12-1-2012

Assessing Risk of Violence in Caucasian and African-American Male Forensic Patients

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ASSESSING RISK OF VIOLENCE IN CAUCASIAN AND AFRICAN-AMERICAN MALE FORENSIC PATIENTS

A dissertation

Presented to

The College of Graduate and Professional Studies

Department of Psychology

Indiana State University

Terre Haute, Indiana

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Psychology

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by

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December 2012

Keywords: risk assessment, Childhood and Adolescent Taxon Scale, Psychopathy Checklist Revised, Violence Risk Appraisal Guide

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ABSTRACT

Violence risk assessment, or the ability to predict the likelihood of a criminal offender's to commit a violent act in the future, is an essential role of psychologists in the criminal justice system. One of the most widely used violence risk assessment instruments is the Violence Risk Appraisal Guide (VRAG). The Psychopathy Checklist-Revised (PCL-R) is the most widely used measure of psychopathy and is often used as part of violence risk assessment, including in the the VRAG. The PCL-R is lengthy and time-consuming process, which has led to the development of the Childhood and Adolescent Taxon Scale (CATS), which is a shorter, more time efficient measure of psychopathy that can also be used in the VRAG.

This study is an extension of research done by Bolton (2006) that was designed to assess and compare the utility of the PCL-R and CATS, specifically when used within the VRAG. The current study hypothesized that VRAG scores calculated with the CATS as its index of psychopathy would be equivalent to scores obtained with the PCL-R, supporting the use of the more time efficient CATS in prediction of likelihood of violent recidivism. It was also hypothesized that VRAG scores would be equivalent in assessment of both African-American and Caucasian offenders, regardless of which psychopathy measure was used. Furthermore, Bolton's research identified potential racial bias in the use of violence risk assessment scores when making decisions concerning patients' level of security and restrictiveness. The current study also examined decisions concerning levels of security and restrictiveness, and related violent risk assessment scores.

One hundred twenty male forensic inpatients from a Midwestern psychiatric hospital [Caucasian (N=65), African-American (N=55)] were selected at random for inclusion in this study. Contrary to the hypotheses, results found that the VRAG-P and VRAG-C scores were not equivalent. VRAG-P scores were significantly higher than VRAG-C scores for the overall sample and African-American patients. However, scores were not significantly different for Caucasian patients. There were no significant differences within any risk assessment instrument based on race. Finally, no significant differences were found in decisions related to level of security between Caucasian and African-American subjects. Findings are discussed and their implications for clinical practice.

ACKNOWLEDGMENTS

This dissertation would not have been possible without the support of several people in my life. I would like to extend thanks to my dissertation chair and committee for their help in designing and carrying out this project. I am very appreciative of their direction and guidance. A special thanks goes to my family and friends for their unwavering support, especially my mother, Diana Herriott, and my husband, Adam Speck. Without their constant encouragement, unconditional love, and never-ending faith in me, I would not be where I am today. For that, and so much more, I am eternally grateful. Finally, I would like to thank two other very special "people" for the love and excitement they bring to my life every single day, my Daisy and my Oliver.

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CHAPTER 1

INTRODUCTION

Violence risk assessment is an important component of both the psychological and criminal justice systems (Quinsey, Harris, Rice, & Cormier, 2006). The ability to predict an offender's risk of committing a violent act in the future is of central importance to almost every step in the criminal justice process (e.g., probation, parole, release, sentencing, etc.). Starting as a more intuitive and informal activity, violent risk prediction was extremely conservative during the first half of the 20th century and was solely based on clinical judgment (Hilton & Simmons, 2001). It was also largely oriented to the protection of society with little regard for offenders' rights and liberties. Particular concern was devoted to mentally ill offenders who were seen as having an elevated risk of being judged as dangerous and/or violent. Due to public fear and inadequate knowledge, it was assumed that mentally ill offenders were more dangerous than non-mentally ill offenders. Public fear increased societal and political pressure, and mentally ill offenders were being confined for extended periods without legitimate reason (Quinsey et al., 2006).

However, it quickly became apparent in the 1960s and 1970s that clinical judgment and the system that was currently being used for violence risk assessment was ineffective (Hilton & Simmons, 2001; Quinsey et al., 2006). Unnecessarily confining offenders who were misclassified as being at risk for violence was deemed an unacceptable practice. It also became

clear that mental health professionals must develop tools that allow for accurate and efficient prediction of violent recidivism.

