores and makes specific intervention and treatment recommendations. It also presents Truth-Corrected scores, significant items, a concise "structured interview" and much more. The AAVA report is designed for supervision level and parole use. In addition to treatment recommendations, this report presents specific recommendations. It is a risk and needs assessment instrument. This document summarizes much of the validity and reliability research that contributed to AAVA development. The AAVA has demonstrated reliability, validity and accuracy. It correlates impressively with both experienced staff judgment and other recognized tests.

AAVA tests can be given directly on the computer screen or in paper-pencil test booklet format. All tests are computer scored on-site. AAVA reports are available within three minutes of test completion. Diskettes contain all of the software needed to score tests, build a database and print reports. The AAVA Windows version also has an optional human voice audio presentation that presents the test on the computer screen with accompanying auditory presentation of the text seen on the computer screen.

AAVA users are typically not clinicians or diagnosticians. Their role is usually to identify client risk and client need prior to recommending intervention, supervision levels and/or treatment. The AAVA is to be used in conjunction with a review of available records and respondent interview. No decision or diagnosis should be based solely on AAVA results. Client assessment is not to be taken lightly as the decisions made can be vitally important as they affect people's lives. AAVA research is ongoing in nature, so that evaluators can be provided with the most accurate information possible.

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INTRODUCTION

ANGER-AGGRESSION-VIOLENCE ASSESSMENT

The **Anger-Aggression-Violence Assessment (AAVA)** is a violence risk test. The AAVA is designed for clinical practice (patients) and criminal justice (offenders) violence risk assessment. Tests are available online at www.Online-Testing.com 24/7.

With increased recognition of the importance of violence (Brundtland, 2002), considerable research has focused on the assessment of violence (Samukler, 2001). Evidence based violence assessment tests have greatly increased since “unstructured clinical opinions” were discredited.

The Anger-Aggression-Violence Assessment (AAVA) was developed to help meet the needs of client screening and assessment. The AAVA is designed to help establish client supervision levels, facilitate client risk and needs assessment prior to changes in classification, status, level of supervision, treatment or release, and assess chemical dependency and substance (alcohol and other drugs) abuse. AAVA reports are particularly useful at supervision and parole hearings. In these reports, quantitative information is obtained by empirically based measures (scales) which independently generate risk (percentile) scores. Scale development is based upon nearly 20 years of research. In addition, explanatory paragraphs describe attained scores and contain specific score-related recommendations. And each scale is presented graphically in the AAVA profile.

ANGER-AGGRESSION-VIOLENCE ASSESSMENT MEASURES OR SCALES

1. Truthfulness Scale
2. Alcohol Scale
3. Drugs Scale
4. Anger Scale
5. Aggression Scale
6. Violence Scale
7. Stress Coping Abilities Scale

The AAVA is a brief, easily administered and interpreted substance abuse screening or assessment instrument. The AAVA represents the latest developments in psychometric techniques and computerized technology. The AAVA can be administered on a computer (IBM-PC compatibles) screen or by using paper-pencil test booklets. Regardless of how the AAVA is administered, all tests are scored and interpreted with a computer which generates AAVA reports.

The Anger-Aggression-Violence Assessment (AAVA) is a brief, evidence-based violence assessment instrument or test. It consists of 135 true-false and multiple-choice questions and takes 30 minutes to complete. All AAVA tests are computer scored. From data (answers) input, AAVA tests are scored with 3-page printed reports available within 3 to 4 minutes. AAVA reports have impressive reliability, validity and accuracy. AAVA research is available at www.BDS-Research.com. The AAVA is appropriate for adult (male and female) assessment in clinical, correctional and adult probation department settings.

The AAVA was designed to provide carefully developed measures (called scales) of several behavioral patterns and traits of interest to those working with clients. The measures (scales) chosen for inclusion in the AAVA further the understanding of the client. In addition, they provide important information on the client's test taking attitude, emotional/behavioral adjustment, and much more.

UNIQUE FEATURES

Truth Correction: A sophisticated psychometric technique permitted by computerized technology involves "truth-corrected" scores which are calculated individually for AAVA scales. Since it would be naive to assume everybody responds truthfully while completing any self-report test, the Truthfulness Scale was developed. **The Truthfulness Scale establishes how honest or truthful a person is while completing the AAVA.** Correlation's between the Truthfulness Scale and all other scales permit identification of error variance associated with untruthfulness. This error variance can then be added back into scale scores, resulting in more accurate "Truth-Corrected" scores. Unidentified denial or untruthfulness produces inaccurate and distorted results. Raw scores may only reflect what the client wants you to know. Truth-Corrected scores reveal what the client is trying to hide. **Truth-Corrected scores are more accurate than raw scores.**

Risk Range Percentile Scores: Each AAVA scale is scored independently of the other scales. AAVA scale scoring equations combine client pattern of responding to scale items, Truthfulness Scale and prior history that is contained on the AAVA answer sheet. The Truthfulness Scale applies a truth-correction factor so that each scale score is referred to as a Truth-Corrected scale score. These Truth-Corrected scale scores are converted to the percentile scores that are reported in the client AAVA report.

AAVA scale percentile scores represent "degree of severity." Degree of severity is defined for scales as follows: **Low Risk** (zero to 39th percentile), **Medium Risk** (40th to 69th percentile), **Problem Risk** (70th to 89th percentile), and **Severe Problem** or **Maximum Risk** (90th to 100th percentile).

Standardization data is statistically analyzed where percentile scale scores are derived from obtained scale scores from client populations. The cumulative distributions of truth-corrected scale scores determine the cut-off scores for each of the four risk range and severity categories. Individual scale score calculations are automatically performed and results are presented in the AAVA report numerically (percentile), by attained risk category (narrative) and graphically (AAVA profile).

AAVA Database: Every time an AAVA is scored the test data is automatically stored on the diskette for inclusion in the AAVA database. This applies to AAVA diskettes used anywhere in the United States and Canada. When the preset number of tests are administered (or used up) on a AAVA diskette, the diskette is returned for replacement and the test data contained on these used diskettes is input, in a confidential (no names) manner, into the AAVA database for later analysis. This database is statistically analyzed annually, at which time future AAVA diskettes are adjusted to reflect demographic changes or trends that might have occurred. This unique and proprietary database also enables the formulation of annual summary reports that are descriptive of the

populations tested. Summary reports provide important testing information, for budgeting, planning, management and program description.

Confidentiality (Delete Client Names): Many agencies and programs are rightfully concerned about protecting their client's confidentiality. The proprietary Delete Client Names option is provided to allow deletion of client names from test diskettes prior to their being returned to Risk & Needs Assessment. This is optional and once the names have been deleted, they are gone and cannot be retrieved. Deleting client names does not delete demographic information or test data. It only deletes the client names when the option is used. The option is available at any time and can be used whether the diskette is full or not. Once the client names are deleted there can no further editing of client names. This ensures client confidentiality.

*** * AAVA SCALES DESCRIPTION * ***

AAVA scales were developed from large item pools. Three Ph.D. level psychologists familiar with each scale selected initial AAVA items. Initial item selection was a rational process based upon clearly understood definitions of each scale. Subsequently, items and scales were analyzed for final test selection. The original pool of potential test items was analyzed and the items with the best statistical properties were retained. **Final test and item selection was based on each item's statistical properties.**

Empirically based AAVA scales were then developed by statistically relating scale items configurations to the prison client population. The AAVA was normed against the prison client population. Thus, the AAVA has been researched, standardized and validated on prison clients. It is important that users of the AAVA familiarize themselves with the definition of each scale. For that purpose, a description of each AAVA scale follows.

Truthfulness Scale: This scale is designed to measure how truthful the client is while completing the Anger-Aggression-Violence Assessment (AAVA). A high-risk Truthfulness Scale score may invalidate other empirically based scales.

All interview and self-report information is subject to the dangers of untrue answers due to defensiveness, guardedness or even deliberate falsification. The straightforward nature of **any** self-report questionnaire or interview procedure may appear to some people as intrusive--giving rise to denial and even distortion. This is of particular concern in a prison environment where clients often attempt to minimize their problems and/or concerns in an effort to obtain early release. The Truthfulness Scale helps identify these self-protective, recalcitrant and guarded clients who minimize or even conceal information. In addition, the Truthfulness Scale identifies respondents with impaired (below the sixth grade) reading abilities.

The Truthfulness Scale goes beyond establishing the truthfulness of the client. The correlation between the Truthfulness Scale and each other AAVA scale has been established to provide **truth corrected** scale scores. In brief, the error variance associated with untruthfulness is identified and added back into Truth-Corrected scores. **Truth-Corrected scale scores are more accurate than**

raw scores. A high Truthfulness Scale score (at or above the 90th percentile) invalidates all scale scores.

This type of a Validity or Truthfulness Scale is a **necessary** requirement for **any** test used to establish client risk and needs. Since the outcome of a person's test score can affect their level of supervision or even contribute to decisions regarding parole or early release--it would be naive to believe that all respondents answer all questions truthfully. **All interview and self-report tests are subject to the dangers of untrue answers and even deliberate falsification.** The Truthfulness Scale identifies these self-protective, recalcitrant and guarded people who minimize or even conceal information. Clients can be expected to substantially under-report their problems and concerns.

