

## Characterizing Aggressive Behavior in a Forensic Population

Tim R. Kockler, PhD, and  
Matthew S. Stanford, PhD  
Baylor University

Chad E. Nelson, PsyD  
Florida State Hospital

J. Reid Meloy, PhD  
University of California, San Diego

Keith Sanford, PhD  
Baylor University

The concept of a dichotomous versus a continuous aggression model continues to be debated within the research literature. The Impulsive/Premeditated Aggression Scale (IPAS; M. S. Stanford, R. J. Houston, C. W. Mathias, et al., 2003) is a newly developed self-report instrument designed to classify an individual's aggressive behavior as predominantly premeditated or predominantly impulsive. The IPAS consists of 30-items that are scored on a 5-point Likert scale. This study used a nonrandom sample of convenience ( $N = 85$ ) from a forensic state hospital. Principal-components analysis of the 30 items revealed 2 distinct factors (Impulsive and Premeditated Aggression), which accounted for 33% of the variance. The results of this study further validate the bimodal classification of aggression through its application to a forensic sample. The implications for general assessment, diagnosis, and treatment are discussed.

**Keywords:** aggression, forensic, IPAS, impulsive, premeditated

The ability to dichotomize aggressive behavior into distinct categories appears to be increasingly accepted in the empirical literature. Aggression has been defined in the broad-based literature as premeditated (predatory, instrumental, callous-unemotional, proactive) and impulsive (affective, reactive, impulsive; Cornell et al., 1996; Raine et al., 1998; Stanford, Houston, Mathias, et al., 2003; Weinshenker & Siegel, 2002; Woodworth & Porter, 2002). There is some empirical evidence supporting the validity and similarity of all of these typologies (Dodge & Coie, 1987), despite differences in chosen words to illustrate each type.

According to clinical lore, premeditated-predatory aggression is carried out in a methodical and deliberate fashion for the benefit of achieving a desired goal. The heightened sense of awareness permits the perpetrator to home in on the victim, gathering all of the necessary information before carrying out the violent act. According to Cornell et al. (1996), an example of premeditated-predatory aggression is rape, especially serial rape, and offenders generally perform this violent act to gratify both psychopathic and narcissistic personality traits (Meloy, 2000). Studies show that during a premeditated-predatory mode of aggression, the aggressor typically shows very little, if any, physiological arousal (Stanford, Houston, Villemarette-Pittman & Greve, 2003), a hypothesis first proposed by Meloy (1988). These behavioral characteristics

commonly associated with the premeditated-predatory aggressor make it very difficult for the victim to predict the impending attack (Meloy, 2000). Empirical studies on incarcerated populations have also demonstrated that premeditated-predatory aggressors are more psychopathic, as measured by the Psychopathy Checklist-Revised (PCL-R), than those classified as impulsive-affective aggressors (Cornell et al., 1996; Porter, Woodworth, Earle, Drugge, & Boer, 2003; Woodworth & Porter, 2002).

Individuals who display impulsive-affective aggressive behaviors are commonly labeled unpredictable and "short fused." The impulsive-affective aggressor responds to provocation with immediate and destructive violence. The activation of the sympathetic branch of the autonomic nervous system provides the necessary means for accomplishing the ultimate goal of threat reduction (Meloy, 1988, 2000). It is quite plausible that the behavioral instability observed in the impulsive aggressor is related to cognitive dysfunction. For example, a few of the more recent scientific experiments found the impulsive aggressor to demonstrate significant executive functioning and verbal impairments on neuropsychological testing (Stanford, Greve, & Gerstle, 1997; Villemarette-Pittman, Stanford, & Greve, 2002) and diminished P3 event-related potential amplitudes (Barratt, Stanford, Kent, & Felthous, 1997; Mathias & Stanford, 1999). Because of the lack of cognitive resources, the impulsive aggressor becomes overwhelmed by competing stimuli, which, if only for a brief moment, renders the aggressor helpless. Seeing no other alternative, the affective aggressor acts before he or she thinks, drawing on primal aggressive knowledge; consequently, affective aggressors are frequently caught and sent to jail for their violent outbursts (Meloy, 2000).