There has been a dramatic increase in research in this area and much of the literature consists of identifying and systematically exploring predictors of violence as well as creating and validating new risk prediction instruments. Research has found that one of the strongest predictors of violence is psychopathy, a construct of central importance to this study (Cleckley, 1976; Hare, 1991; Hare, 1999; Hemphill, 1998; Kosson, Smith, & Newman, 1990; Salekin, Rogers, & Sewell, 1996). Although there are always difficulties predicting violence, research has repeatedly shown that actuarial risk prediction instruments, including the Violence Risk Appraisal Guide (VRAG) being used in this study, are empirically supported instruments and have been shown to be the most reliable and accurate approaches to violence assessment (Douglas, Yeoman, & Boer, 2005; Glover, Nicholson, Hemmati, Bernfield, & Quinsey, 2002; Gray, Fitzgerald, Taylor, MacCullough, & Snowden, 2007; Kroner & Mills, 2001; Quinsey, Book, & Skilling, 2004; Walters, 2006).

The current study examined three different actuarial assessments, including the Violence Risk Appraisal Guide (VRAG), the Psychopathy Checklist-Revised (PCL-R), and the Childhood and Adolescent Taxon Scale (CATS). The VRAG is a 12-item actuarially-based instrument used to assess risk of violence and provides 7- and 10-year probabilities of violent recidivism. The Psychopathy Checklist-Revised (PCL-R) and the Childhood and Adolescent Taxon Scale (CATS) are instruments that are designed to measure psychopathy. The CATS was designed to replace the PCL-R as a more efficient measure and is based on the idea that psychopathy is a taxon, or a discrete, categorical classification (Harris, Rice, & Quinsey, 1994). The CATS is also based on the authors' identification of risk factors in childhood that allow for assessment of

psychopathy, thus the items relate to antisocial characteristics that are present during childhood and adolescence.

There is a lack of research that has assessed the effectiveness of the CATS as a substitute for the PCL-R, specifically when used as the index of psychopathy to calculate the VRAG score. There is also a need for more research on the generalizability of these assessment instruments across multiethnic groups (Cooke, Kosson, & Michie, 2001; Kosson et al., 1990; Skeem, Edens, Camp, & Colwell, 2004; Sullivan, Abramowitz, Lopez, & Kosson, 2006; Swogger, Walsh, & Kosson, 2008). The majority of actuarial risk prediction instruments were developed on Caucasian adult males in forensic institutions. There has been controversy and mixed results surrounding the efficacy and utility of actuarial assessments, specifically the PCL-R, with non-Caucasian ethnic groups (e.g., African-Americans, Latinos) (Sullivan et al., 2006; Swogger et al., 2008). Some research has shown potential bias in actuarial instruments like the PCL-R (Kosson et al, 1990; Swogger et al., 2008). On a deeper level, there has been debate about the construct of psychopathy and its manifestation in non-White ethnic groups, with some research supporting the idea that psychopathy "looks different" in African-American populations (Lynn, 2002; Skeem et al., 2003). This subsequently has implications for the use and scoring of assessments like the PCL-R and CATS.

This study is an extension of a previous study by Bolton (2006) who examined the comparability of the PCL-R and CATS, as well as the generalizabilty of these assessments for African-American and Caucasian patients. However, a significant limitation of Bolton's study was small sample size. The current study tripled the sample size of the original study. Similar questions have been examined in the current study, including the comparability of the VRAG when calculated using the PCL-R versus the CATS. Generalizability and equivalency of VRAG

scores across races have also been examined. Lastly, issues regarding potential racial bias in recommended levels of security and restrictiveness were explored, along with implications for clinical practice and future research.

Violence Risk Assessment

Violence risk assessment of mentally ill offenders is a central issue for the criminal justice and mental health systems. The ability to predict an offender's risk of committing a violent act in the future, or risk of violent recidivism, is an inherently difficult task, but one that is crucial to the fair treatment and confinement of people who have committed violent acts, and for the protection of society (Quinsey, Harris, Rice, & Cormier, 2006). Psychologists are often asked to assist in this type of prediction. However, the field of violence risk prediction was created and still exists within a cloud of controversy and uncertainty (Binderman, 2001; Quinsey, et al., 2006). Violence risk assessment is a prediction of future behavior, and with that comes a certain level of uncertainty as behavior is dynamic and can change (Quinsey, et al., 2006). Regardless, violence risk prediction carries with it implications that have serious consequences.

Many processes within the criminal justice system require some judgment about an offender's likelihood of future antisocial behavior. These include decisions made about parole, probation, or sentencing, admission and discharge for forensic inpatient facilities, or adjustments in supervised custody and levels of restrictiveness (Harris et al., 1994; Hilton & Simmons, 2001; Quinsey, et al., 2006). Violence risk prediction has significant implications for both the offender and the community. The crucial role of accurate predictions of violence always carries possibilities for unfairly determining an offender or potential harm should they act out.