Alcohol Scale: This empirically based scale is a measure of the client's alcohol proneness and alcohol-related problems. Frequency and magnitude of alcohol use or abuse are important factors to be considered when assessing client adjustment. Alcohol is a major licit or legal substance in society. Many clients bring their alcohol-related problems to prison.

Alcoholism is a relapse-oriented disease. Some clients work through their substance (alcohol) abuse problems in Alcoholics Anonymous (AA) meetings. Others do not. A drinking problem can erode rehabilitation, adjustment and increase recidivism risk. Identification of alcohol proneness and drinking problems can begin the recovery process. Statistics demonstrate that many clients have had drinking and alcohol related problems.

Drugs Scale: This scale is an independent measure of the client's drug abuse and drug-related problems. Without a Drugs scale, many drug abusers would remain undetected. Increased public awareness of drug (marijuana, cocaine, crack, heroin, etc.) abuse emphasizes the importance of including an independent measure of drug use or abuse in client assessment.

Drug abuse is also a relapse-oriented disease. Many convicted offenders bring their drug habits to prison with them. Some find Narcotics Anonymous (NA) or Cocaine Anonymous (CA) helpful. Others do not. Identification of drug abuse or drug-related problems can be the first step in recovery. Statistics reveal that many clients have had drug use and drug abuse problems prior to incarceration.

The Anger-Aggression-Violence Assessment (AAVA) differentiates between "alcohol" and "drug" abuse or licit versus illicit substances. In prison both alcohol and other drugs are illicit substances. Both substance categories represent important areas of concern in the prison environment.

Anger Scale: This scale measures the client's use of physical force to injure, damage, or destroy. It identifies individuals who are dangerous to themselves and others. Obtained scores are categorized in terms of percentiles and risk levels (i.e., Low Risk, Medium Risk, Problem Risk and Severe Problem [Maximum] Risk).

These studies emphasize the importance of a multidimensional approach to assessing aggressiveness-related problems and violence. A person's aggressiveness (e.g., acting out potential) may be related to substance abuse, overall adjustment, and emotional problems, traits such as aggressiveness, or risk-taking, and stress-coping abilities. Violence may result from aggressiveness taken to a higher or more violent level of physical force, assault, and lethality. With these relationships in mind, it is important to explore these areas of inquiry to better understand the substance (alcohol and other drugs) abuser. This is done with the Anger Scale.

Anger Management Profile test items are personal. The straightforward nature of any self-report questionnaire may appear, to some people, as intrusive. Although perhaps discomfoting to some, such criticism is directly related to the Anger Management Profile's strength, in assessing substance abuse and related problems, objectively. Information deemed personal, by some, is necessary in an empirical (as opposed to rational) approach to assessment. A similar type of criticism (intrusiveness) has been leveled at the MMPI in the past.

Aggression Scale: This empirically based scale is a measure of the probability of a person being inappropriately aggressive. Obtained scores are categorized in terms of percentiles and risk levels (i.e., Low Risk, Medium Risk, Problem Risk and Severe Problem (Maximum Risk)).

Studies such as those conducted at the University of Michigan indicate that drivers can be classified on a risk potential index as safe drivers or high-risk drivers by monitoring inappropriate driving behavior such as moving violations, arrests, etc. Mortimer, et al. (1971)¹ concluded that alcoholics were significantly more involved in such offenses. Selzer (1971)² concluded in his research that for maximal screening effectiveness, test results and arrest records be used jointly. More recently (1984), the National Council on Alcoholism pointed out that "research results indicated driver's potential for risk-taking behavior may exist independently of his or her use of alcohol, and manifest itself as, aggressive irresponsibility." Continuing (NCA Newsletter, 1984), "positive correlations were found between high-risk groups and a number of other enforcement-related variables. Among these are non-traffic related drinking offenses, violent crimes, social, and fraudulent offenses, non-violent crimes, larceny, etc."

These studies emphasize the importance of a multi-dimensional approach to assessing aggression-related problems. A person's aggression (e.g., acting out potential) may be related to substance abuse, overall adjustment, emotional problems, traits such as aggressiveness or risk-taking, and stress-coping abilities. With these relationships in mind, it is important to explore these areas of inquiry to better understand the substance (alcohol and other drugs) abuser. This is done with the Aggressiveness Scale.

Dichotomous Aggression Categories

Aggression refers to behavior that is motivated to harm or injure another or damage property. Some theorists believe all harmful behavior can be classified as aggressive. The term aggression is used broadly to refer to verbal threats, physical assaults and property damage.

Violence has been described as "aggression in its most extreme form." In other words, **violence has been characterized as extreme aggression with the intent to injure or harm others.** Some theorists argue that aggression is the result of extreme anger.

Proactive aggression refers to people who use aggression to attain a goal. For example, if a person wants something, they simply take it. Some people use proactive aggressive to obtain social goals (Dodge, 1991). Other proactive and reactive aggression differences include social cognitive correlations (Hubbard, Dodge, Cilley, Coie and Schwartz, 2006).

Reactive aggression is based upon anger. The primary goal is to harm someone. Reactive aggression is characterized by intense anger and it is emotionally driven. Reactive aggression is associated with interpersonal aggression, whereas proactive aggression is not

(Dodge, Lockman, Harnish, Bates & Pettit, 1977). Reactive aggression is a reaction to provocation and is accompanied by anger (Pulickmen, 1996).

Affective aggression is also known as hostile or emotional aggression. It is usually impulsive and driven by anger. The affective aggressor's primary motive is to harm. Affective aggression occurs in reaction to perceived provocation. "Perceived" means the provocation may be real, imaged or assumed.

Instrumental aggression is goal directed and rationally or logically based. Its primary goal is not harming or injuring another. Instrumental aggression has been called assertiveness.

The above dichotomous aggression categories represent a sample of the many aggression dichotomies that exist. To varying degrees, the dichotomous logic or reasoning has also been applied to anger and violence. The aggression dichotomies are discussed to share their definitional issues, overlapping classifications and seemingly ubiquitous presence in the aggression (anger, violence) research literature. There are numerous types of aggression, which are allegedly classified in terms of the intentions of the aggressor and the situation that elicited the aggression.

Some theorists believe strict dichotomies of anger, aggression and violence could be replaced with a dimensional approach. In other words, anger, aggression and violence could be studied as dimensions.

Aggression (anger and violence) are samples as they are influenced by a wide variety of psychological, biological, genetic, cultural and interpersonal factors. And as there are no psychiatric diagnoses for anger, aggression or violence in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), there are no "Anger Disorders," "Aggressive Behavior Disorders," or "Violence Disorders" diagnoses. Consequently, anger, aggression and violent behavior are often considered symptoms of a number of DSM-5 disorders like Conduct Disorders, Oppositional Defiant disorders or Intermittent explosive disorders.

There are a number of mental health illnesses that have been linked to aggression and violence. Alcohol consumption and drug abuse have also been linked to aggression and violence.

Violence Scale: This empirically based scale measures the tendency of a client to use physical force to injure, damage or destroy. This scale establishes whether or not the client is a danger to self or others.

Although conflict and its consequences are inescapable parts of human existence, individuals differ widely in both the ease in developing conflict, and in the nature and severity of its results. The Violence Scale identifies the extreme, i.e., the client that is considered dangerous or potentially violent. Pathologically violent clients are a threat to themselves, others and society.

Violence is often defined as physical force used so as to injure, damage or destroy. This includes intense, often devastating or explosively powerful force or behavior. Other adjectives include extreme, intense, very strong, furious, etc.

Triad: The anger-aggression-violence triad represents the theory that “as anger increases in can evolve into aggression, which can intensify and evolve into violence.” Rather than treat these emotional states as if they are strict dichotomies, triad theory postulates that shades (intensities) of anger, aggression and violence exist as points on a linear continuum of emotional reactivity. Obviously, the emotional reactivity continuum theory stated here is an oversimplification. Nevertheless, it does help conceptualize Anger-Aggression-Violence Assessment (AAVA) usage

*Continuum
Anger-Aggression-Violence*

An emotionally reactive continuum

Stress Coping Abilities Scale: This empirically based scale is a measure of the client's experienced stress level in comparison to that person's ability to cope with stress. Stress refers to tension, pressure or anxiety. Stress is an increasingly significant concept in our society. The National Institute for Occupational Safety and Health (NIOSH) evaluated the health records of 22,000 workers in 130 organizations. Their conclusion: "**stress affects workers in all types of jobs at all levels; unskilled laborers are equally susceptible as are top-line executives**".

How effectively people cope with stress determines whether or not stress is a significant factor in their lives. Two concepts, i.e., stress and coping ability, dominate the literature on stress. The Stress Coping Abilities Scale includes measures of both of these concepts. The better an individual's coping skills, compared to their experienced stress, the lower their stress coping score. In contrast, if a person is experiencing more stress than he or she can cope with, the higher the stress coping score.

