

ASSESSING VIOLENT THOUGHTS: THE RELATIONSHIP BETWEEN THOUGHT PROCESSES AND VIOLENT BEHAVIOR

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with

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Preliminary findings from the pilot development of the Firestone Assessment of Violent Thoughts (FAVT) demonstrating significant relationships between the concept of internal voice and self-other destructive behavior are presented in this article. The "voice" is defined as a systematized, integrated pattern of negative thoughts, accompanied by angry affect, that is the basis of an individual's maladaptive behavior toward the self and others. This study applied the theoretical construct of the voice to the development of the FAVT—item identification and selection, subscale construction. Five hundred seventy-six participants made up the pilot sample (incarcerated, parolee, outpatient, and non-clinical participants). A hierarchical logistic regression using the FAVT subscales, demographic variables, and history of criminal convictions is presented. Results of this analysis revealed significant predictive power beyond demographic and background descriptors and history of criminal and violent behavior after adding the FAVT to the model. This paper also addresses the utility of the voice concept in addressing violence potential as well as its utility in addressing prevention, as opposed to the more traditional focus on the risk management of individuals with a history of violent behavior.

Introduction

The media is an almost constant reminder that our efforts to stem violence and accurately predict violent behavior have been fragmented and less than effective. The media also reminds us that we can no longer be seduced into thinking that the perimeters of violence are identified in terms of poverty, urban crime, gang membership, and the like. Violence creeps into suburban, middle class neighborhoods with less notoriety; however, the consequences are devastating in any setting. The fact that violence permeates impoverished and wealthy communities and crosses racial and ethnic boundaries indicates that a singular focus on social phenomenon such as urban

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crime, gangs and so forth will not likely result in eradicating or reducing violence.

Anger (Monahan, 1981; Novaco, 1986; Spielberg, Jacobs, Russell, & Crane, 1983), aggression and impulsiveness (Barratt, 1972; Yudofsky, Silver, Jackson, Endicott, and Williams, 1986), and psychopathology (Hare & Hart, 1993; Serin, 1991) have long been argued as critical markers for classifying individuals into groups more likely to engage in violent behavior. Despite our efforts, we have made little headway in predicting violent behavior. Meta-analytic reviews of the literature indicate that actuarial approaches focusing on criminal history variables (recidivism, juvenile delinquency, age of onset of delinquent behavior, etc.) are often the best predictors of recurring antisocial and aggressive behaviors (Bonta, Law, & Hanson, 1998; Andrews & Bonta, 1994; Farrington, 1994; Hoffman, 1994). Criminal histories are obviously of little value in predicting the onset of violent behavior, and are not always available to clinicians making decisions about the extent to which a person may be dangerous or violent.

Little is known about why some individuals engage in violent behaviors and others with similar characteristics do not. Much of the research asserts that violence is learned and therefore can be unlearned, and that violence is mediated by psychosocial factors such as impulse control, poverty, perceptions of joblessness, access to guns, use of drugs and alcohol, and peer influences (Eron, Gentry, & Schegel, 1994). Overall, data indicate that targeted intervention efforts to reduce the effects of these factors have been less than successful in reducing violence. Research purports that childhood aggressive behavior and/or exposure to physical abuse or neglect are strong predictors of continued violence and aggression (Egeland, Sroufe, & Erickson, 1983; Patterson, 1982), but data indicate that not all abused and/or neglected children engage in violent behavior. Why some individuals appear more resilient to these early childhood traumas while others are more susceptible to negative outcomes is largely open to question.

Attempts to prevent or reduce violence typically focus on the individual and on the environments in which individuals live. Interventions targeting individuals have thus far largely focused on providing the needed skills to manage, mediate, and resolve conflict and anger, and to avoid such situations when the occasion warrants. Community based strategies focus more on changing peer culture, strengthening families through parent education, building self-esteem and self-concept, providing job training programs to enhance employment opportunities, increasing community activities, identifying and containing situations and individuals that are likely to be linked to violence (e.g., gangs), and restricting access to firearms.

While interventions assist in building impulse control, conflict resolution competence, and job skills, they tend to ignore the internal experiences—the

thoughts, feelings and emotions of the individuals involved in violent behavior. Moreover, participants in violence prevention programs often characterize intervention as unsophisticated, blaming, and/or punishing. (Doucette-Gates, 1998b; McLaughlin, Irby, and Langman, 1994). All too often, what little effects these skills-based programs do have are diminished when individuals return to dysfunctional households, influential peer cultures, and violent community neighborhoods. These programs, although thought to be individually beneficial, have done little in the way of limiting the escalation of violence in our communities or improving our ability to predict violent behavior.