Previous Research

An initial study done by Bolton (2006) examined the relative effectiveness of the Psychopathy Checklist-Revised (PCL-R) and the Childhood and Adolescent Taxon Scale (CATS) as the indexes of psychopathy when used to calculate scores on the Violence Risk Appraisal Guide (VRAG). Bolton (2006) examined an assessment tool, the CATS, that is shorter, easier to complete, and significantly more time efficient than the PCL-R. The validation of this measure and evidence of its utility and comparability to the PCL-R ultimately carries implications in increasing the utility of the VRAG when using the CATS as the index of psychopathy. Furthermore, Bolton examined the generalizability of the VRAG, CATS, and PCL-R that had been used with Caucasian offenders to African-Americans offenders. He examined the utility of the VRAG when using the PCL-R and CATS with African-American patients, as there is a general paucity of information on the generalizability of these assessments to ethnic minorities, and the findings that exist are mixed and do not support firm conclusions. Lastly, Bolton (2006) examined the relationship between racial background (Caucasian or African-American), VRAG scores, and decisions made by the Review Panel of a forensic psychiatric hospital concerning changes in level of restrictiveness and custody.

Bolton (2006) found that both the PCL-R and CATS were equally effective when used as an index of psychopathy to calculate VRAG scores, with no significant differences in VRAG scores. He also found no significant differences in VRAG scores for African-American and Caucasian patients, regardless of the index of psychopathy used to calculate the VRAG scores. Lastly, Bolton found that while African-American patients were placed within the appropriate level of restrictiveness (as indicated by Review Panel decisions) based on their VRAG

probabilities, there was a positive bias towards Caucasian patients, and they were placed in less restrictive environments than would have been predicted by the VRAG scores.

Bolton's research served as an admirable attempt to help validate the utility of shorter, more time efficient violence risk assessment tools, as well as shed light on the importance of fairness in violence risk assessment. Furthermore, this research delved into a highly controversial area concerning the generalizability of both violence risk assessment instruments and the utilization of these instruments for minority populations. Bolton's findings have very important implications not only for violence risk assessment, but also potentially biased way in which risk assessment scores are used by those who make decisions regarding levels of security and restrictiveness.

History of Violence Risk Assessment

Quinsey, Harris, Rice, & Cormier's (2006) *Violent Offenders: Appraising and Managing Risk* provides a thorough and definitive review of the history and development of violence risk assessment. They begin by reviewing violence risk assessment's early beginnings in the first half of the 20th century, which were limited and predictions were primarily based on the ideology of the times rather than data-based research. This type of assessment was generally seen as a "lay" activity, in which decisions were made with little help outside of clinical judgment, which was based on "common sense" predictors. This process was intuitive and informal, and, unfortunately, lead to overly conservative results in which there were an abundance of false positives in which offenders were inaccurately judged to be at risk for violent behavior. This left many, and in fact, the majority of offenders incarcerated or detained for much longer than warranted by the likelihood they would re-offend.

One group of offenders at an even greater risk for this prolonged, unnecessary detention were mentally ill offenders, especially mentally ill offenders found not guilty by reason of insanity (Quinsey, et al., 2006). The elevated risk for mentally ill offenders is still true today. This risk has been explained by the fact that mentally ill offenders are feared by the public and perceived to be more dangerous than non-mentally ill offenders. However, research has found that mentally ill offenders are no more likely to act violently than non-mentally ill offenders. Furthermore, research indicates that mentally ill offenders are at a lesser risk of violence than the general population of offenders. As for mentally ill offenders who plead NGRI and are found not guilty due to their mental illness, their crimes are almost always serious and violent. However, the NGRI defense is rarely used and even more rarely effective, so this subset of the criminal population is extremely small. Even so, the fear of mentally ill offenders seems to stem from an inaccurate but popular belief that they are more prone towards violence. Regardless of the inaccuracy of this belief, it introduces uncertainty and bias into violence risk assessment with the mentally ill.

Forensic examiners often find it difficult to make decisions about changes in security and level of restrictiveness of dentetion for mentally ill offenders (Hilton & Simmons, 2001; Quinsey, et al., 2006). Due to the concerns about this subgroup of offenders, forensic examiners typically err on the side of caution and mentally ill offenders are detained for long periods of time, many times unnecessarily. Typically mentally ill offenders are released based on recovery from their mental illness. However, considering that decisions related to changes in security level are expected to be based on risk of violence to self or others, mental illness should not be part of the determination process unless explicitly relevant (e.g., mental illnesses that have been shown to lead to increased risk of violence such as antisocial personality disorder or psychopathy).

There have been strides in correcting this problem (Quinsey, et al., 2006). There has been an increased use of review boards in making custodial decisions based on violence risk assessment. There has also been a greater emphasis on the rights of mentally ill offenders and placing offenders in the "least restrictive environment" that is appropriate for treatment and the assurance of safety. However, the social pressure to ensure public safety continues to create difficulty within the field of violence risk assessment and highlights the importance of creating more accurate and efficient prediction tools.