Stress exacerbates other symptoms of emotional, attitudinal, substance abuse and adjustment-related problems. The Stress Coping Abilities Scale is highly correlated with many of the clinical scales on the Minnesota Multiphasic Personality Inventory or MMPI. **A score on the Stress Coping Abilities Scale at or above the 90th percentile indicates the presence of an identifiable or perhaps diagnosable psychological, psychiatric, or mental health problem.** Thus, in addition to assessing a person's stress coping abilities, this scale provides a non-threatening and non-intrusive "mental health" assessment.

Clients handle stress differently, e.g., one client may handle incarceration well, whereas another client may be overwhelmed. The Stress Coping Abilities Scale identifies the problem prone individual that is not coping effectively with stress.

COMPARISON OF RATING FORMS VERSUS SELF-REPORT: Many “client rating” procedures have been used over the years. Client rating is highly influenced by the rater's knowledge of the client, the rater's training in rating procedure, adequate time for accurate ratings, and absence of bias or prejudice. Some client rating forms require information that might not be available, e.g., client's pre-incarceration adjustment, client emotional stability or psychopathology and even opinions about the client's sex life. Much of this "rater knowledge" goes beyond client observation and requires access to client records and time-consuming review. In many cases questions have been raised about inter-rater reliability, validity, accuracy and fairness.

In contrast, self-report tests do not involve a lot of staff time, as the client completes the test himself or herself. Truthfulness Scale addresses the problem of some respondents not telling the truth. Truth-Corrected scores are more accurate than raw scores. In the past, many evaluators "turned off" on self-report tests because they were too easy to fake. The AAVA Truthfulness Scale and Truth-Corrected scores have addressed this problem. Now computerized self-report tests provide accuracy in addition to saving staff time and budgeted dollars.

RESEARCH STUDIES

The Anger-Aggression-Violence Assessment (AAVA) validation studies were conducted with established Minnesota Multiphasic Personality Inventory (MMPI) scales as well as Polygraph examinations and other reports. Reliability and validity studies have been conducted on substance abuse inpatients, outpatients, college students, job applicants, defendants, diversion program attendees, probationers, clients and counseling patients. The AAVA has been studied in prisons, adult court settings and probation departments.

Empirically based AAVA scales (or measures) were developed by statistically relating scale item configurations to known substance (alcohol and other drugs) abuse groups. The AAVA was then normed against an adult prison population. A summary of much of this AAVA research follows.

This document first presents the earlier studies that investigated the Stress Coping Abilities Scale. Validation studies are presented next followed by reliability studies. The research represented in this document is reported chronologically -- as it occurred. Chronological presentation enables the reader to follow the evolution of the AAVA into a state-of-the-art assessment instrument. More recent studies (toward the end of this document) are most representative of current AAVA statistics.

AAVA risk level classification categories are presented below. These percentages are based on AAVA respondent scale scores. This permits comparison of predicted percentages with obtained percentages for each risk range category.

PREDICTED RISK RANGE PERCENTAGES FOR EACH AAVA SCALE		
RISK CATEGORY	RISK RANGE	PREDICTED PERCENTAGE
Low Risk	zero to 39th percentile	39%
Medium Risk	40 to 69th percentile	30%
Problem Risk	70 to 89th percentile	20%
Severe Problem	90 to 100th percentile	11%

Predicted percentages for each scales risk range category can be compared to actually attained percentile scores. This comparison helps understand the accuracy of the AAVA. Risk range percentile scores are derived from scoring equations based on responses to scale items, Truth-Corrections and prior criminal history information, then converted to percentile scores.

Analysis of the accuracy of AAVA risk range percentile scores involves comparing the risk range percentile scores obtained from client AAVA test results to the predicted risk range percentages as defined above. The percentages of clients expected to fall into each risk range is the following: Low Risk (39%), Medium Risk (30%), Problem Risk (20%) and Severe Problem or Maximum Risk (11%). The actual percentage of clients falling in each of the four risk ranges, based on their risk range percentile scores, is compared to these predicted percentages.

STRESS QUOTIENT

The Stress Quotient (SQ) or Stress Coping Abilities Scale is based upon the following mathematical equation:

$$SQ = CS/S \times k$$

The Stress Quotient (SQ) scale is a numerical value representing a person's ability to handle or cope with stress relative to their amount of experienced stress. CS (Coping Skill) refers to a person's ability to cope with stress. S (Stress) refers to experienced stress. k (Constant) represents a constant value in the SQ equation to establish SQ score ranges. The SQ includes measures of both stress and coping skills in the derivation of the Stress Quotient (SQ) score. The better an individual's coping skills, compared to the amount of experienced stress, the higher the SQ score.

The Stress Quotient (SQ) scale equation represents empirically verifiable relationships. The SQ scale (and its individual components) lends itself to research. Nine studies were conducted to investigate the validity and reliability of the Stress Quotient or Stress Coping Abilities Scale.

Validation Study 1: This study was conducted (1980) to compare SQ between High Stress and Low Stress groups. The High Stress group (N=10) was comprised of 5 males and 5 females. Their average age was 39. Subjects for the High Stress group were randomly selected from outpatients seeking treatment for stress. The Low Stress group (N=10) was comprised of 5 males and 5 females (average age 38.7) randomly selected from persons not involved in treatment for stress. High Stress group SQ scores ranged from 32 to 97, with a mean of 64.2. Low Stress group SQ scores ranged from 82 to 156, with a mean of 115.7. The t-test statistical analysis of the difference between the means of the two groups indicated that the High Stress group had significantly higher SQ scores than the Low Stress group ($t = 4.9, p < .001$). This study shows that the SQ or Stress Coping Abilities Scale is a valid measure of stress coping. The Stress Coping Abilities Scale significantly discriminates between high stress individuals and low stress individuals.

Validation Study 2: This study (1980) evaluated the relationship between the SQ scale and two criterion measures: Taylor Manifest Anxiety Scale and Cornell Index. These two measures have been shown to be valid measures of anxiety and neuroticism, respectively. If the SQ or Stress Coping Abilities Scale is correlated with these measures it would indicate that the SQ or Stress Coping Abilities Scale is a valid measure. In the Taylor Manifest Anxiety Scale, high scores indicate a high level of anxiety. Similarly, in the Cornell Index high scores indicate neuroticism. Negative correlation coefficients between the two measures and the SQ were expected because high SQ scores indicate good stress coping abilities. The three tests were administered to forty-three (43) subjects selected from the general population. There were 21 males and 22 females

ranging in age from 15 to 64 years. Utilizing a product-moment correlation, SQ scores correlated $-.70$ with the Taylor Manifest Anxiety Scale and $-.75$ with the Cornell Index. Both correlations were significant, in the predicted direction, at the $p < .01$ level. These results support the finding that the Stress Coping Abilities Scale is a valid measure of stress coping abilities. The reliability of the SQ was investigated in ten subjects (5 male and 5 female) randomly chosen from this study. A split-half correlation analysis was conducted on the SQ items. The product-moment correlation coefficient (r) was $.85$, significant at the $p < .01$ level. This correlation indicates that the SQ or Stress Coping Abilities Scale is a reliable measure. These results support the Stress Coping Abilities Scale as a reliable and valid measure.

Validation Study 3: In this study (1981) the relationship between the SQ Scale and the Holmes Rahe Social Readjustment Rating Scale (SRRS) was investigated. The SRRS, which is comprised of a self-rating of stressful life events, has been shown to be a valid measure of stress. Three correlation analyses were done. SRRS scores were correlated with SQ scores and separately with two components of the SQ scale: Coping Skill (CS) scores and Stress (S) scores. It was hypothesized that the SQ and SRRS correlation would be negative, since subjects with lower SQ scores would be more likely to either encounter less stressful life events or experience less stress in their lives. It was also predicted that subjects with a higher CS would be less likely to encounter stressful life events, hence a negative correlation was hypothesized. A positive correlation was predicted between S and SRRS, since subjects experiencing more frequent stressful life events would reflect more experienced stress. The participants in this study consisted of 30 outpatient psychotherapy patients. There were 14 males and 16 females. The average age was 35. The SQ and the SRRS were administered in counterbalanced order. The results showed there was a significant positive correlation (product-moment correlation coefficient) between SQ and SRRS ($r = .4006$, $p < .01$). The correlation results between CS and SRRS was not significant ($r = .1355$, n.s.). There was a significant positive correlation between S and SRRS ($r = .6183$, $p < .001$). The correlations were in predicted directions. The significant correlations between SQ and SRRS as well as S and SRRS support the construct validity of the SQ or Stress Coping Abilities Scale.