Rationale for the Pilot Study

The risk factors typically associated with the assessment of risk for violent behavior are comprehensive and diverse, drawing on individual, interpersonal, and contextual domains. Individual characteristics frequently concentrate on demographic variables, personality traits, cognitive ability, and social skills. Individuals are considered in terms of present and past circumstances. History of criminal and violent behavior, age at first offense, previous psychiatric hospitalization, past mental health status and treatment compliance, and experience of abuse/maltreatment are important considerations. Present clinical status (e.g., present diagnosis, symptomatology and functional status, comorbidity, and substance use) is also crucial in determining the status of an individual for violence potential. Ecological approaches emphasize availability of supportive social networks, strong pro-social community norms, characteristics of peer/acquaintance networks, exposure to adverse social circumstances, and accessibility of weapons.

This diverse menu of risk factors presents a daunting task for clinicians in terms of expeditious and accurate assessment of potential violent behavior. The growing demands on clinicians from managed care and increasing clinical liability for error also speak to the urgency to develop more accurate risk assessment approaches. Although the demands for accurate clinical assessment of violence potential are growing, there are limited clinical practice guidelines and no definitive professional standards for the systematic assessment of patient violence potential. Judgments made about violence potential generally rely on actuarial approaches and/or general clinical judgments. Actuarial approaches consider such elements as demographics, diagnosis, symptomatology, drug use, relationships, etc. These approaches may also include psychiatric history as well as past accounts of criminal and/or violent behavior. Actuarial information is commonly retrieved through interviews with the individuals being assessed, and/or through archival records.

Frequently the need to make a determination regarding violence potential does not permit the time needed to gather actuarial information, and clinical concerns and impressions must suffice.

Research studies report varying clinical accuracy beyond chance in predicting patient violence when decisions are unsupported by actuarial information (Gardner, Lidz, Mulvey, & Shaw, 1996; Lidz, Mulvey & Gardner, 1993). As mentioned previously, current self-report assessment tools focus on measuring such constructs as anger, conflict skills, impulsivity, symptomatology, and the like. While measures such as these can substantively inform decisions made about violence potential, they do not specifically address the prediction of violence potential, and provide little in the way of explaining why some individuals with similar characteristics and circumstances are resilient to behaving aggressively and violently.

This study focuses on the role of intrapsychic dynamics—internalized negative thoughts, voices, and their association with violent behavior. This investigation reports on the preliminary scale development of the Firestone Assessment of Violent Thoughts (FAVT) and its utility in the risk assessment of violence.

Theoretical Background

The development of the FAVT is based on the concept of the *inner voice*, developed by Robert Firestone (1988, 1990a, 1997). The voice has been defined as an integrated system of negative thoughts and attitudes, antithetical to self, and cynical and hostile thoughts toward others (Firestone, 1986). It is important to point out that the voice concept is not restricted to cognitive processes, but is generally associated with varying degrees of angry affect. The term *voice* is used to describe a form of intrapsychic communication that represents a split within the individual between the self-system and antiself system, that is, between forces that are life-affirming and those that are antagonistic to the self and others. The voice occurs internally in a verbal form as though individuals were being talked to in the second person, for example, "You're stupid." "You're a failure." The content and malevolent tone with which people experience hostile thoughts *toward* themselves are very different from "I" statements *about* the self that they express in cognitive or rational emotive therapy. For this reason, we refer to this negative thought process as a "voice." Voices attacking other persons occur in the third person, for example, *He's a mean bastard; She's cold and rejecting; They're out to get you, you'd better get them before they get you!*" When individuals are instructed to verbalize their negative thoughts in this format, the angry affect that is released is powerfully antagonistic toward self and others.

The voice or negative thought process can be distinguished from hallucinated voices in the psychoses, although they may have many of the same characteristics. In the case of the psychoses, hallucinated voices reflect a more drastic split within the personality. The negative thoughts described potentially range from unconscious or subliminal to fully conscious. They represent a discordant force within the personality wherein the self and others become the object of attack or punishment. The concept of the voice provides an explanation of the underlying dynamics of self-destructive behavior as well as aggressive/violent actions toward others.

The Voice and Self-Destructive Behavior

The relationship of the voice concept and self-destructive behaviors was empirically examined in an earlier study supporting the development of the Firestone Assessment of Self-Destructive Thoughts—FAST (Firestone & Firestone, 1996, 1998). The FAST scale was derived from 20 years of clinical research into self-attacking attitudes and negative parental introjects that restrict or impair an individual's psychological development. The scale significantly predicts self-destructive and suicidal behaviors. These voices were posited to be influential contributors to the ways in which individuals behaved; more often than not these voices were antagonistic to an individual's major goals. It was noted that the voice process was particularly significant in relation to self-destructive behavior. Therefore, it is logical to theorize that these negative thoughts (gathered from participants in voice therapy sessions) might predict increasingly angry cognition and affect toward others, as well as to the self. Qualitative data gathered from interviews with parolees on retrospective and current thought processes regarding their history of violent behavior support this assumption (Doucette-Gates, 1998a). In the development of the FAST, the voices of interest are negative self-attacking thoughts. In the development of the Firestone Assessment of Violent Thoughts (FAVT), the voices of interest focus on the self, and the self in relationship to others.