Developments in Violence Risk Assessment

It is difficult to establish a balance between the rights of offenders and community safety regarding violence risk assessment (Lynn, 2002; Quinsey, et al., 2006). Part of the difficulty in the decision-making process has been the lack of accurate and useful methods to predict violence. When using clinical judgment and "common sense" predictors, it became clear that offenders were being detained longer because the majority were being falsely identified as at risk for violent recidivism (Quinsey et al., 2006). These "common sense" predictors and clinical judgments were not examined for empirical evidence. Therefore, the myth of the mentally ill offender as violent may have persisted due to the lack of empirical information about mentally ill offenders.

Within the last 40 to 50 years, there has been a significant increase in research on violent risk assessment and predictors of future risk for violence (Gray, Fitzgerald, Taylor, MacCulloch, & Snowden, 2007; Harris, Rice, & Cormier, 1991; Quinsey, et al., 2006; Salekin, Rogers, & Sewell, 1996). During the 1970s, a number of studies were completed with mentally ill offenders from a forensic psychiatric hospital in Ontario who were found NGRI or unfit for trial (Quinsey, et al., 2006). In the initial study, Quinsey, Preuesse, and Fernley (1975) followed 56 patients

who were released from this facility and after 2 ½ years, only two patients were convicted of violent offenses, and the crimes were deemed rather minor.

A number of subsequent follow-up studies showed similar results, indicating low base-rates for violent recidivism among mentally disordered offenders (Quinsey, et al., 2006). These results continued to challenge the accuracy of clinical judgment. Other researchers who found low rates of recidivism, violent or otherwise, realized the need for a more reliable, systematic, and accurate way to predict violent behavior that would meet the need to protect society while protecting offenders' rights and civil liberties. This led to an emergence of a new generation of research in both the psychological and legal worlds that would carry with it implications for the advancement of violent risk prediction and the future of the criminal justice system.

Predictors of Violence

The underlying assumption about the prediction of violent behavior is that there are certain characteristics of offenders related to future criminal behavior that can be identified and used for risk prediction (Quinsey, et al., 2006). Researchers have reported research that identified multiple factors and found them to be empirically supported and generally accurate predictors of violent behavior (Gray et al., 2007; Harris et al., 1991; Quinsey, et al., 2006; Salekin et al.,1996). Empirically supported predictors of violence include history of previous violent behavior, which has been shown to be one of the most consistent and accurate predictors of future violent behavior. This lends some credit to clinical judgment, as this is often one of the "common sense" predictors used. Findings indicate that the greater the number of previous violent acts, the higher the incidence of future violent acts. A diagnosis of a personality disorder, especially antisocial personality disorder, has also been found to be an accurate and fairly consistent predictor of both criminal and violent recidivism. Other empirically supported

predictors include academic problems and/or parental separation in early childhood, criminal history, and personal or parental alcohol abuse. One of the strongest predictors of violent behavior is psychopathy.

Psychopathy is a construct that Hare (1991) described as a "rather specific constellation of deviant traits and behaviors" (p. 2). The idea of psychopathic personality was initially identified by a British physician, John Pritchard, in the early 1800s who coined the term "moral imbecility," or one who lacks moral sense but has no intellectual impairment (Lynn, 2002). The term psychopathic personality was used again approximately 110 years later by German psychiatrist Emily Kraepelin and has since become a diagnostic label. In the 1940s, Cleckley (1976) described criteria for this condition in his famous book, *The Mask of Sanity*. Hare's definition of psychopathy largely reflects the definition and 16 criteria that Cleckley (1976) identified. Although some still consider psychopathy a synonym for antisocial personality disorder or criminality, Hare (1980; 1991) makes it clear that psychopathy reflects a different underlying construct that, although similar, is fundamentally different. Hare described the construct of psychopathy as a clinical personality disorder that is threefold, in that it involves interpersonal, behavioral, and affective components. Interpersonally, psychopaths are generally considered superficial, "glib," grandiose, dominant, and manipulative. Affectively, psychopaths tend to lack empathy, anxiety, shame, and remorse, and are generally shallow and labile in their emotional display. Behaviorally, psychopaths are typically impulsive, have poor judgment, and lack direction towards future goals. These symptoms are typically evidenced in middle to late childhood and persist into adulthood, although a change in symptom pattern is common with increasing age starting at 45 years and older.

Psychopathy is a characterological disorder that has been associated with various life outcomes, including unstable interpersonal relationships and poor occupational functioning (Hare, 1991; Hare, 1999). Of particular interest for the current study, psychopathy has been closely associated with increased risk of criminal involvement, particularly violent offending (Cleckley, 1976; Hare, 1991; Hare, 1999; Hemphill, 1998; Kosson, Smith, & Newman, 1990; Salekin, et al., 1996). Although Hare (1999) estimated that only 1% of the population are psychopaths, a disproportionate number of psychopaths are involved in crime. This has been explained by the psychopath's lack of empathy or emotional connectedness, which would allow for him/her to easily victimize others and use violence as a way to manipulate others. This is what makes psychopaths of such concern for the criminal justice system (Hare, 1991; Hare, 1999; Salekin, et al., 1996).