Validation Study 4: This validation study (1982) evaluated the relationship between factor C (Ego Strength) in the 16 PF Test as a criterion measure and the SQ in a sample of juveniles. High scores on factor C indicate high ego strength and emotional stability, whereas high SQ scores reflect good coping skills. A positive correlation was predicted because emotional stability and coping skills reflect similar attributes. The participants were 34 adjudicated delinquent adolescents. They ranged in age from 15 to 18 years with an average age of 16.2. There were 30 males and 4 females. The Cattell 16 PF Test and the SQ scale were administered in counterbalanced order. All subjects had at least a 6.0 grade equivalent reading level. The correlation (product-moment correlation coefficient) results indicated that Factor C scores were significantly correlated with SQ scores ($r = .695$, $p < .01$). Results were significant and in the predicted direction. These results support the SQ or Stress Coping Abilities Scale as a valid measure of stress coping abilities in juvenile offenders.

In a subsequent study the relationship between factor Q4 (Free Floating Anxiety) on the 16 PF Test and S (Stress) on the SQ scale was investigated. High Q4 scores reflect free floating anxiety and tension, whereas high S scores measure experienced stress. A high positive correlation between Q4 and S was predicted. There were 22 of the original 34 subjects included in this analysis since the remainder of the original files were unavailable. All 22 subjects were male. The results

indicated that Factor Q4 scores were significantly correlated (product-moment correlation coefficient) with S scores ($r = .584, p < .05$). Results were significant and in predicted directions. The significant correlations between factor C and SQ scores as well as factor Q4 and S scores support the construct validity of the SQ scale.

Validation Study 5: Psychotherapy outpatient clients were used in this validation study (1982) that evaluated the relationship between selected Wiggin's MMPI (Minnesota Multiphasic Personality Inventory) supplementary content scales (ES & MAS) as criterion measures and the SQ scale. ES measures ego strength and MAS measures manifest anxiety. It was predicted that the ES and SC correlation would be positive, since people with high ego strength would be more likely to possess good coping skills. Similarly, it was predicted that MAS and S correlations would be positive, since people experiencing high levels of manifest anxiety would also likely experience high levels of stress. The subjects were 51 psychotherapy outpatients ranging in age from 22 to 56 years with an average age of 34. There were 23 males and 28 females. The MMPI and the SQ were administered in counterbalanced order. The correlation (product-moment correlation coefficient) results indicated that ES and CS were positively significantly correlated ($r = .29, p < .001$). MAS and S comparisons resulted in an r of $.54$, significant at the $p < .001$ level. All results were significant and in predicted directions.

In a related study (1982) utilizing the same population data ($N=51$) the relationship between the Psychasthenia (Pt) scale in the MMPI and the S component of the SQ scale was evaluated. The Pt scale in the MMPI reflects neurotic anxiety, whereas the S component of the SQ scale measures stress. Positive Pt and S correlations were predicted. The correlation (product-moment correlation coefficient) results indicated that the Pt scale and the S component of the SQ scale were significantly correlated ($r = .58, p < .001$). Results were significant and in the predicted direction. The significant correlations between MMPI scales (ES, MAS, Pt) and the SQ scale components (CS, S) support the construct validity of the SQ or Stress Coping Abilities Scale.

Reliability Study 6: The reliability of the Stress Quotient (SQ) or Stress Coping Abilities Scale was investigated (1984) in a population of outpatient psychotherapy patients. There were 100 participants, 41 males and 59 females. The average age was 37. The SQ was administered soon after intake. The most common procedure for reporting inter-item (within test) reliability is with Coefficient Alpha. The reliability analysis indicated that the Coefficient Alpha of 0.81 was highly significant ($F = 46.74, p < .001$). Highly significant inter-item scale consistency was demonstrated.

Reliability Study 7: (1985) The reliability of the Stress Quotient (SQ) or Stress Coping Abilities Scale was investigated in a sample of 189 job applicants. There were 120 males and 69 females with an average age of 31. The SQ was administered at the time of pre-employment screening. The reliability analysis indicated that the Coefficient Alpha of 0.73 was highly significant ($F = 195.86, p < .001$). Highly significant Cronbach Coefficient Alpha reveals that all SQ scale items are significantly ($p < .001$) related and measure one factor or trait.

Validation Study 8: Chemical dependency inpatients were used in a validation study (1985) to determine the relation between MMPI scales as criterion measures and the Stress Quotient (SQ) Scale or Stress Coping Abilities Scale. The SQ is inversely related to other MMPI scales, consequently, negative correlations were predicted. The participants were 100 chemical dependency inpatients. There were 62 males and 38 females with an average age of 41. The SQ and the MMPI were administered in counterbalanced order. The reliability analysis results

indicated that the Coefficient Alpha of 0.84 was highly significant ($F = 16.20$, $p < .001$). Highly significant inter-item scale consistency was demonstrated.

The correlation (product-moment correlation coefficient) results between the Stress Quotient (SQ) and selected MMPI scales were significant at the $p < .001$ level and in predicted directions. The SQ correlation results were as follows: Psychopathic Deviate (-0.59), Psychasthenia (-.068), Social Maladjustment (-0.54), Authority Conflict (-0.46), Taylor Manifest Anxiety Scale (-0.78), Authority Problems (-0.22), and Social Alienation (-0.67). The most significant SQ correlation was with the Taylor Manifest Anxiety Scale. As discussed earlier, stress exacerbates symptoms of impaired adjustment as well as emotional and attitudinal problems. These results support the Stress Quotient or Stress Coping Abilities Scale as a valid measure of stress coping abilities.

Validation Study 9: In a replication of earlier research, a study (1986) was conducted to further evaluate the reliability and validity of the Stress Quotient (SQ). The participants were 212 inpatients in chemical dependency programs. There were 122 males and 90 females with an average age of 44. The SQ and MMPI were administered in counterbalanced order. Reliability analysis of the SQ scale resulted in a Coefficient Alpha of 0.986 ($F = 27.77$, $p < .001$). Highly significant inter-item scale consistency was again demonstrated. Rounded off, the **Coefficient Alpha for the SQ was 0.99**.

In the same study (1986, inpatients), product-moment correlations were calculated between the Stress Quotient (SQ) and selected MMPI scales. The SQ correlated significantly (.001 level) with the following MMPI scales: Psychopathic Deviate (Pd), Psychasthenia (Pt), Anxiety (A), Manifest Anxiety (MAS), Ego Strength (ES), Social Responsibility (RE), Social Alienation (PD4A), Social Alienation (SC1A), Social Maladjustment (SOC), Authority Conflict (AUT), Manifest Hostility (HOS), Suspiciousness/Mistrust (TSC-II), Resentment/Aggression (TSC-V) and Tension/Worry (TSC-VII). **All SQ correlations with selected MMPI scales were significant (at the .001 level of significance) and in predicted directions.** These results support the SQ scale or Stress Coping Abilities Scale as a valid measure of stress coping abilities.

The studies cited above demonstrate empirical relationships between the SQ scale (Stress Coping Abilities Scale) and other established measures of stress, anxiety and coping skills. This research demonstrates that the Stress Quotient (SQ) or Stress Coping Abilities Scale is a reliable and valid measure of stress coping abilities. The SQ has high inter-item scale reliability. The SQ also has high concurrent (criterion-related) validity with other recognized and accepted tests. The SQ scale permits objective (rather than subjective) analysis of the interaction of these important variables. In the research that follows, the **Stress Quotient** or **SQ** is also referred to as the **Stress Coping Abilities Scale**.

SCALES RESEARCH

The Anger-Aggression-Violence Assessment (AAVA) is designed for client risk and needs assessment. The AAVA has a long history of research and development, much of which is contained in the following summary. AAVA research is reported in a chronological format, reporting studies as they occurred. This gives the reader the opportunity to see how the AAVA evolved into a state-of-the-art risk and needs assessment instrument. For current information refer to the more recent studies near the end of this research section.

Initially, a large item pool was rationally developed for AAVA scale consideration. Consensual agreement among three Ph.D. level psychologists and other experienced chemical dependency counselors familiar with scale definitions reduced the initial item pool markedly. Final item selection was empirical - comparing statistically related item configurations to known substance abuse groups. Items chosen had acceptable inter-item reliability coefficients and correlated highest with their respective scales. Final item selection was based on each item's statistical properties. The AAVA was then objectively standardized and normed on prison client populations.

10. Validation of the Truthfulness Scale

The Truthfulness Scale in the AAVA is an important psychometric scale as these scores establish how truthful the respondent was while completing the AAVA. Truthfulness Scale scores determine whether or not AAVA profiles are accurate and are integral to the calculation of Truth-Corrected AAVA scale scores.

The Truthfulness Scale identifies respondents who were self-protective, recalcitrant and guarded, as well as those who minimized or even concealed information while completing the test. Truthfulness Scale items are designed to detect respondents who try to fake good or put themselves into a favorable light. These scale items are statements about oneself that most people would agree to. The following statement is an example of a Truthfulness Scale item, "Sometimes I worry about what others think or say about me."

This preliminary study used the 21 Truthfulness Scale items in the AAVA to determine if these Truthfulness Scale items could differentiate between respondents who were honest from those trying to fake good. It was hypothesized that the group trying to fake good would score higher on the Truthfulness Scale than the group instructed to be honest.