Data obtained during previous clinical studies (R. Firestone, 1988, 1990b) using Voice Therapy procedures resulted in the following assumptions. The source and development of negative thought processes are related to (a) the projection of negative parental traits onto the child; (b) the child's imitation of one or both parents' maladaptive defenses; and (c) the internalization and incorporation of parental attitudes of covert and overt aggression toward the child. As the degree of trauma experienced in childhood increases, the level of intensity of voice attacks parallels this progression, and there are increasingly angry, vicious attacks on the self. These voices are mani-

fested in an individual's retreat inward, feelings of extreme self-hate, and eventually impulses toward destructive actions. In summary, the effects of negative early environmental influences are retained in the form of destructive voices within the adult personality. Thus, the voice plays a major role in precipitating and maintaining a wide range of maladaptive behaviors, including aggressive and violent behavior towards others.

Method

This study examines the development of the FAVT—item selection and scale development. The ability of the FAVT to discriminate between individuals identified as engaging in violent behavior from those individuals with no such history is investigated.

Participants

The pilot sample was designed to include individuals with a history of engaging in violent behaviors as well as those with no history of violent behavior. The propensity towards engagement in violent behavior was assumed to be higher among individuals with a criminal history. Therefore, individuals incarcerated or on parole were recruited to participate in this study. In addition, in order to yield a sample that included both violent and nonviolent participants, nonviolent individuals were purposively sampled from groups not expected to have criminal involvement. Individuals in both the violent and nonviolent groups who were currently participating in interventions such as anger management and/or conflict resolution programs were excluded from the sample since their participation in these programs would likely mediate their responses.

The sampled populations yielded a pool of 654 eligible participants. The eligible participants were predominantly male (78%). Since females were seriously underrepresented in this sample, they were excluded from analysis in this preliminary phase of the FAVT development, leaving a sample of 576 participants. A concerted effort to increase the sample size for violent and nonviolent females is planned in the subsequent phases of FAVT development.

Four subsamples contributed to the final sample of participants (N=576): 1) individuals incarcerated in a U.S. State prison (71%), 2) individuals with criminal convictions on parole (12%), 3) individuals receiving outpatient mental health services (6%), and 4) individuals from community and civic organizations (11%). Two-thirds of the sample were Caucasian (67%). African Americans represented less than a fifth (18%) of the sample. Smaller

percentages of individuals identifying themselves as Hispanic/Latino, Asian, and Native American (9%, 2%, and 4% of the sample respectively) participated in the pilot study. The mean participant age was 33.7 years with a range of 17 to 74 years. Sixty-three percent of the final pilot sample was identified as having engaged in violent behavior. Thirty-eight percent were identified from prison, parole, and self-report as having a history of criminal conviction.

Procedures

Voluntary informed consent was obtained from the participants who served as the pilot sample for the FAVT. Data from each participant were collected in a single, small group session by a research team trained in data collection procedures and, as appropriate, informed of prison policies and procedures. Data collectors had no prior knowledge as to which participants had engaged in violent behavior, although they were aware that higher probabilities regarding violent behavior would be associated with the prison and parole populations. Participants were not compensated for their participation. A trained data collector was present to answer any questions about completing the questionnaires. A licensed clinician was also available to answer questions and address any related issues resulting from participation in the data collection effort.

Participants were asked to complete a demographic and background questionnaire that included such questions as current age, racial/ethnic identity, education, employment and income history, marital/parental status, childhood behavioral history (e.g., fire setting, cruelty to animals, etc.), and history of family abuse (physical and sexual abuses). Data regarding the nature of participant's current conviction(s) and previous criminal records were retrieved from prison records. No self-report questions on criminal history were included in the demographic/background questionnaire.

Participants were also asked to complete the pilot version of the FAVT as well as the Firestone Assessment of Self-Destructive Thoughts (FAST). The initial pilot version of the FAVT contained 187 items in the form of thoughts one might have about self and others. The readability of the FAVT was assessed using the *Flesch-Kincaid* formula which calculates reading difficulty based on the number of syllables per word and the words per sentence (Flesch, 1949/1974). This procedure rates the readability of text on a 100-point scale. The higher the score the easier it is to comprehend. Analysis of the FAVT items yielded a score of 93.2, indicating no difficulty for readers with at least a fifth or sixth grade reading level and limited difficulty in comprehension for readers with compromised literacy skills. Participants were instructed to read each statement carefully and indicate how often they

were likely to have each thought using a five point Likert scale response set (*never, rarely, sometimes, frequently, and always*).

Participants were identified and classified as violent or nonviolent using the following procedure. Incarcerated and paroled individuals were classified as violent if they had prior or current convictions for violent crimes. Violent crimes were defined as crimes such as rape, assault and battery, manslaughter, homicide, reckless endangerment to others, sexual assault, threatened others with object or weapon, etc. Individuals with confirmed reports of violent behavior prior to and while incarcerated were also included within the violent classification. The classification of violent incarcerated and paroled participants was completed using prison and parole data with the assistance of the prison and/or law enforcement personnel.