The strong relationship between psychopathy and violent crime is of great value and interest to violence risk prediction (Hare, 1999; Hemphill, 1998; Salekin, et al., 1996). Even in forensic psychiatric populations, where the prevalence of psychopathy tends to be lower than in general criminal populations, the presence of psychopathic traits and characteristics is still a major risk factor and strong predictor of violent recidivism (Hare, 1999). A meta-analysis by Salekin, Rogers, and Sewell (1996) examined the clinical utility of the Psychopathy Checklist-Revised (PCL-R), a scale developed by Hare to assess for psychopathy in male forensic populations. They also examined the PCL-R's relationship to violent recidivism and found that those who were assessed as having psychopathic personality or psychopathic characteristics were more likely to be violent. They further stated that when conducting violence risk assessment, psychologists should consider using the PCL-R (Salekin, et al., 1996). In another meta-analysis by Hemphill (1998), psychopathy was found to be a significant predictor of violent recidivism

and found that psychopaths were four times more likely to violently reoffend than other offenders. This relationship has been demonstrated and documented in a large number of research studies and meta-analyses that found the strong predictive power of psychopathy as a risk factor for future violent behavior.

Actuarial Prediction of Violence

The push for more reliable and accurate means to conduct violence risk assessment has driven researchers and clinicians alike to seek out a more systematic way of predicting violence to help ease the decision-making process (Quinsey, et al., 2006). This has led most researchers and clinicians away from clinical judgment and toward actuarially-informed judgments based on statistical and mathematical methods. One way in which this has been done is to identify individual predictors of violent behavior, as described above. Another way is using the research on empirically supported predictors and developing actuarial risk prediction instruments (Quinsey, et al., 2006).

Clinical Versus Actuarial Methods of Violence Risk Assessment

There has been debate over the utility of actuarial methods versus clinical judgment (Harris, Rice, & Cormier, 2002; Quinsey, et al., 2006). Harris, Rice, & Cormier (2002) address the advantages of actuarial methods over clinical judgment, asserting that there is empirical evidence to support actuarial methods as being superior for both short- and long-term predictions. They suggested that clinicians lack the statistical savvy and ability to tease apart what information is most important and which information is best for predicting long-term versus short-term risk. Quinsey et al. (2006) assert a similar point of view, hypothesizing that the difference in accuracy between clinical and actuarial methods is partially due to clinicians' misinterpretation of information that is provided by actuarial instruments. Neither Harris et al.

(2002) or Quinsey et al. (2006) dismiss the importance of clinical judgment, concluding that clinical judgment applied in a small and structured way (e.g., information gathering, scoring actuarial instruments) is important to violence risk prediction.

Development of Actuarial Risk Prediction Instruments

In 1970, Megargee stated that he found no tests that were useful for prediction of violence (Quinsey, et al., 2006). This helped advance research directed toward not only increased identification of empirically supported predictors of future violence, but also the creation of new actuarial instruments that could be used to accurately and efficiently conduct violence risk assessment. There are now multiple actuarial risk prediction instruments, including the Violence Risk Appraisal Guide (VRAG), which is one of the most widely used and researched actuarial risk prediction instruments, and the Childhood and Adolescent Taxon Scale, a more recent actuarial instrument developed as an alternative to the PCL-R to assess for psychopathy. The VRAG, CATS, and PCL-R will be discussed at length later on.

The development of actuarial risk prediction instruments has not been without difficulties. One of the problems with making any risk assessment is the low base rate of the behavior being predicted. The proportion of the population that exhibits violent criminal behavior is extremely low, which can make it difficult to find empirical relationships between predictors of violence and violent behavior, and the risk of high rates of false positives. In this scenario, the most accurate and effective judgment would be to predict that no one would be violent. For example, if only 10 people out of 100 were violent, predicting that no one would be violent would be the best prediction, as it would be 90% accurate. Therefore, violence risk assessment can be useful at identifying who will *not* be violent, but that is not the purpose of violence risk assessment. With this in mind, for an actuarial risk prediction instrument to have

any real utility, it must be able to add something to the effective and accurate prediction of those offenders that *will* be violent. One counterpoint as to why the low base rate issue is not a problem is that most actuarial risk prediction instruments are based on statistical, mathematical, and normative data that are all derived from the offender population, which is the population of interest. In this population, whether in a correctional or psychiatric setting, the base rate of violent behavior is much higher than in the general population, so predictions based on this information are going to be more accurate than an instrument based on the non-offending population.