Method

Seventy-eight Arizona State University college students (1985) enrolled in an introductory psychology class were randomly assigned to one of two groups. Group 1 comprised the "Honest" group and Group 2 comprised the "Fakers" group. Group 1 was instructed to be honest and truthful while completing the test. Group 2 was instructed to "fake good" while completing the test, but to respond "in such a manner that their faking good would not be detected." The test, which included the AAVA Truthfulness Scale, was administered to the subjects and the Truthfulness Scale was embedded in the test as one of the six scales. Truthfulness Scale scores were made up of the number of deviant answers given to the 21 Truthfulness Scale items.

Results

The mean Truthfulness Scale score for the Honest group was 2.71 and the mean Truthfulness Scale score for Fakers was 15.77. The results of the correlation (product-moment correlation coefficient) between the Honest group and the Fakers showed that the Fakers scored significantly higher on the Truthfulness Scale than the Honest group ($r = 0.27, p < .05$).

The Truthfulness Scale successfully measured how truthful the respondents were while completing the test. The results of this study demonstrate that the Truthfulness Scale accurately detects "Fakers" from those students that took the test honestly.

11. Validation of Four AAVA Scales using Criterion Measures

In general terms, a test is valid if it measures what it is supposed to measure. The process of confirming this statement is called validating a test. A common practice when validating a test is to compute a correlation between it and another (criterion) test that purports to measure the same thing and that has been previously validated. For the purpose of this study, the four AAVA scales (Truthfulness, Alcohol, Drugs, Stress Coping Abilities) were validated with comparable scales on the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI was selected for this validity study because it is the most researched, validated and widely used objective personality test in the United States. The AAVA scales were validated with MMPI scales as follows. The Truthfulness Scale was validated with the L Scale. The Alcohol Scale was validated with the MacAndrew Scale. The Drugs Scale was validated with the MacAndrew and Psychopathic Deviant scales. The Stress Coping Abilities Scale was validated with the Taylor Manifest Anxiety, Psychasthenia, Social Maladjustment and Social Alienation scales.

Method

One hundred (100) chemical dependency inpatients (1985) were administered both the AAVA scales and the MMPI. Tests were counterbalanced for order effects -- half were given the AAVA scales first and half the MMPI first.

Results and Discussion

Product-moment correlation coefficients were calculated between AAVA scales and MMPI scales. These results are summarized in Table 1. Correlation results presented in Table 1 show that all AAVA scales significantly correlated (.001 level of significance) with all represented MMPI scales. In addition, all correlations were in predicted directions.

Table 1. (1985) Product-moment correlations between MMPI scales and AAVA scales (N = 100)

MMPI SCALES (MEASURES)	AAVA SCALES (MEASURES)			
	Truthfulness	Alcohol	Drugs	Stress Coping
L (Lie) Scale	0.72	-0.38	-0.41	0.53
Psychopathic Deviant	-0.37	0.52	0.54	-0.59
Psychasthenia	-0.34	0.38	0.41	-0.68
Social Maladjustment	-0.25	0.34	0.26	-0.54
Authority Conflict	-0.43	0.31	0.47	-0.46
Manifest Hostility	-0.45	0.34	0.47	-0.58
Taylor Manifest Anxiety	-0.58	0.47	0.46	-0.78
MacAndrew	-0.40	0.58	0.62	-0.33
Social Alienation	-0.47	0.35	0.45	-0.67

NOTE: All correlations were significant at $p < .001$.

The **Truthfulness Scale** correlates significantly with all of the represented MMPI scales in Table 1. Of particular interest is this scale's highly significant positive correlation with the MMPI Lie (L) Scale. A high L Scale score on the MMPI invalidates other MMPI scale scores due to untruthfulness. This helps in understanding why the Truthfulness Scale is significantly, but negatively, correlated with the other represented MMPI scales. Similarly, the MMPI L Scale correlates significantly, but negatively, with the other AAVA scales.

The **Alcohol Scale** correlates significantly with all represented MMPI scales. This is consistent with the conceptual definition of the Alcohol Scale and previous research that has found that alcohol abuse is associated with mental, emotional and physical problems. Of particular interest are the highly significant correlations with the MacAndrew ($r = 0.58$) Scale and the Psychopathic Deviant ($r = 0.52$) Scale. High MacAndrew and Psychopathic Deviant scorers on the MMPI are often found to be associated with substance abuse. Similarly, the **Drugs Scale** correlates significantly with the MacAndrew ($r = 0.62$) Scale and the Psychopathic Deviant ($r = 0.54$) Scale.

The **Stress Coping Ability Scale** is inversely related to MMPI scales which accounts for the negative correlations shown in Table 1. The positive correlation with the L scale on the MMPI was discussed earlier, i.e., Truthfulness Scale. It should be noted that stress exacerbates symptoms of impaired adjustment and even psychopathology. The Stress coping Ability Scale correlates most significantly with the Taylor Manifest Anxiety ($r = -0.78$) Scale, the Psychasthenia ($r = -0.68$) Scale and the Social Alienation ($r = -0.67$) Scale.

These findings strongly support the validity of AAVA scales. All of the AAVA scales were highly correlated with the MMPI criterion scale they were tested against. The large correlation coefficients support the validity of the AAVA. All product-moment correlation coefficients testing the relation between AAVA scales and MMPI scales were significant at the $p < .001$ level.

12. Relationships Between Selected AAVA Scales and Polygraph Examination

A measure that has often been used in business or industry for employee selection is the Polygraph examination. The polygraph exam is most often used to determine the truthfulness or honesty of an individual while being tested. The Polygraph examination is more accurate as the area of inquiry is more "situation" specific. Conversely, the less specific the area of inquiry, the less reliable the Polygraph examination becomes.

Three AAVA scales were chosen for this study; Truthfulness Scale, Alcohol Scale and Drugs Scale. The Truthfulness Scale was chosen because it is used in the AAVA to measure the truthfulness or honesty of the respondent while completing the AAVA. The Alcohol and Drugs scales are well suited for comparison with the polygraph exam because of the situation specific nature of the scales. Alcohol and Drugs scale items are direct and relate specifically to alcohol and drug use. The comparison with the Truthfulness Scale is less direct because of the subtle nature of the Truthfulness Scale items as used in the AAVA. The Truthfulness Scale is affected by the respondent's attitude, emotional stability and tendencies to fake good. It was expected that the Alcohol and Drugs scales would be highly correlated with the polygraph results and the Truthfulness Scale would show a somewhat less but nonetheless significant correlation.

Method

One hundred and eighty-nine (189) job applicants (1985) were administered both the AAVA scales and the Polygraph examination. Tests were given in a counterbalanced order. Half of the applicants were given the AAVA scales first and the other half of the applicants were administered the polygraph first. The subjects were administered the AAVA scales and polygraph exam in the same room in the same session with the examiner present for both tests.

Results

The product-moment correlation results between the Polygraph exam and AAVA scales indicated there was a significant positive correlation between the Truthfulness Scale and Polygraph exam ($r = 0.23$, $p < .001$). Similarly, significant positive relationships were observed between the Polygraph exam and the Alcohol Scale ($r = 0.54$, $p < .001$) and the Drugs Scale ($r = 0.56$, $p < .001$).

In summary, this study supports the validity of the AAVA Truthfulness, Alcohol and Drugs scales. There were strong positive relationships between the selected AAVA scales and the Polygraph examination. The highly significant product-moment correlations between AAVA scales and Polygraph examinations demonstrates the validity of the AAVA Truthfulness, Alcohol and Drug abuse measures.

These results are important because the Polygraph exam is a direct measure obtained from the individual being tested rather than a rating by someone else. This is similar to self-report such as utilized in the AAVA. The fact that there was a very strong relationship between Polygraph results and AAVA scales shows that this type of information can be obtained accurately in self-report instruments.

These results indicate that the AAVA Truthfulness Scale is an accurate measure of the respondent's truthfulness or honesty while completing the AAVA. The Truthfulness Scale is an essential measure in self-report instruments. There must be a means to determine the honesty or "correctness" of the respondent's answers and there must be a means to adjust scores when the respondent is less than honest. The AAVA Truthfulness Scale addresses both of these issues. The Truthfulness Scale measures truthfulness and then applies a correction to other scales based on the Truthfulness Scale score. The Truthfulness Scale ensures accurate assessment. The results of this study show that the AAVA is a valid assessment instrument.

13. Validation of AAVA Scales in a Sample of Substance Abuse Inpatients

The AAVA is an client risk and needs assessment instrument that incorporates measures of chemical dependency and substance (alcohol and other drugs) abuse. It is designed for use in prison and corrections settings. The AAVA is a specific test designed for specific client populations. The present study (1987) was conducted to validate the AAVA scales in a sample of substance abuse inpatients in a chemical dependency facility.