As mentioned above, it was assumed that the incarcerated and parole samples would likely yield higher proportions of individuals with a history of violent behavior. Therefore, nonviolent participants were actively recruited from clinicians/therapists and outpatient psychotherapy clinics, and community and civic groups. In addition, however, incarcerated and paroled participants were identified and classified as nonviolent if prison and/or parole records indicated the absence of violent crime convictions and violent behavior while imprisoned or on parole. Nonviolent incarcerated and paroled participants were likely to have convictions for crimes such as larceny, fraud, and tax evasion.

Individuals recruited from outpatient mental health service settings and community/civic groups were screened for engagement in violent behavior. These individuals were asked questions about their behavior in resolving conflicts/arguments, and about their involvement in domestic/partner and stranger violence, as well as child abuse. Individuals with no self-reports of engagement in violent behavior, other than occasional arguments without resulting injury, were identified and classified as nonviolent.

Analysis and Results

FAVT Scale Construction

An item response theory (IRT) analysis was conducted to determine the precision of the five-point response scale for the FAVT using the *Bigsteps*® program (Linacre & Wright, 1998).

Although IRT has a longer history in educational assessment and measurement, its history in psychological assessment is relatively recent. IRT offers distinct advantages over classical measurement theory (Hambleton, & Swaminathan, 1987; Lord, 1980; Lord & Novick, 1968). Essentially, the IRT

estimates of person *ability* are not dependent on the test items the person takes, and item *difficulty* is not dependent on the sample of persons responding to the item. In psychological assessment ability refers to trait level, in this study individuals with higher levels of violent thoughts (Reise & Waller, 1993). Individuals with higher trait levels of violent thoughts would be expected to have higher probabilities of endorsing items specifically measuring that trait (violent thoughts). Item *difficulty* refers to the extent to which an item differentiates among various levels of, in this case, violent thoughts. IRT analysis yields informative data regarding measurement precision at different points in the response distribution of an item, as well as on the entire scale.

Infit and outfit mean-square and step measure estimates were reviewed for each item. Items with infit/outfit estimates less than 0.8 or greater than 1.2 were noted, as were items with large logit ranges across the scale values of the response options (5-point Likert scale). Infit/outfit estimates less than 0.8 indicate redundancy and dependency, while estimates greater than 1.2 indicate unexpected response patterns and other irregularities. Items were then reviewed in terms of calibrated item difficulty and in terms of logit ranges across scale values. Item difficulty (maximum logit change) is expected to change gradually across the scale values (5-point Likert scale). Higher scale values should reflect *step* indices indicating greater difficulty. Little or no change between scale values (steps) indicates minimal or no increased information in terms of endorsed response options. The IRT analysis of the FAVT items indicated a lack of measurement differentiation at both ends of the scale—*never* versus *rarely* and *frequently* versus *always* for many of the FAVT items. Participant responses were collapsed into three responses (*never/rarely*, *sometimes*, *frequently/always*). Fifty-six of the 187 items (30%) were retained based on this IRT analysis.

A factor analysis was conducted using the remaining 56-item FAVT in order to provide a parsimonious description of the observed FAVT data. The scree test and the interpretability of the factor solution were considered in determining the number of extracted factors. Items loading on more than one factor were reviewed in terms of content by three raters. Consensus was then reached in terms of factor membership. The best solution (after a varimax rotation) consisted of four factors, *social mistrust*, *perceived disrespect/disregard*, *negative critical thoughts*, and *expression of overt anger*. This solution, comprised of the 56 items, accounted for 63.9% percent of the item variance. The *social mistrust* factor accounted for 38.0% of the item variance while the *perceived disrespect/disregard*, *negative critical thoughts*, and *expression of overt anger* factors accounted for 12.1%, 8.2%, and 5.6% of the item variance respectively. Table 1 provides a listing of the resulting items by factors with their respective factor-loading estimate.

For the purposes of scale construction, the treatment of missing data on individual items is as follows: (1) a respondent is required to have valid data on 90 percent of the subscale items to receive a score for that scale; (2) the mean of the valid values across scale items is calculated across the total number of items in the scale with the respondent's mean for valid values assigned to any that are missing. In our preliminary work on the FAVT, the mean score is used as opposed to a summed score since the four factor scales have different numbers of items. A summed score would give more weight to those scales with more items. As we come closer to finalizing the FAVT, standardized scores (T-score) will be calculated in order to maximize variance. Data collection efforts yielded nearly complete data on all items. In no case did any participant have more than one missing item on any particular FAVT scale.