There are several other issues related to the development of actuarial instruments, including the use of "predictors of convenience" and the use of static versus dynamic variables (Quinsey, et al., 2006). Critics have argued that the vast majority of research on predictors of violence has focused on what are referred to as "predictors of convenience." These are typically found in institutional files (e.g., age of index offense, criminal history, mental health and substance abuse diagnoses). Critics argue that there are potentially better predictors of violent recidivism available, but that they are not explored because they are not convenient. Furthermore, it has been argued that the emphasis on static factors overlooks important dynamic factors, such as treatment progress and completion, which can be protective and negate risk. Nonetheless, these "predictors of convenience" are empirically supported and are strongly related to violent behavior. In addition, if the goal is to make an accurate violence prediction tool that is *also* efficient and useful, it would make the most sense to use predictors that are convenient and readily available. However, relying solely on data that can be found in institutional files assumes that those files are both complete and accurate. It is not uncommon to find incomplete records or the majority of the information in the record is self-reported by the

offender with no corroboration. This could impact the utility and accuracy of the actuarial instrument used.

Another critique of the development of actuarial risk prediction instruments is the use of static factors (Quinsey, et al., 2006; Vitacco et al., 2012). Static factors do not change (e.g., age at index offense, circumstances around the index offense, gender, criminal history, etc.), whereas dynamic factors do (e.g., age, being under the influence of alcohol or drugs, death of a family member, etc.). The biggest issue concerning the use of static versus dynamic variables in risk assessment is that even after treatment, a person's scores on actuarial instruments using static factors will not change. However, dynamic factors are difficult to incorporate into an assessment tool due to the methodological issues that arise when trying to account for changing variables. Another issue is the inability of dynamic factors to provide stable or accurate long-term probabilities of violence. Overall, there are numerous criticisms of the actuarial process and using actuarial instruments to predict violence. Although some of these criticisms are valid, actuarial risk prediction is currently the most empirically supported method of accurate violence risk assessment available.

Process of Violence Risk Assessment

Although risk assessment procedures may differ between institutions, the majority of those who conduct violence risk assessment follow the same basic guidelines (Quinsey, et al., 2006). Quinsey et al. (2006) suggest reviewing institutional records, including background information, information related to the current offense, familial and childhood history, as well as an academic, occupational, psychiatric, medical, and substance abuse history. Forensic evaluators commonly interview the offender as well, but this can depend upon the type of assessment being completed. The interview allows for additional information that was either

inconsistent in or missing from the records. It also provides the evaluator the opportunity to observe the offender's behavior. It is highly recommended that collateral data be gathered as well to provide corroboration for the data gathered through the records review and during the interview. Common actuarial instruments include the PCL-R and VRAG.

Risk Assessment at the Site of Study

The site of study in Bolton's (2006) original research was a forensic psychiatric hospital in Louisiana. The current site of study was a psychiatric hospital in the Midwest that houses both criminally and civilly committed patients. The risk assessment procedures are similar to the general procedures for the assessment of risk for violent recidivism discussed above. At this site of study, risk assessments are performed only on forensic inpatients who have been found not guilty by reason of mental disease or defect. It is typically performed when these forensic inpatients are housed in medium security units to assess fitness for increased privileges and/or transfer to a less secure setting. A psychologist collects and reviews all information and documentation relevant to the offender and their progress in treatment, including collaboration with other staff and treatment providers. After this information has been obtained and an interview has been completed, the psychologist completes the PCL-R and the VRAG, as well as other risk prediction instruments, including the Historical, Clinical, Risk Management-20 (HCR-20). All measures, along with relevant background and clinical information, are incorporated into a psychological evaluation that details the patient's risk of violent recidivism and provides recommendations for the patient's level of security and restriction. The recommendations can include no change in privileges or security; transfer to a more or less secure unit within the hospital; increased privileges on or off hospital grounds; and supervised community release. The site of study contains multiple forensic units that are classified as maximum, medium, and

minimum security. Privileges on grounds often include the ability to eat meals in a group cafeteria setting that is off the unit.

Measurement of Violence Risk Assessment

Noticing a lack of reliable and valid actuarial instruments for the prediction of violent recidivism, Quinsey et al. (2006) developed an actuarial assessment of their own based on the male forensic inpatients from a Canadian psychiatric hospital (Binderman, 2001; Hall, 2007; Quinsey et al., 2006). They developed the Violence Risk Appraisal Guide (VRAG), a 12-item actuarial assessment instrument that provides 7- and 10-year probabilities of violent recidivism. The VRAG was constructed based on clearly defined variables that have been demonstrated through empirical research to have a relationship to violent behavior. For purposes of test construction, they operationally defined violence to include the following criminal charges: homicide, attempted homicide, kidnapping, forcible confinement, wounding, assault causing bodily harm, rape, and armed robbery. Over 50 variables were originally selected for inclusion, most of which had some empirically demonstrated relationship to violent recidivism. Others were included that had little empirical support, but had commonly been considered important by clinicians or were of interest for further examination.