Within the past 30 years, there have been attempts to validate psychological measures that would adequately tap the aggression construct (Barratt, Stanford, Dowdy, Liebman, & Kent, 1999;

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Tim R. Kockler, Matthew S. Stanford, PhD, and Keith Sanford, Department of Psychology and Neuroscience, Baylor University; Chad E. Nelson, Civil Forensic Services, Florida State Hospital, Chattahoochee, Florida; Reid Meloy, Department of Psychiatry, University of California, San Diego.

For reprints and correspondence: Tim R. Kockler, PhD, Dixie Regional Medical Center, 544 South 400 East, St. George, UT 84770. E-mail: tk4nsic@yahoo.com

Barratt, Stanford, Kent, & Felthous, 1997; Campbell, Muncer, McManus, & Woodhouse, 1999; Cornell et al., 1996; Heilbrun, Heilbrun, & Heilbrun, 1978; Linnoila et al., 1983; Raine et al., 1998; Vitiello, Behar, Hunt, Stoff, & Ricciuti, 1990). Unfortunately, several of the measures used to classify subtypes of aggressive and violent behavior are fraught with methodological problems, making the reliability and validity of these measures suspect (Heilbrun et al., 1978; Linnoila et al., 1983). First and foremost, differences in opinion on how the construct of aggression should be operationally defined prevent the scientific community from empirically testing an already illusive construct. In a recent review of the clinical and research measures on aggressive behavior, Suris et al. (2004) discussed the psychometric properties of the available aggression instruments. On the basis of their comprehensive review of the literature, Suris et al. made the following assertion:

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 and generalizability. . . . 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 (pp. 221)

The lack of instruments specifically designed to assess aggressive subtypes affords a unique opportunity for the scientific community to move forward with the development of an impulsive and premeditated aggressive measure.

The Impulsive/Premeditated Aggression Scale (IPAS; Stanford, Houston, Mathias, et al., 2003), is a 30-item, self-report questionnaire that classifies an individual's aggressive behavior as predominantly premeditated or predominantly impulsive. Stanford, Houston, Mathias, et al. studied a sample of 93 men referred to a local clinic for aggression problems. The authors reported that scores on the IPAS were correlated with measures of neuroticism, physical aggression, impulsivity, and anger. Furthermore, they performed principal-components analysis (PCA) on 28 IPAS items (they removed 2 prior to PCA), which revealed three distinct aggression factors: Premeditated (Factor 1), Impulsive (Factor 2), and Familiarity With Target/Remorse/Agitation (Factor 3), accounting for 16.56%, 14.03%, and 9.72% of the variance, respectively. Additionally, following the initial rotation of the factors, the authors dropped 2 additional items, for a total of 26 items—they also removed Factor 3 from further analyses.

In conclusion, after comparing impulsive and premeditated aggressors, Stanford, Houston, Mathias, et al. (2003) were of the opinion that the former group displayed a broader range of impairments, including irritability and emotional lability, whereas the latter group showed an increased propensity for hostility, self-harm, and antisocial behavior as well as overall aggression. These findings suggest that the premeditated aggressor may be at a higher risk for developing antisocial personality disorder (Stanford, Houston, Mathias, et al., 2003) or constitutionally more psychopathic (Melow, 1988).

The aforementioned research supports the construct validity of the IPAS in an adult (Stanford, Houston, Mathias, et al., 2003) sample. The present study was prompted by a paucity of empirical research examining aggressive subtypes in a forensic population

and the absence of studies utilizing the IPAS in a forensic sample. Aggressive behavior is a significant concern for forensic hospitals, and a better understanding of the motivations behind patient aggression may assist the mental health community in determining solutions to this problem. To this end, we hypothesized that two independent types of aggression (impulsive and premeditated) would emerge from the IPAS in a forensic sample.

## Method

### Participants

The IPAS was administered to 86 participants recruited as a nonrandom sample of convenience from a forensic state hospital. Of the 86 participants, 1 participant was unable to complete the measure. The psychiatric hospital has three levels of security (minimum, medium, and maximum) and treats approximately 1,100 patients (men = 78%; women = 22%). Of the 1,100 patients, 51% are Caucasian, 47% are African American, 1% are Hispanic, and 1% are Asian or American Indian. A majority of patients are admitted to the state hospital as (a) incompetent to proceed (ITP; 539, 49%) and/or (b) not guilty by reason of insanity (NGI; 315, 29%); however, there are also civil commitment units. Moreover, all patients admitted to the state hospital were facing at least one felony charge. To reduce sample heterogeneity, we excluded participants who were mentally retarded, overtly psychotic, or unable to speak English.