An additional criterion for subscales constructed from the FAVT data is imposed. Subscales are rejected if their correlation reached a ceiling calculated as the product of their internal reliabilities ($r_{12} < \alpha_1 * \alpha_2$). This is to reduce the problem of collinearity when subscales are included as a block in regression equations. While this will improve the stability of regression estimates involving subscales factored from a single pool of items, we realize multicollinearity across scales can potentially pose additional problems. Correlations between subscales ranged from a high of .78 (*social mistrust—perceived disrespect*) to a low of .61 (*expression of overt anger—perceived disrespect*).

The reliability of the four constructed scales was estimated using Cronbach's Alpha as an estimate of the internal-consistency of the FAVT subscales. The alphas for the *social mistrust*, *perceived disrespect/disregard*, *negative critical thoughts*, and *expression of overt anger* scales were .89, .89, .90, and .88 respectively; standard errors of measurement for these scales were 1.80, 1.48, 1.81, and 1.22. The alpha for the total FAVT was .96, with a standard error of measurement estimate of 3.42.

Demographic and Background Differences

The association between demographic and background variables and violent behavior is well documented in both adult and adolescent literatures (Klassen & O'Connor, 1990; Loeber, & Farrington, 1998; Menzies, 1994, 1989; Monahan, 1981, 1984; Mulvey & Lidz, 1984; Synder & Sickmund, 1995). Lower educational attainment and poor employment potentials have been associated with an increased risk of violent behavior (Estroff & Zimmer, 1994; Harris & Varney, 1986; Tardiff & Sweillam, 1980). Given this, it was not surprising to find significant mean differences in

Table 1. *Firestone Assessment of Violent Thoughts (FAVT)*

Factor*	
Loading	Subscale and Items
<i>Social Mistrust—Stereotypic Characterizations</i>	
.767	You can never trust a woman (man).
.627	You can't trust anyone.
.817	Keep those immigrants out. They don't deserve anything.
.937	They're the ones who are crazy, not you.
.927	It's no use trying to explain. They always get it wrong.
.676	Doctors and lawyers are just in it for the money.
.798	Blacks (Whites, Asians, Hispanics, etc.) are no good.
.543	They're taking over everything.
.505	They're plotting against you.
.893	Give them an inch, they take a mile.
.608	Watch out. What are they doing?
.525	Everybody knows something and they're not telling you.
.588	Get them before they get you.
.746	You can only trust your own kind.
.709	They're all tramps. One way or another, they are all tramps.
.746	White (Black, Hispanic, Asian) people don't care.
<i>Thoughts of Being Disregarded—Disrespected by Others</i>	
.936	Nobody sees how much you contribute. No one appreciates you. So just forget them!
.784	They're acting like they're on your side, but they're going to turn on you just when they've got you.
.704	Get him (her) before he (she) gets you.
.522	Watch out! He's (she's) trying to control you because he's (she's) the boss. He's (she's) trying to break your spirit.
.746	They're just doing this to make you get upset.
.660	You've been nasty from day one. Seems like you were born bad.
.807	They don't give one damn about you.
.506	Just look at what he (she) did to you! He (She) deserves everything he's (she's) going to get from you!
.466	They say that you mess up all the time; nobody's willing to look at him (her)!
.746	He's (She's) just trying to tear you down so he (she) can build himself (herself) up.
.635	They're just trying to humiliate you. They're just trying to downgrade you.
.683	He (She) is just taking advantage of you.
<i>Negative Critical Thoughts—Self and Self-Other</i>	
.612	Nobody believes you.
.860	You'd better look after yourself. No one else will.
.692	He (She) knew he (she) was pushing your buttons.
.781	You idiot! You were faithful to him (her). Now look at what he's (she's) done and everybody knows.
.807	People act afraid of you.
.746	He (She) shouldn't have done that to you. He (She) knew better.
.616	You can't stand this headache.
.630	You're really in trouble now.

- .692 People just use each other.
 .703 You're a fool! You trusted him (her) and he (she) doesn't care about you at all. He (She) can walk all over you.
 .583 You were always a troublemaker. I knew you would never amount to anything.
 .745 Nobody understands you.
 .669 Sure, you made a mistake, but it's loaded to make it look really bad. Nobody really sees it right.
 .581 You never had any friends. People don't like you.
 .675 You don't need anything from anyone. You can make it on your own.
 .795 There's nothing they can do to you anymore.

Thoughts/Expressions of Overt Aggression

- .938 Look at all these people here that you could torture and kill.
 .619 Smash him (her) if he (she) doesn't listen.
 .860 Break it apart. Rip it apart!
 .795 You could cut his (her) throat and just walk away.
 .918 What would it feel like to just blow his (her) brains out?
 .719 I'll show you what pain's all about.
 .739 You'll show him (her) who's boss!
 .697 Look, you couldn't swallow that crap any more.
 .550 Why don't you fix things once and for all?
 .490 You had to stop him (her).
 .508 Get away! Get away! Don't crowd me buddy!
 .841 Doesn't that gun feel good in your hand? You can do anything if you have a gun.