To construct the VRAG assessment instrument, Quinsey et al. (2006) then obtained information from several longitudinal follow-up studies from the Oak Ridge Division of the Penetanguishene Mental Health Centre in Canada, which provides mental health assessment and treatment for those involved in the judicial and correctional systems. They gathered information regarding 618 men from the follow-up studies over several years (Harris, Rice, & Quinsey, 2003). The men in the study were quite diverse, as some were forensic psychiatric inpatients, insanity acquittees, correctional inmates, sex offenders, and mentally ill offenders. All the men

had the opportunity to recidivate, in which "opportunity" was defined by the release into a less restrictive environment such as a less secure hospital, halfway house/group home, or full release into the community. After all data was analyzed, Quinsey and his colleagues selected 12 variables which they found were the most predictive of violent recidivism and could all contribute independently to the prediction of violence. These variables ultimately became the VRAG. The PCL-R correlates the most strongly with the 12 final VRAG variables. Refer to Appendix B for a listing of the final VRAG variables and their respective correlations with violent recidivism.

The VRAG has become one of the most reliable and valid violent risk assessment instruments available, and has consistently proven to be a significant predictor of violent recidivism among male offenders (Douglas et al., 2005; Glover et al., 2002; Gray et al., 2007; Kroner & Mills, 2001; Quinsey, Book, & Skilling, 2004; Walters, 2006). Furthermore, research has continuously supported its use to predict risk of violence in forensic inpatients petitioning for conditional release from psychiatric institutions (Vitacco et al., 2012). The VRAG has continued to hold up against newer generation instruments that are also designed to predict violent recidivism (Campbell et al., 2009). In a meta-analytic study by Andrews, Bonta, and Wormith (2006), they found that when compared to unstructured clinical judgment, other actuarial instruments, and newer instruments that incorporate dynamic variables, the VRAG performed best. Research has also continued to provide evidence for the VRAG's predictive and incremental validity (Hastings et al, 2011; Vitacco et al., 2012). In their study with jail inmates, Hastings et al. (2011) found the VRAG significantly predicted violent behavior for male jail inmates and held predictive power beyond that accounted for by psychopathy. The VRAG will be addressed in further detail in the Methods section.

The Psychopathy Checklist-Revised (PCL-R)

The PCL-R is a 20-item checklist that was designed by Hare (1980; 1991) to classify individuals on Hare's construct of psychopathy, as described above. Items are based on information directly relating to the construct of psychopathy, including glibness, grandiosity, shallow affect, pathological lying, manipulativeness, lack of empathy, irresponsibility, impulsivity, and criminal record. Information for the PCL-R is obtained from collateral data and an interview, although the interview is optional if the collateral data is extensive. Three scores are calculated: a score for the total test and two factor scores. Factor 1 scores reflect the interpersonal and affective characteristics of psychopathy (e.g., pathological lying, shallow affect, lack of empathy) whereas Factor 2 scores reflect the antisocial/behavioral characteristics of psychopathy (e.g., criminal behavior). See Appendix D for a list of PCL-R items.

The PCL-R is a reliable and valid assessment instrument, and is one of the most common assessment instruments used to identify psychopathy and in the prediction of violent recidivism (Dolan & Doyle, 2000; Gray et al., 2007; Hare et al, 1990; Hare et al., 2000; Kroner & Mills, 2001; Walters, 2006). Multiple research studies have supported to the PCL-R's ability to predict violent recidivism, with several studies finding that the PCL-R was a better predictor that any combination of key demographic and life history variables, including child and adulthood history variables, criminal history, and personality disorder diagnosis (Hemphill et al., 1998; Harris et al., 1991). However, other researchers have found that Factor 2 scores on the PCL-R correlate more with violent recidivism than Factor 1 scores, with some research showing little relationship between Factor 1 scores and violent recidivism (Douglas et al., 2005). Other strengths of the PCL-R include a stable factor structure and higher inter-rater and test-retest reliability (Salekin et al., 1996).

However, there are limitations and criticisms of the PCL-R. One criticism is that the PCL-R is an atheoretical measure (Salekin et al., 1996). Although Hare based his conceptualization of psychopathy on Cleckley's theory, the PCL-R significantly deviates from this theory, with only seven of Cleckley's original 16 criteria paralleled or reflected on the PCL-R. Another criticism is the use of cutoff scores, with a PCL-R total score of 30 or higher being indicative of psychopathy. However, this cutoff score has been challenged and reinterpreted by various researchers for various uses, ranging from cutoff scores as low as 25 to as high as 37. Other researchers have questioned whether or not the different factors may predict different levels of dangerousness. As briefly mentioned above, there is some evidence that Factor 2 is more highly correlated with violent recidivism. Lastly, there are questions regarding the generalizability of the PCL-R. Most studies that have attempted to evaluate the reliability and validity of the PCL-R have been done with Caucasian-Canadian male populations. There are important questions concerning its generalizability to females and minority populations (Salekin et al., 1996). The generalizability of the PCL-R to minority populations will be discussed in greater detail below.