Selected scales in the Minnesota Multiphasic Personality Inventory (MMPI) were used as criterion measures for the different AAVA scales. The Truthfulness Scale was validated with MMPI L Scale, F Scale and K Scale. The Alcohol Scale was validated with MMPI MacAndrew Scale (MAC) and Psychopathic Deviate-Obvious (PD-O). The Drugs Scale was validated with MMPI MacAndrew Scale and Psychopathic Deviate-Obvious. The Stress Coping Abilities Scale was validated with MMPI Psychasthenia (PT), Anxiety (A), Taylor Manifest Anxiety (MAS) and Tension/Worry (TSC-VII). The MMPI scales were chosen to compare to the AAVA scales because they measure similar attributes.

Method

The subjects used in the study were 212 substance (alcohol and other drugs) abuse inpatients in chemical dependency facilities. The AAVA and MMPI scales were administered in counterbalanced order.

Results and Discussion

The product-moment correlation results are summarized in Table 2. Since this study is important in understanding AAVA validity, each AAVA scale is briefly summarized below. (N=212):

The **Truthfulness Scale** correlates significantly in predicted directions with selected MMPI criterion scales, L Scale (lie, $p < .001$), F Scale (validity, $p < .001$) and K Scale (validity correction, $p < .001$). Other significant correlations with traditional MMPI scales include: PD (Psychopathic deviate, $p < .001$), ES (Ego Strength, $p < .001$), and RE (Social responsibility, $p < .001$); Harris MMPI subscales: PD2 (Authority Problems, $p < .001$), PD4 (Social Alienation, $p < .001$), SCIA (Social Alienation, $p < .001$); Wiggins MMPI content scales: SOC (Social Maladjustment, $p < .001$), HOS (Manifest Hostility, $p < .001$); Wiener-Harmon MMPI subscales: PDO (Psychopathic Deviant-Obvious, $p < .001$); Tryon, Stein & Chu MMPI cluster scales: TSC-V (Resentment/Aggressive, $p < .001$).

The **Alcohol Scale** correlates significantly in predicted directions with selected MMPI criterion scales: MAC (MacAndrew scale, $p < .001$), and PD-O (Psychopathic Deviate Obvious, $p < .021$). The **Drugs Scale** correlates significantly in predicted directions with selected MMPI criterion scales: MAC (MacAndrew scale, $p < .001$), and PD-O (Psychopathic Deviate Obvious, $p < .001$).

The **Stress Coping Abilities Scale** correlates significantly in predicted directions with selected MMPI criterion scales: PT (Psychasthenia, $p < .001$), A (Anxiety, $p < .001$), MAS (Taylor Manifest Anxiety, $p < .001$), PD4 (Social Alienation, $p < .001$) and TSC-VII (Tension/Worry, $p < .001$).

MMPI SCALES (MEASURES)	AAVA SCALES (MEASURES)			
	Truthfulness	Alcohol	Drugs	Stress Coping
L	0.60	-0.24	-0.15	-0.30
F	-0.34	0.32	0.32	0.49
K	0.39	-0.28	-0.29	-0.51
MAC	-0.30	0.35	0.37	0.28
PD-O	-0.35	0.22	0.33	0.53
PD2	-0.26	0.18	0.17	0.07
PD	-0.33	0.21	0.33	0.39
HOS	-0.45	0.25	0.33	0.46
TSC-V	-0.46	0.34	0.28	0.58
ES	0.25	-0.27	-0.25	-0.51
RE	0.41	-0.27	-0.34	-0.45
SOC	-0.19	0.17	0.08	0.39
PD4	-0.41	0.20	0.28	0.55
SCIA	-0.36	0.27	0.32	0.39
PT	-0.39	0.27	0.24	0.58
A	-0.41	0.31	0.31	0.68
MAS	-0.44	0.25	0.18	0.65
TSC-VII	-0.41	0.33	0.29	0.66

These findings strongly support the validity of AAVA scales in this sample of chemical dependency inpatients. All AAVA scales were highly correlated with the MMPI criterion scales they were tested against. The large correlation coefficients support the AAVA as a valid instrument. Inpatients in chemical dependency facilities are known to have substance abuse problems and these correlation results confirm the validity of the instruments. These findings support the validity of the AAVA.

The AAVA Alcohol and Drugs scales are direct measures of alcohol and drug use or abuse, respectively, whereas the MacAndrew Scale was developed from discriminant analysis and does not include a truthfulness scale. The MacAndrew Scale items do not relate specifically to alcohol and drugs. Hence, the correlations between the MacAndrew Scale and the Alcohol and Drugs scales could be affected by the lack of a truthfulness measure which is a deficiency of the MacAndrew Scale. However, the correlation coefficients were still significant.

Where MMPI scales are closely related (by definition) to AAVA scales the correlation coefficients were highly significant. For example, the AAVA Truthfulness Scale and the MMPI L Scale both measure tendencies to fake good, and the correlation was very highly significant at $r = .60$. The correlation between Resistance Scale and MMPI Social Responsibility Scale was $r = -.88$, and the correlation between the Stress Coping Abilities Scale and MMPI Tension/Worry Scale was $r = -.66$. This study supports the validity of the Anger-Aggression-Violence Assessment (AAVA).

14. Reliability of AAVA Scales in a Large Sample of Convicted DUI Offenders

This study (1989) was conducted to evaluate the reliability of the AAVA Truthfulness Scale, Alcohol Scale, Drugs and Stress Coping Abilities Scale. There were 1,487 convicted DUI offenders included in the study. This study provides a large sample for studying reliability.

Any approach to detection, assessment, or measurement must meet the criteria of reliability and validity. Reliability refers to an instrument’s consistency of results regardless of who uses it. This means that the outcome must be objective, verifiable, and reproducible. Ideally, the instrument or test must also be practical, economical, and accessible. Psychometric principles and computer technology insure accuracy, objectivity, practicality, cost-effectiveness and accessibility.

Within-test reliability measures to what extent a test with multiple scales measuring different factors, measures each factor independent of the other factors (scales) in the test. It also measures to what extent items in each scale consistently measure the particular trait (or factor) that scale was designed to measure. Within-test reliability measures are referred to as inter-item reliability. The most common method of reporting within-test (scale) inter-item reliability is with coefficient alpha.

Method and Results

The AAVA scales were administered to 1,487 convicted DUI offenders. Cronbach's Alpha and the Standardized Alpha were computed as a measure of internal reliability. The results are presented in Table 3.

Table 3. Reliability coefficient alphas. DUI Offenders (N=1,487) All coefficient alphas are significant at $p < .001$.		
AAVA	Cronbach	Standardized

Scales	Alpha	Alpha
Truthfulness Scale	.82	.82
Alcohol Scale	.91	.92
Drugs Scale	.84	.86
Stress Coping Abilities Scale	.90	.91

These results strongly support the reliability of the AAVA scales investigated in this study. All coefficient alphas were highly significant at $p < .001$. The AAVA scales have high internal consistency as measured by Cronbach and standardized coefficient alphas.

ANGER-AGGRESION-VIOLOENCE ASSESSMENT RESEARCH

1. Reliability, Validity, and Accuracy Analyses of the Anger-Aggression-Violence

Assessment

This report summarizes Anger-Aggression-Violence Assessment (AVAA) test results for 221 adult offenders tested by various criminal justice agencies across the United States. All-to-date accumulated data was analyzed; collected data started on October 9th, 2015 and continued up to October 13th, 2016.

Participants (Demographics)

Offenders in this sample were predominantly male at 71%, Caucasian at 68%, and the majority of offenders, at 32%, only completed high school. The average age for all offenders was 35 years, while the average age at first conviction was 20 years.

As for criminal history, 47% of offenders in this sample were repeat offenders. Of the offenders who provided court history responses, 21% had one or more alcohol-related arrests, 15% had one or more drug-related arrests, 41% had one or more domestic violence arrests, 19% had one or more DUI arrests, and 41% had one or more assault arrests. Notably, 24% of offenders who provided responses reported that they have attended anger management classes, and 20% reported that they have attended counseling – there were up to 39 offenders who did not provide a response about whether they have attended counseling or anger management classes.

Reliability

Test reliability refers to a scales' consistency of measurement. Cronbach's Alpha, a measure of reliability, measured the internal consistency of each scale. The professionally accepted minimum standard of reliability for assessments is .70, while perfect reliability is 1.00. Behavior Data Systems accepted standard of reliability is .85-.95 for this assessment. Table 1, below, displays the reliability scores for each scale.

Table 1. AAVA Scale Reliability (N = 221, 2015-2016)

Scale	Reliability
Truthfulness Scale	.89
Alcohol Scale	.90

Drugs Scale	.90
Anger Scale	.93
Aggression Scale	.90
Violence Scale	.86
Stress Coping Scale	.91

As noted in Table 1, all scale scores in this sample for the AAVA meets our accepted reliability standards for this assessment.

Validity

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems receive higher risk scores than individuals known to have fewer problems, the test is said to have construct validity.