* Varimax rotation used.

educational status ($t = 8.15$, $df = 562$, $p = .000$) and income ($t = 6.52$, $df = 515$, $p = .000$) variables between the violent and nonviolent groups. On average, nonviolent participants had at least some post-secondary education and reported average incomes above the U.S. Health and Human Services (HHS) Poverty Guideline (\$15,600/family of four). In addition, a significant difference for age was found ($t = 4.63$, $df = 561$, $p = .000$). Again, this is not unexpected given the research indicating that early aggression is often associated with later violence (Farrington, 1994; Stattin & Magnusson, 1989), coupled with the fact that the rates of violent behavior decrease with age (Swanson, Holzer, Ganju, & Jono, 1990). The average age for nonviolent participants was 36.2 years, and 32.2 years for their violent counterparts.

Content and Construct Validity

The resulting FAVT items were reviewed by two individuals who were trained in the dynamics of voice therapy and had clinical experience with violent and aggressive populations. Items were examined for content consistent with the voice therapy approach and reflective of statements that are

likely to be made in clinical/therapeutic sessions. Percent agreement reached 92% and disagreements were readily resolved.

As stated earlier, anger management (Novaco, 1986; Spielberger et al., 1983), impulsivity (Yudofsky et al., 1986), and psychopathology (Hare & Hart, 1993; Monahan, 1997) have been the focus of the risk assessment of and the prediction of violent behavior. Few psychometrically sound clinical measures exist in the risk assessment of violence (Borum, 1996). Of the few instruments available, many require clinical rating/judgment or a semistructured interview with the respondent [examples include: Dangerous Behavior Rating Scale (DBRS): Webster & Menzies, 1993; Psychopathy Checklist-Revised (PCL-R): Hare, 1991; Violence Risk Appraisal Guide (VRSG): Harris, Rice, & Quinsey, 1993]. The constraints on data collection for this phase of FAVT development did not permit the inclusion of semi-structured interviews or independent clinical ratings. Furthermore, the development of the FAVT focuses on the construct of the voice (an integrated system of negative thoughts and attitudes, antithetical to self) which is quite different from the constructs identified in currently available instruments.

Criterion-Related Validity

Violent and nonviolent participants were expected to have significantly different mean scores across the FAVT scales. Table 2 presents the descriptive statistics for the violent and nonviolent groups by subsamples. The means and standard deviations of the FAVT scales were computed for the violent and nonviolent groups; differences between group means were analyzed using a t-test for independent samples. The nonclinical/nonviolent group consistently had the lowest mean scores across all FAVT scales. Table 3 provides the results of the t-test analysis. FAVT scale scores were significantly higher for participants identified as violent across the incarcerated and parolee subsamples. No violent participants were identified in the outpatient or non-clinical subsamples so similar comparisons were not possible with these groups. Effect sizes associated with these mean differences ranged from .69 to .78 indicating a meaningful difference between groups. An effect size of .50 is considered to be moderate, and .80 is considered to be large in social science research (Cohen, 1992).

Logistic regression was used to investigate simultaneously the relative effects of demographic characteristics (age, race, education), history of prior convictions, and the FAVT subscales in the postdiction of engagement in violent behavior. The FAST scale was also entered into the model.

Racial/ethnic identification was collapsed into two categories: Caucasian (68%) and non-Caucasian (32%) due to the uneven sample sizes of non-Caucasian racial/ethnic groups. History of prior criminal conviction was also

Table 2
FAVT Scale and Total Scores: Sample Mean Score and Standard Deviation

	Descriptive Statistics					
	Nonviolent			Violent		
	M	SD	N	M	SD	N
Social Mistrust /Stereotyping						
Incarcerated	1.19	.262	45	1.44	.407	160
Paroled	1.24	.188	23	1.43	.396	46
Outpatient	1.27	.266	31	—	—	—
Nonclinical	1.13	.204	65	—	—	—
Thoughts: Disregarded/Disrespected						
Incarcerated	1.22	.290	45	1.43	.422	160
Paroled	1.23	.263	23	1.47	.422	46
Outpatient	1.24	.266	32	—	—	—
Nonclinical	1.17	.267	65	—	—	—
Negative/Critical Thoughts: Self/Self-Other						
Incarcerated	1.26	.305	45	1.47	.423	160
Paroled	1.41	.304	23	1.52	.407	46
Outpatient	1.36	.305	31	—	—	—
Nonclinical	1.19	.230	65	—	—	—
Overt Anger/Aggression						
Incarcerated	1.00	.151	45	1.29	.371	159
Paroled	1.10	.127	23	1.25	.336	46
Outpatient	1.11	.111	31	—	—	—
Nonclinical	1.08	.160	65	—	—	—
Total Scale Score						
Incarcerated	1.20	.234	45	1.41	.385	160
Paroled	1.26	.216	23	1.43	.373	46
Outpatient	1.25	.225	31	—	—	—
Nonclinical	1.15	.218	65	—	—	—

dichotomized. Dummy/indicator-variable coding was used for categorical data. Non-Caucasian and presence of criminal history served as the referent for these variables. Age was categorized using the following groupings: 17 to 24 years of age, 25 to 30 years of age, 31 to 40 years of age, 41 to 50 years of age, and 51 and older. Educational status was grouped as follows: no high school diploma or equivalent, high school diploma or equivalent, some post-secondary education. Categorical coding, in the case of age and education, offered the advantage of identifying the groups for which the model is most