### Procedure

Participants were tested individually over the 2002–2003 calendar year. Before the evaluation, participants were informed that the results of the evaluation would be sent to the referring court. Administration of the IPAS took place in a quiet interview room. Next, the test administrator instructed the participant to carefully read the directions and to select the best answer for each question. This study was officially approved for archival research for the 2002–2003 calendar year by both the Institutional Review Board at Florida State Hospital and the Florida Department of Children and Families.

### IPAS

The IPAS (Stanford, Houston, Mathias, et al., 2003) is a 30-item self-report instrument used to assess the individual's motivation and behavioral control during the aggressive acts. Of the 30 items, 15 items focus on impulsive aggression characteristics, and 15 items focus on premeditated aggression characteristics. Some examples of questions include, "When angry I reacted without thinking," and, "I planned when and where my anger was expressed." The items are scored on a 5-point Likert scale (5 = *strongly agree*, 1 = *strongly disagree*). According to Stanford, Houston, Mathias, et al. (2003), the IPAS demonstrates adequate reliability coefficients (Cronbach's  $\alpha$ s = .77 for the Impulsive scale and .82 for the Premeditated scale).

### Data Analysis

In the current study, we conducted statistical analyses similar to those used in the previously mentioned study on the IPAS with aggressive adults (Stanford, Houston, Mathias, et al., 2003). To determine whether the questions were relevant to a forensic population, we conducted an item analysis on the IPAS scales (Nunnally & Bernstein, 1994). We tabulated Pearson's product-moment item-total correlations between individual items and the respective scale minus the item of interest included in the composite score. Next, we computed a series of *t* tests to examine differences in item response between those participants designated as extreme groups (i.e., upper and lower quartiles of each scale). We excluded items

from subsequent analyses if they did not meet the following criteria: (a) did not possess significant corrected item-total correlations ( $p < .05$ ), and (b) did not differentiate lower and upper quartile groups. We submitted the remaining items to an exploratory PCA with no assumptions regarding the number of potential factors. We used tables provided in Lautenschlager (1989) to determine the number of factors to be rotated. We used a varimax rotation with .40 as the minimum loading value to obtain an orthogonal factor solution. We measured internal consistency (reliability) using Cronbach's alpha, as recommended by Nunnally and Bernstein (1994).

## Results

### Demographics

The sample was composed of 73 (85.9%) men and 12 (14.1%) women. The mean participant age for the sample was 38.4 years ( $SD = 13.26$ ; range = 19–89). The sample consisted of 44 (51.8%) Caucasians, 33 (33.8%) African Americans, 4 (4.7%) Hispanics, 1 (1.2%) Asian, and 3 (3.5%) individuals of unknown ethnicity. Forty-one (48.2%) participants of the sample had not finished high school, 21 (24.7%) had graduated from high school, 10 (11.8%) had completed a general equivalency diploma, and 13 (15.3%) had completed at least some postsecondary education. With respect to legal status, 51 (61.4%) were ITP, and the remainder of the sample was composed of those deemed NGI ( $n = 31$ , 37.3%). One participant was institutionalized as both ITP and NGI (1.2%), and 2 others were civilly committed. With regard to the present offenses, 71 (83.5%) participants were classified as violent, which included aggravated assault, battery on a law enforcement officer, sexual assault, murder, armed robbery, attempted murder, and manslaughter. Conversely, the present offense of 11 (12.9%) participants was classified as nonviolent, which included the following: theft, trespassing, drug-related offenses, and grand theft. In short, both groups (violent and nonviolent) were admitted to the state hospital with a felony charge.

During the intake assessment, board-certified psychiatrists made the psychiatric diagnoses, defined according to the criteria set forth in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994). A review of each participant's file revealed that the following Axis I diagnoses were met: 8 (9.5%) mood disorder, 35 (41.7%) thought disorder, and 32 (38.1%) mood and thought disorder. Nine (10.7%) participants did not meet Axis I criteria. Thirty-four (40.5%) participants were diagnosed with an Axis II disorder; thus, comorbidity was common. Over half of the sampled participants reported a history of drug use—that is, 47 (56.6%) used alcohol, and 47 (56.6%) used drugs, respectively. However, in terms of an actual substance use diagnosis, 9 (10.7%) participants met the criteria for alcohol abuse/dependence, 7 (8.3%) participants met the criteria for drug abuse/dependence, and 40 (47.6%) participants met the criteria for polysubstance dependence.