Offenders were categorized into first-time (N=118) and repeat (N=103) offenders. First-time offenders are defined as having reported no more than one arrest; whereas repeat offenders have two or more arrests. The total number of arrests were calculated by adding all reported arrests together. It is anticipated that repeat offenders' mean scale scores would be higher than first-time offenders, indicating more severe symptoms or problems. The Stress Coping Abilities Scale measures prosocial factors, so first-time offenders are expected to have higher scale scores than repeat offenders, as it shows that they have better stress coping skills.

Table 2. AAVA Scale Validity (N = 221, 2015-2016)
Offender Status defined by Total Arrests

Scales	First-time Offender Mean Scores	Repeat Offender Mean Scores	Standard Error	Significance
Truthfulness Scale	8.08	6.54	2.25	.025
Alcohol Scale	1.00	3.45	-5.55	<.001
Drugs Scale	1.47	3.63	-4.33	<.001
Anger Scale	4.23	5.54	-1.93	.056
Aggression Scale	4.15	6.74	-5.51	<.001
Violence Scale	2.50	3.81	-2.48	.014
Stress Coping Scale	126.54	122.07	.650	.515

First-time offenders and repeat offenders' mean scale scores were compared. As expected, results found that repeat offenders indicated more severe problems on the Alcohol, Drugs, Anger, Aggression, Violence, and Stress Coping Scales.

First-time offenders scored higher on the Truthfulness Scale, which may be associated with an offenders' level of experience with law enforcement and assessment procedures. These individuals may, naively, engage in more denial and minimizing behaviors whereas, repeat offenders (who have more experience with law enforcement and the courts) may be aware that denial, minimization, and deception will be detected.

In the *T*-test, which is done to examine whether mean scores were statistically significant, adjustments are automatically made for unequal variances and to control for sample inflation or error. Results were statistically significant for the Alcohol Scale, Drug Scale, and Aggression Scale compared with offender status defined by total arrests. The Triad Scale – a continuum formed from combining the Anger, Aggression, and Violence scales – also showed to be statistically significant when compared with offender status; this proves validity within the AAVA as it shows exactly what is tested for: repeat offenders having higher anger, aggression, and violence risk than first-time offenders. Outside of the Triad Scale, the Anger and Violence scales were not deemed significant. The Truthfulness and Stress Coping scales were also not deemed significant in this sample. The non-significant findings were likely the result of the small sample size.

These validity analysis findings show that there is construct validity present within the AAVA. Validity in this test demonstrates its ability to identify offender risk within each domain as well as differentiate between offenders who have greater needs and those who don't.

Accuracy

An analysis for accuracy was conducted using our standard predicted risk percentages for each of the behavioral scales. The expected percentage of the general population for Low Risk is 39%, Moderate Risk is 30%, Problem Risk is 20%, and Severe Problem Risk is 11%. Percentage frequencies and the difference between the frequencies and the expected percentages are presented in Table 3 for the AAVA.

Chart 3. AAVA Respondent Risk Range Summary (N = 221, 2015-2016)

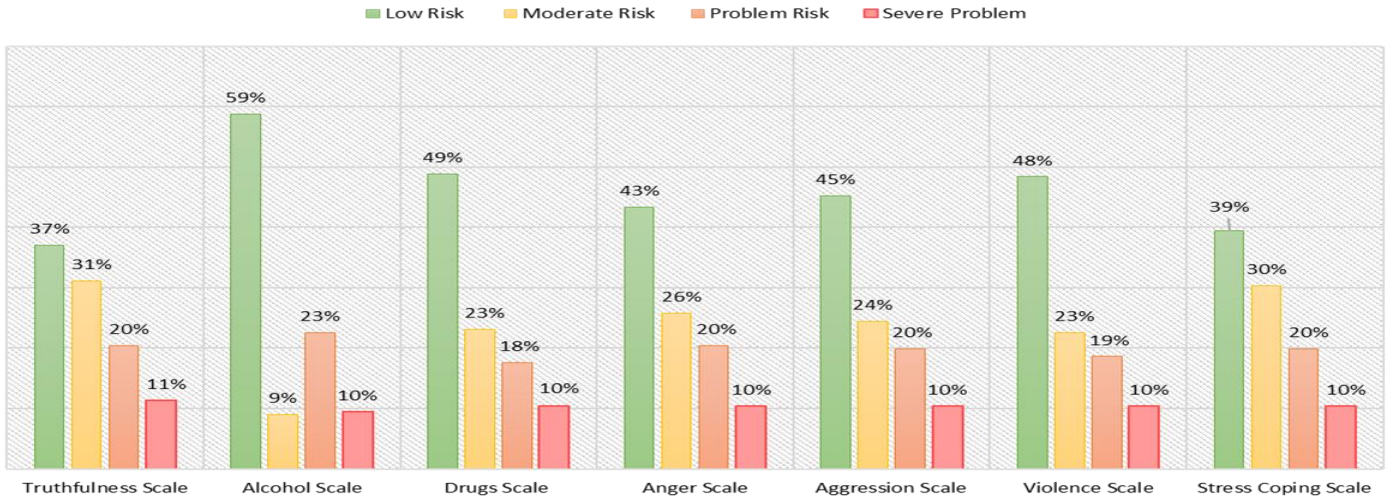


Table 3. AAVA Respondent Risk Range Summary (N = 221, 2015-2016)

Scale*	Low Risk (39%)		Moderate Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	37.1	1.9	31.2	(1.2)	20.4	(0.4)	11.3	(0.3)
Alcohol Scale	58.8	(19.8)	9.0	21.0	22.6	(2.6)	9.5	1.5
Drugs Scale	48.9	(9.9)	23.1	6.9	17.6	2.4	10.4	0.6
Anger Scale	43.4	(4.4)	25.8	4.2	20.4	(0.4)	10.4	0.6
Aggression Scale	45.2	(6.2)	24.4	5.6	19.9	0.1	10.4	0.6
Violence Scale	48.4	(9.4)	22.6	7.4	18.6	1.4	10.4	0.6
Stress Coping Scale	39.4	(0.4)	30.3	(0.3)	19.9	0.1	10.4	0.6

As displayed in Table 3 and Chart 3, 86% of the obtained percentages of offenders in each risk category were consistent with expected percentages. Consistency is defined by obtained percentages being less than 9% away from the expected percentages, in either direction. The exceptions include the percentage count for the Alcohol Scale in the Low Risk and Moderate Risk ranges, which sit up to 21% away from the expected percentages. The percentage counts in the Low Risk range for the Drugs and Violence scales were also inconsistent with the expected percentage, sitting between 9% and 10% away from it. These scales show a larger spread in the Low Risk range, indicating more Low Risk test-takers. Because this test is administered to those who are known to have problems – aggressive offenders – inconsistencies like this could be the result of having a small sample size, slight differences among offenders, or local laws.

Overall, this samples' results provide evidentiary support for the accuracy of the AAVA.

2. Reliability, Validity, and Accuracy Analyses of the Anger-Aggression-Violence-Assessment (2019)

This report summarizes Anger-Aggression-Violence Assessment (AAVA) test results for 2,037 adult offenders tested by various criminal justice agencies across the United States. All-to-date accumulated data was analyzed; data for this sample was collected from January 1, 2017 to August 21, 2019.

Participants (Demographics)

Offenders in the sample were predominantly male at 68.7%, 64.9% were Caucasian, and 74.1% had a high school or higher level of education. The average age for all offenders was 34 years and the average age at first conviction was 19 years.

Criminal history: 46.6% of offenders in this sample were repeat offenders. Of the offenders who provided court history responses, 18.4% had one or more alcohol-related arrests, 19.5% had one or more drug-related arrests, 39.3% had one or more domestic violence arrests, 23.4% had one or more DUI arrests, and 39.0% had one or more assault arrests. 16.6% of offenders reported attending at least one anger management class and 16.6% reported attending counseling.

Reliability

Test reliability refers to a scales' consistency of measurement. Cronbach's Alpha, a measure of reliability, measured the internal consistency of each scale. The professionally accepted minimum standard of reliability for assessments is .70, while perfect reliability is 1.00. Behavior Data Systems' accepted standard of reliability .85-.95 for this assessment. Table 4, below, displays the reliability scores for each scale.

Table 4. AAVA Scale Reliability (N=2,037, 2017-2019)

Scale	Reliability
Truthfulness Scale	.90
Alcohol Scale	.86
Drugs Scale	.88
Anger Scale	.90
Aggression Scale	.90
Violence Scale	.85
Stress Coping Scale	.94

As noted in Table 4, all scale scores in this sample for the AAVA meets our accepted reliability standards for this assessment.

Validity

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems receive higher risk scores than individuals known to have fewer problems, the test is said to have construct validity.

Offenders were categorized into first-time (N=1053) and repeat (N=949) offenders. First-time offenders are defined as having reported no more than one arrest; whereas repeat offenders have two or more arrests. The total number of arrests were calculated by adding all reported arrests together. It is anticipated that repeat offenders' mean scale scores would be higher than first-time offenders, indicating more severe symptoms or problems. The Stress Management Scale measures prosocial factors, so first-time offenders are expected to have higher scale scores than repeat offenders, as it shows that they have better stress coping skills.