Table 3
 Comparison of Violent and Nonviolent Participant Mean Scores on FAVT Scales

Scale	M	SD	<i>t</i>	Effect Size (<i>d</i>)
Social Mistrust /Stereotyping				
Violent	1.45	.406	9.085**	.78
Nonviolent	1.20	.240		
Thoughts: Disregarded/Disrespected				
Violent	1.45	.415	8.046**	.69
Nonviolent	1.21	.274		
Negative/Critical Thoughts: Self/Self-Other				
Violent	1.48	.402	7.626**	.65
Nonviolent	1.26	.281		
Overt Anger/Aggression				
Violent	1.30	.382	8.917**	.77
Nonviolent	1.10	.160		
Total Scale Score				
Violent	1.43	.379	7.711**	.75
Nonviolent	1.20	.227		

** $p = .000$

predictive. The referent group for age is 51 years and older. The referent group for educational status was some post-secondary education.

A hierarchical logistic regression approach was used. The demographic/background variables (age, race, education, and criminal history) were entered as a block. The FAVT scales and the FAST total scale score were entered in the second block. A forward stepwise procedure using the likelihood-ratio (LR) test for determining which variables were to be retained in the final model was conducted. As this was an initial stage of the FAVT development, no cut-off scores were estimated to enhance classification accuracy. Educational status was not significant and was not retained in the first equation (block 1). The FAST total scale score and the *negative thoughts about self and self-other* and *overt aggression/anger* of the FAVT were also not significant, and therefore not retained in the second equation (block 2). It is not surprising that the FAST was not retained in the model. The FAST assesses self-destructive thoughts and suicide potential. The absence of suicidal behavior has been recognized in actuarial screening as a positive marker for violence potential in admissions for inpatient psychiatric services (McNeil & Binder, 1994). The model was reanalyzed using the

variables retained in both blocks.

The *Nagelkerke* R^2 is used as an estimate of the variance explained by the model. The first equation that included history of criminal conviction, age, and race/ethnicity explained 26% of the variation in the outcome variable—engagement in violent behavior. Adding the variables retained in the second equation (FAVT scales: *social mistrust* and *perceived disrespect and disregard*) increased the explained variance to 39%.

Estimates of model discrimination and model calibration were examined as criteria for further evaluation of the full model (blocks 1 and 2). Model discrimination refers to the ability of the model to discriminate between two groups, in this case participants identified (*observed*) as violent and nonviolent. Of the participants identified as violent, the model classified 78% correctly—sensitivity. Seventy percent of the nonviolent participants were correctly classified—specificity. Overall, 74% of the 553 participants included in the model were correctly classified. More accurate models always assign higher probabilities to cases identified with the criterion of interest, as opposed to cases without criterion, in this case violent behavior.

The *c* statistic is also used to assess the model's ability to discriminate between two groups on the criterion outcome. The *c* statistic is equivalent to the area under the receiver operator curve—ROC (Hanley & McNeil, 1982). The ROC essentially estimates the *true-positive* rate (sensitivity—a classification of violent for participants identified as violent) as a function of the false-positive rate (classification of violent for participants identified as nonviolent). ROC methods have an advantage over other measurement evaluation approaches since they remain constant as base rates and selection ratios (varying cut-scores using sensitivity and specificity estimates) change (Mossman, 1994; Rice & Harris, 1995; Serin & Lawson, 1987). In the present model, there is an 82% probability that a randomly selected violent participant will have a higher score on the FAVT than a randomly selected nonviolent participant. In a scale intended to discriminate between violent and nonviolent individuals, it is desirable to have higher estimated probabilities for violent individuals than for their nonviolent counterparts.

As previously mentioned, model calibration was also examined in evaluating the logistic model. The Hosmer and Lemeshow (1989) test was used as an estimate of the goodness-of-fit for the logistic model ($\chi^2 = 12.24$, $df = 8$, $p = .1407$). The null hypothesis that there are no differences between observed and predicted values is not rejected. The model appears to fit the data reasonably well.