### Item Analysis

Analysis of the individual items revealed that all of the 30 items met the inclusion criteria. As previously mentioned, the decision to include all questions was based on two factors: (a) significant item-total correlation, and (b) significant discrimination of extreme groups (lower vs. upper quartile).

### PCA

Accordingly, we submitted the 30 items to an exploratory PCA. Using the criteria set forth by Lautenschlager (1989), we extracted two factors with eigenvalues of 6.14 (Factor 1 = Premeditated Aggression) and 3.94 (Factor 2 = Impulsive Aggression), accounting for 20% and 13% of the variance, respectively. According to Guadagnoli and Velicer (1988), component saturation (the absolute magnitude of the loadings) is the most important factor related to component reliability. In the present study, we followed Guadagnoli and Velicer's guidelines that components with four or more loadings above .60 in absolute value are reliable, in spite of sample size. There were, however, 5 items that did not have significant loadings ( $< .40$ ) on either factor; consequently, we excluded these items from further analyses. The excluded items consisted of (a) "I felt pressure from others to commit the acts," (b) "I was under the influence of alcohol or other drugs during the acts," (c) "I knew most of the persons involved in the incidents," (d) "I was concerned for my personal safety during the acts," and (e) "My aggressive outbursts were usually directed at a specific person." The results of the PCA are presented in Table 1.

### Internal Consistency (Reliability) and Intercorrelation

On both scales of aggression, we tabulated Cronbach's alpha to determine the reliability among the items. The Premeditated Aggression and Impulsive Aggression scales achieved alpha coefficients of .72 and .81, respectively, suggesting homogeneity of the scale items. These results mirror the Stanford, Houston, Mathias, et al. (2003) study. Analysis of the intercorrelation between the two scales (Premeditated Aggression and Impulsive Aggression) revealed that there was a significant correlation ( $r = .40$ ,  $p < .01$ ).

### Distribution of Impulsive and Premeditated Aggression in a Forensic Sample

We tallied and compared total scores on each factor—Premeditated and Impulsive Aggression—to determine the type of aggression exhibited by each participant. The larger of the two factor total scores ultimately classified the participants into their respective groups. The average number of Impulsive Aggression items endorsed (*strongly agree* or *agree*) by individuals classified as predominately impulsive aggressive was 5.65 ( $SD = 3.30$ ; 95% confidence interval [CI] = 4.72–6.57), compared to 5.88 ( $SD = 3.84$ ; 95% CI = 4.54–7.22) for individuals classified as predominately premeditated aggressive. The average number of Premeditated Aggression items endorsed by those classified as predominately premeditated aggressive was 4.41 ( $SD = 3.18$ ; 95% CI = 3.30–5.52), relative to the predominately impulsive aggressors, who endorsed an average of 4.04 items ( $SD = 2.38$ ; 95% CI = 3.37–4.71). Data on the IPAS suggest that 34 (40%) participants were classified as predominately premeditated aggressive and 51 (60%) were classified as predominately impulsive aggressive. With respect to classification of aggression between the gender groups, 47 (55%) men and 4 (5%) women were classified as predominantly impulsive aggressive, as compared to 26 (30%) men and 8 (10%) women classified as predominantly premeditated aggressive. A comparison was made by gender and aggression

Table 1  
Principal-Components Analysis of the Impulsive/Premeditated Aggression Scale (IPAS)

IPAS item	Factor	
	1	-p 2
I feel my actions were necessary to get what I wanted	.72	
I think the other person deserved what happened to them during some of the incidents	.66	
I am glad some of the incidents occurred	.66	
The acts were a "release" and I felt better afterwards	.66	
I felt my outbursts were justified	.63	
Prior to the incidents I knew an altercation was going to occur	.63	
I wanted some of the incidents to occur	.62	
The acts led to power over others or improved social status for me	.60	
Some of the acts were attempts at revenge	.59	
Sometimes I purposely delayed the acts until a later time	.54	
I planned when and where my anger was expressed	.54	
I understood the consequences of the acts before I acted <sup>a</sup>	.46	
I was in control during the aggressive acts <sup>a</sup>	.45	
When angry I reacted without thinking		.68
Anything could have set me off prior to the incidents		.68
I was in a bad mood the day of the incident		.66
I was confused during the acts		.65
I felt I lost control of my temper during the acts		.61
My behavior was too extreme for the level of provocation		.60
I became agitated or emotionally upset prior to the acts		.59
I feel I acted out aggressively more than the average person over the last six months		.56
I consider the acts to have been impulsive		.55
I typically felt guilty after the aggressive acts		.53
I usually can't recall the details of the incidents well		.46
I feel some of the incidents went too far		.46