Table 5. AAVA Scale Validity (N=2,027, 2017-2019)

Offender Status defined by Total Arrests

Scales	First-time Offender Mean Scores	Repeat Offender Mean Scores	Standard Error	Significance
Truthfulness Scale	7.23	6.64	.589	.010
Alcohol Scale	1.27	3.55	-2.28	<.001
Drugs Scale	1.95	4.08	-2.13	<.001
Anger Scale	6.24	7.71	-1.47	<.001
Aggression Scale	2.94	3.91	-.967	<.001
Violence Scale	3.97	7.80	-3.84	<.001
Stress Management Scale	121.02	116.12	4.90	.057

First-time offenders and repeat offenders' mean scale scores were compared. Results round that repeat offenders indicated more severe problems on the Alcohol, Drug, Anger, Aggression, Violent, and Stress Management Scale.

First-time offenders scored higher on the Truthfulness Scale, which may be associated with an offenders' level of experience with law enforcement and assessment procedures. These individuals may, naively, engage in more denial and minimizing behaviors whereas, repeat offenders (who have more experience with law enforcement and the courts) may be aware that denial, minimization, and deception will be detected.

In the T-test, which is done to examine whether mean scores were statistically significant, adjustments are automatically made for unequal variances and to control for sample inflation or error. Results were statistically significant for the Alcohol, Drug, Anger, Aggression, and Violence Scale compared with offender status defined by total arrests. The Triad Scale – a continuum formed from combining the Anger, Aggression, and Violence Scales, also showed to be statistically significant when compared with offender status; this proves validity within the AAVA as it shows exactly what is tested for: repeat offenders having higher anger, aggression, and violence risk than first-time offenders. The Stress Management scale was not deemed significant in this sample.

These validity analysis findings show that there is construct validity present within the AAVA. Validity in this test demonstrates its ability to identify offender risk within each domain as well as differentiate between offenders who have greater needs and those who don't.

Accuracy

An analysis for accuracy was conducted using our standard predicted risk percentages for each of the behavioral scales. The expected percentage of the general population for Low Risk is 39%, Moderate Risk is 30%, Problem Risk is 20%, and Severe Problem Risk is 11%. Percentage frequencies and the difference between the frequencies and the expected percentages are presented in Table 6 for the AAVA.

Chart 4. AAVA Respondent Risk Range Summary (N = 2,037, 2017-2019)

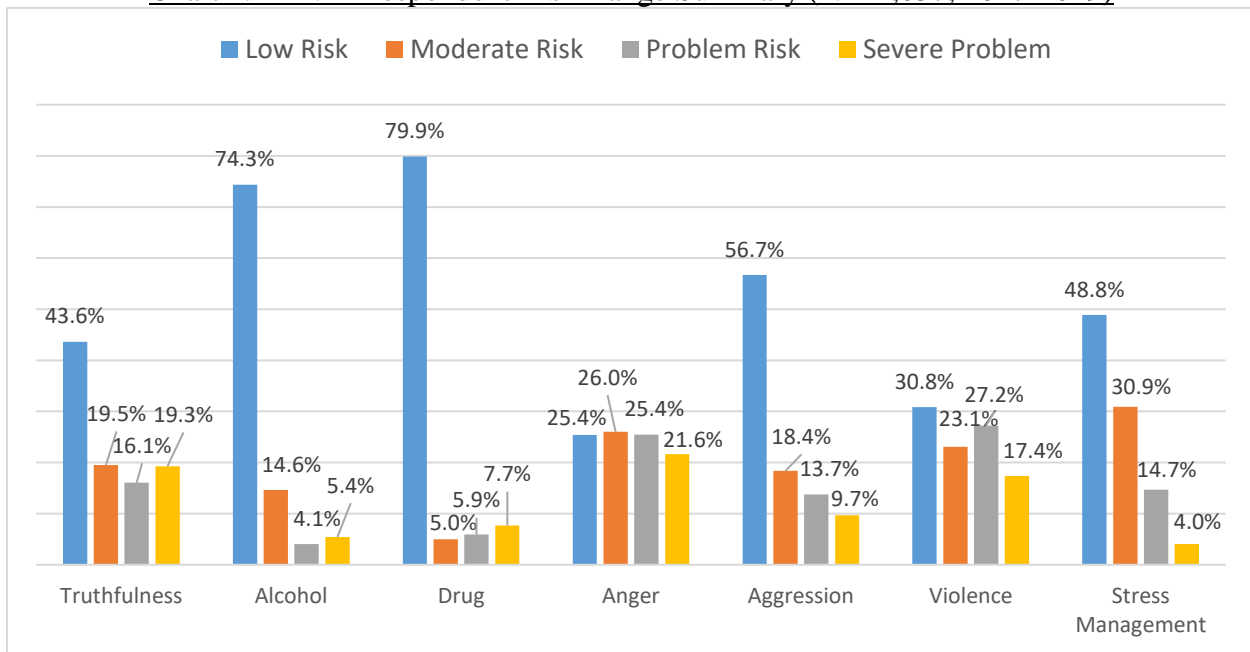


Table 6. AAVA Respondent Risk Range Summary (N = 2,037, 2017-2019)

Scale	Low Risk (39%)		Moderate Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	43.6%	4.6%	19.5%	-10.5%	16.1%	-3.9%	19.3%	8.3%
Alcohol Scale	74.3%	35.3%	14.6%	-15.4%	4.1%	-15.9%	5.4%	-5.6%
Drug Scale	79.9%	40.9%	5.0%	-25.0%	5.9%	-14.1%	7.7%	-3.3%
Anger Scale	25.4%	-13.6%	26.0%	-4.0%	25.4%	5.4%	21.6%	10.6%
Aggression Scale	56.7%	17.7%	18.4%	-11.6%	13.7%	-6.3%	9.7%	-1.3%
Violence Scale	30.8%	-8.2%	23.1%	-6.9%	27.2%	7.2%	17.4%	6.4%
Stress Management Scale	48.8%	9.8%	30.9%	0.9%	14.7%	-5.3%	4.0%	-7.0%

As display in Table 6 and Chart 4, 57.1% of the obtained percentages of offenders in each risk category were each with 10 percentage points of within the expected percentages. Consistency is defined by obtained percentages being less than 9% within the expected percentages, above or below the expected percentage. The exceptions include the Low Risk range on the Alcohol, Drug, and Aggression Scales. More than half of offenders in this sample scored in the Low Risk range on the Alcohol, Drug, and Aggression Scale. Nearly half of offenders scored in the Problem Risk or Severe Problem ranges on the Anger Scale. The high scores on the anger scale are expected as the purpose of the AAVA is to test clients inclined to anger and aggression.

SUMMARY

In conclusion, this document is not intended as an exhaustive compilation of AAVA research. Yet, it does summarize many studies and research that support the reliability, validity and accuracy of the AAVA. The research contained herein has been presented chronologically -- as it emerged. This research presentation gives the reader an insight into the evolution of the Anger-Aggression-Violence Assessment.

Although AAVA research and development actually began with the Stress Quotient Scale (later titled the Stress Coping Abilities Scale) in 1980, scale research and development began in 1991. And, the AAVA came into its own as a state-of-the-art inmate assessment instrument in 2015. The studies presented herein support the reliability, validity and accuracy of the AAVA. Early research was exploratory, whereas more recent research demonstrates the AAVA's reliability, validity and accuracy. The AAVA scales' research provides a sound empirical foundation for responsible decision making.

Empirically based AAVA scales (or measures) were developed by statistically relating scale item configurations to known groups. The AAVA was then normed against various identified populations. Thus, the AAVA has been researched, normed and validated on prison inmates and clinical populations. When the AAVA is being introduced to a new prison population, it is recommended that the AAVA be administered to a representative sample for database and standardization comparison purposes. Then, as warranted scale distributions can be adjusted accordingly for maximum efficiency.

The AAVA research strongly supports the reliability, validity and accuracy of the AAVA. Reliability coefficient alphas all demonstrated high reliability for the AAVA scales. Validity is supported by T-test comparisons between first offenders and multiple offenders on the Truthfulness, Alcohol, Drugs, Stress Coping Abilities, and Triad (Anger-Aggression-Violence) scales because multiple offenders scored with higher risk than first offenders on the different scales. Predictive validity of the various scales was shown by the accuracy with which the scales identified problem risk behavior (having had treatment or having had an arrest). The research summarized herein strongly supports the reliability, validity, and accuracy of the AAVA.

The AAVA is not a personality test, nor is it a clinical diagnostic instrument. The AAVA is a clinical/criminal risk and needs assessment instrument. The population studied consists of patients and criminal offenders where the criteria is risk and need. Future AAVA research will continue to explore important parameters for accurate client risk and needs assessment.

Areas of future research are many and complex. AAVA research continues to evaluate age, gender, ethnicity, education and court-history. Consistent with the foregoing, we encourage more research involving AAVA client assessment. Few fields of assessment represent such important opportunities for creative discovery. The AAVA is committed to such research.