Table 4 presents the findings from the logistic regression analysis. An examination of the regression coefficient (B) and the relative odds ratio indicated that older individuals are less likely to engage in violent behavior. Relative odds ratios of 2.5 are considered to be the lower limit of strong

associations between variables (Fleiss & Dubro 1986). The relative odds ratio estimates indicate that older individuals are less likely to engage in violent behavior. This is consistent with the reported literature (Swanson et al., 1990). In this sample, Caucasians are also less likely to be identified with violence. Although race/ethnicity was retained in the equation, the coefficients indicate that this is not a strong association. The same is true for history of previous criminal convictions. Participants with prior convictions are more likely to engage in violent behavior, but the association, while significant, is relatively weak. This is counterintuitive given the predictive importance of criminal history in actuarial assessment approaches (Harris et al., 1993). Strong associations may have been yielded if more detailed information regarding the criminal histories of the participants, such as delinquency as a juvenile, age at first offense, as well as the number of prior convictions and the seriousness of their nature, had been available.

Discussion: Implications for Research

The results of the initial analyses presented in this study are encouraging in terms of the development of a clinical tool to inform the risk assessment of violent behavior. There is general acknowledgment that violence is a complex and likely to be a multi-determined behavior. It is therefore reasonable to assume that robust markers will need to incorporate both clinical predictors as well as social antecedents of violent behavior risks, and that these risks will likely change across the developmental life span. Indeed, the problem of assessing and predicting violence potential (both stranger violence and domestic assault) has proven very difficult for clinicians and law enforcement officers alike.

As Litwack, Kirschner, and Wack (1993) assert, the paucity of systematic studies of dangerousness assessment, the ability to predict the probability of diverse types of violence, and whether injury and harm will transpire remains problematic. Furthermore, the reliance on dichotomous classifications as used in this investigation, violent versus nonviolent, obscure findings indicating that the probabilities associated with violence are continuous rather than dichotomous. Violence should be considered in terms of its seriousness and type, as opposed to a singular focus on whether an act of broad-based violence occurred. Such analyses are planned in subsequent phases of the FAVT development.

The *voice* concept approach offers an opportunity to examine underlying psychological antecedents of aggressive and violent behavior. This perspective has proven successful in investigations of self-harm. More work needs to be done in identifying and refining the range of voices associated with

violence and harm directed toward others. The continuum approach of the voice concept speaks to the shortcomings of more traditional approaches that dichotomize individuals into violent and nonviolent groups (Gottfredson & Gottfredson, 1988).

Table 4
Hierarchical Logistic Regression Model for Violent Behavior
History of Prior Convictions, Demographics, and FAVT Subscales

	B	S.E.	Wald	Relative Odds Ratio
<i>Block 1</i>				
History Prior Convictions ^a	-1.8037	.1959	84.9367	.1763
Age				
17 – 24 years	2.1061	.5850	12.9563	8.6669
25 – 30 years	1.7397	.5769	9.0923	5.9434
31 – 40 years	1.6474	.5593	8.6754	5.4110
41 – 50 years	1.5257	.5835	6.8368	4.7197
51 and older ^a				
Race/ethnicity ^a	-.5424	.2012	7.2677	.5814
Constant	.2172	.5400	.1618	
Model $X^2 = 154.759$, <i>df</i> (6), <i>p</i> = .0000				
Block $X^2 = 154.759$, <i>df</i> (6), <i>p</i> = .0000				
Nagelkerke $R^2 = .259$				
Somers' D = .506				
<i>c</i> statistic = .753				
<i>Block 2</i>				
Social Mistrust	2.0491	.4656	19.3661	2.9679
Disregarded/Disrespected	.8796	.4181	4.4256	5.6192
Constant	-3.6212	.7429	23.7594	
Model $X^2 = 248.847$, <i>df</i> (8), <i>p</i> = .0000				
Block $X^2 = 94.088$, <i>df</i> (2), <i>p</i> = .0000				
Nagelkerke $R^2 = .391$				
Somers' D = .634				
<i>c</i> statistic = .817				
(N = 553)				

^a Referent group: *History Prior Convictions* = respondents with history of prior convictions, Race = Non-Caucasian.

Variables not retained in the model include *Thoughts of Being Disregarded/Disrespected*, *Negative Critical Thoughts – Self/Self and Other* (FAVT subscale), and FAST. Overall classification: 74% (78% correct classification of respondents identified as violent, 70% correct classification of respondents identified as non-violent).

Next steps in the development of the FAVT will include refinement of the existing items and development of new items that address the diversity (e.g., random violence, child and domestic abuse, sexual assault, etc.) and levels of seriousness associated with violent behavior. Standardizing the revised FAVT on several types of violence samples (viz., domestic abusers, sexual abusers, various criminal conviction groups), as well as more adequate sampling of age, sex, and racial/ethnic groupings, will allow more accurate predictive model building. Moving past postdiction and short-termed prediction is critical to the understanding of the risk assessment of violent behavior. Plans are in place to follow randomly selected samples of violent participants in order to more adequately determine the predictive validity of the FAVT scale scores.

Lastly, the escalation of violence warrants more emphasis on prevention as opposed to the risk management of individuals who are already engaged in violent behavior. A focus on child-rearing process using the voice concept may provide informative insight regarding early childhood traumas that for some individuals become antecedents of violent behaviors in childhood, adolescence, and adulthood.

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