Note. Factor 1: Premeditated Aggression; Factor 2: Impulsive Aggression. Extraction method: principal-components analysis, rotation method: varimax with Kaiser normalization; factor loadings below .40 were omitted.

<sup>a</sup> Reversed-score item.

subtype and revealed a trend toward a significant difference (Fisher's exact test,  $p = .058$ ).

### Discussion

The empirical research thus far has consistently reported two distinct subtypes of aggression. In particular, this has been empirically shown in correctional (Woodworth & Porter, 2002), forensic (Cornell et al., 1996; Raine et al., 1998), child (Frick, 1998), and adolescent (Vincent, Vitacco, Grisso, & Corrado, 2003) populations; however, the findings are limited by the classification schemes. Further, the inability to scientifically classify aggressive subtypes has led some authors to call for the discontinuation of such classification systems (Bushman & Anderson, 2001). Nonetheless, the present study supports the notion that the IPAS is effective in classifying subtypes of aggression in a forensic sample. Data analysis revealed two separate factors, namely, Impulsive and Premeditated Aggression, as evidenced by sufficient component saturation and internal consistency. These results are commensurate with the previously mentioned study (Stanford, Houston, Mathias, et al., 2003) and extend the psychometric properties as well as the utility of the IPAS.

The present study classified 40% of participants as predominantly premeditated aggressive and 60% as predominantly impulsive aggressive. Using the same classification scheme (IPAS) in a group of clinic-referred aggressive outpatient adult men, Stanford, Houston, Mathias, et al. (2003) found a substantially higher fre-

quency of impulsive aggressive individuals (90%) as compared to premeditated aggressive individuals (10%). In a recently published article by Connor, Steingard, Cunningham, Anderson, and Melloni (2004), significant differences were found on standardized aggression measures between proactive and reactive children and adolescents. Additionally, the authors reported a smaller percentage of reactive aggressors (20%) relative to proactive aggressors (59%) in the sample studied. The aforementioned differences in frequency may be due to several factors, including the manner in which participants were classified, treatment setting (e.g., inpatient vs. outpatient), and developmental issues. Collectively, these results suggest that to characterize aggression, the clinician should consider a reliable and valid measure, such as the IPAS.

One of the more intriguing and unexpected findings in the current study was observed in the significant correlation between the two aggression scales. Although these findings are not consistent with the Stanford, Houston, Mathias, et al. (2003) study, they are indeed similar to those reported by Connor et al. (2004). Results from the PCA clearly demonstrate two independent scales of aggression; however, the nature of this shared relationship between the constructs of interest warrants further consideration. First and foremost, we are of the opinion that the correlation between the two aggression scales lends preliminary support for the notion of criminal versatility (Cornell et al., 1996; Woodworth & Porter, 2002), at least within a forensic context. Intuitively, it makes sense to us that to be a "successful" criminal offender, one

needs to incorporate both impulsive and premeditated aggressive acts. Case in point, participants in a noncriminal population are more likely to rely solely on impulsive aggressive acts (Stanford, Houston, Mathias, et al. 2003). Furthermore, the empirical research also informs us that psychopaths as a group are both more premeditated and more impulsive than nonpsychopathic criminals (Cornell et al., 1996), which thus predicts our finding. It is also important to note that, despite attempts to categorize things scientifically, most measures of human behavior turn out to best conceptualized from a dimensional standpoint (e.g., PCL-R, Personality Assessment Inventory, and Million Clinical Multiaxial Inventory III). Conversely, mental health professionals are educated and trained to understand human behavior from a categorical approach (e.g., *DSM-IV*). Undoubtedly, this debate will continue. Second, the IPAS requires the participant to recall all aggressive acts in the past 6 months, thereby increasing the likelihood that an individual would experience both types of aggression. Third, the research and clinical community would be hard pressed to recruit individuals displaying only one form of aggression. This assertion is supported by Block and Block (1992), who astutely postulated, "Expressive-instrumental extremes are 'ideal types' that seldom occur in pure form" (p. 65). In short, the aggression exhibited in a forensic population is more likely to be driven by major psychopathology (Houston, Stanford, Villemarette-Pittman, Conklin, & Helfritz, in press) relative to a nonforensic population (Stanford, Houston, Mathias, et al., 2003).

### Limitations

As with any study, there are several noteworthy limitations. First, the sample was recruited from one forensic state hospital in the Southeastern region of the United States, and, as such, it is difficult to know whether this factor structure would remain consistent in other forensic samples. Second, one should consider the notion that the participants under- or over reported their aggressive acts; thus, we recommend that future research include malingering instruments. Third, although 85 participants is a sizable forensic sample, future research should recruit a larger sample size.

### Clinical Implications

From an assessment standpoint, the IPAS has shown an ability to characterize both impulsive and premeditated aggression (Houston & Stanford, in press; Stanford, Houston, Mathias, et al., 2003), and this study extends previous findings. In their review of the premeditated and impulsive aggression literature, Houston et al. (in press) divided aggression into two main categories, primary and secondary aggression. Primary aggression occurs in the absence of a diagnosable Axis I disorder, whereas secondary aggression is a direct result of a diagnosable Axis I psychiatric disorder or the direct physiological effects of a substance or general medical condition. On the basis of these assertions, the current study has focused on secondary aggression, as the recruitment was limited to forensic psychiatric patients.

In terms of diagnosis, the *DSM-IV* text revision (*DSM-IV-TR*; American Psychiatric Association, 2000) does not specifically address the issue of premeditated aggressive acts as they pertain to Axis I or Axis II psychiatric disorders; however, there are several known Axis I and II psychiatric disorders that include impulsive

aggression in their behavioral description (e.g., intermittent explosive disorder, antisocial and borderline personality disorder). This assertion is supported in the *DSM-IV-TR*: "Individuals with narcissistic, obsessive, paranoid, or schizoid traits may be especially prone to having explosive outbursts of anger when under stress" (p. 664). We argue that not only is it clinically relevant to consider the impulsive aspect of the psychiatric disorder, it is equally important to separately measure the premeditated aggressive behavior of the presenting patient. For example, the treatment for the premeditated aggressor is much different than the treatment for those classified as impulsive aggressive. A good clinical example is illustrated in the work of Conner, Duberstein, Conwell, and Caine (2003), who posited that psychiatrically impaired individuals are at a substantially higher risk for successful completion of suicide. Under these circumstances, early identification of the impulsive-aggressive patient and the appropriate treatment regimen could potentially prevent the patient from acting on these aggressive impulses. However, it is also important to note that patients are quite capable of showing both premeditated and impulsive acts of violence (Cornell et al., 1996; Weinschenker & Siegel, 2002), which further complicates the clinical picture and impacts the safety of other patients and staff members. We firmly believe that, by identifying different types of aggression, the field can improve its prevention strategies and treatment options for the aggressive patient.

The exploration of psychopharmacological intervention with aggressive typologies has found support within the scientific community. According to Rasmussen and Levander (1996), "a more careful identification of the type of violence in question could also improve treatment . . . for those psychiatric patients who also evidence antisocial or aggressive patterns of behavior" (p. 470). For example, Barratt, Stanford, Felthous, and Kent (1997) recruited 60 participants from a local prison and classified them as either predominately impulsive aggressors or predominately premeditated aggressors. They administered participants phenytoin (PHT) to determine the efficacy of treatment in an aggressive population. Results from the study indicate that PHT was effective in reducing the number of impulsive aggressive acts but was ineffective for the premeditated group. In the Houston and Stanford (in press) study, treatment noncompleters scored higher on the IPAS Premeditated scale and endorsed higher levels of antisocial behavior. These results also indicate that premeditated aggressors are more likely to be treatment noncompliant, leaving many in the research and clinical community skeptical about whether there is an effective treatment for this particular group of violent offenders (Gabbard & Coyne, 1987; Houston & Stanford, in press; Meloy, 2001).

In conclusion, the present study demonstrates the ability to use the IPAS in a forensic population. The ability to classify aggression into two independent constructs—impulsive and premeditated—continues to show promising results regarding assessment and treatment options for the aggressive patient.

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