Hare (1998) has responded to these criticisms, stating that many of problems relating back to potential limits of generalizability and questionable cutoff scores relate more to the misuse of the instrument rather than to any of its inherent qualities. Regarding the atheoretical foundation of the PCL-R, Hare's conceptualization of psychopathy is derived from Cleckley's theory, and many researchers, including Hare, argue that selecting items based on their empirically supported relationship with violent recidivism rather than a theoretical basis is more accurate and effective. Although some research has shown that Factor 2 has a greater relationship with violent recidivism than Factor 1, many research studies show that the overall

total PCL-R score, a combination of both Factor 1 and 2, is the best overall predictor of violent recidivism, more so than Factor 2 or Factor 1 individually (Salekin et al., 1996). Regardless of criticisms or limitations, the PCL-R is still the most widely used psychopathy assessment and one of the most commonly used assessments in violence risk prediction. The PCL-R will be addressed in further detail in the Methods section.

The Childhood and Adolescent Taxon Scale (CATS)

Three of the four authors of the VRAG, Harris, Rice, & Quinsey, desired a shorter and more efficient means of measuring psychopathy and predicting violent recidivism than the PCL-R (Harris et al., 1994). They believed that there could be a more efficient way to conceptualize psychopathy and discriminate between psychopaths and non-psychopaths. They examined whether or not psychopathy was best conceptualized as a dimension of personality, as conceptualized by Hare and in the PCL-R, or as a taxon underlying psychopathology.

Psychopathy as a taxon. Harris et al. (1994) define a "taxon" as a dichotomous classification system for individuals based on a certain trait or characteristic. An example of a well-known and accepted taxon is biological sex. In this case, Harris and his associates decided to explore if there was evidence of an underlying taxon for psychopathy that could clearly discriminate between those that are psychopathic and those who are not. This is in direct contradiction to the more widely accepted dimensional model that is used by Hare in the PCL-R. To explore the presence of a taxonomic structure to psychopathy, Harris et al. studied 653 mentally ill offenders, all of whom had extensive histories of violent and antisocial behavior. PCL-R scores, recidivism, and other key demographic information (e.g., characteristics regarding the index offense, mental health history, childhood behavior problems, etc.) were coded from the participant's clinical files and were then analyzed using several different

techniques employed for detecting a taxon. They found evidence that supported the validity of the PCL-R and other variables and indicators of a taxon underlying psychopathy, and evidence of two distinct distributions based on PCL-R scores. They also found that Factor 2 scores were more highly correlated with recidivism than Factor 1. These eight Factor 2 items, along with variables concerning childhood antisocial behavior, were most highly correlated with violent recidivism. A high level of agreement was found when the participants were categorized into either the class of "psychopaths" or "non-psychopaths" as well. All of the taxometric methods utilized agreed on the participants selected to be taxon members. Overall, Harris et al. concluded that there is distinct evidence that psychopathy is a taxon versus a continuous or dimensional variable.

Some researchers disagreed with the conclusions drawn by Harris and his colleagues in their 1994 study. Salekin et al. (1996) argue that there is significant evidence for the conceptualization of psychopathy as a dimension. In their meta-analysis, they found a range in cutoff scores used and a lack of discontinuity between groups, which suggests an overlap in the criterion groups of "psychopath" versus "non-psychopath" suggested by Harris et al. (1994). For this reason, they recommend using probability statements versus definitive, categorical classifications, stating that using probability statements would acknowledge room for error (e.g., not all high scorers will recidivate, some low scorers will recidivate). Lastly, due to the serious implications and consequences that can follow a classification of a person as a psychopath, a high cutoff score would be preferred in certain situations to ensure not to falsely identify a person as psychopathic (Salekin et al., 1996).

However, other researchers have also found evidence for an underlying taxonomic structure of psychopathy. Skilling, Quinsey, and Craig (2001) propose that there is a taxonomic

structure underlying antisocial behavior in childhood that persists into adulthood. In Skilling et al.'s study, they selected 1,111 boys in the 4th through 8th grades. Several measures of antisocial and psychopathic behavior were used and after taxometric analysis, they found evidence for a discontinuous and discrete entity underlying scores on the measures used for antisocial and psychopathic behaviors. Although researchers and clinicians do not all agree on the presence of a taxonomic structure of psychopathy, the biggest issue seems to be related to the utility of a taxonomic system versus the actual existence of a taxonomic system.

An alternative to the PCL-R. After finding evidence of an underlying taxon for psychopathy, Harris and his colleagues decided to construct an instrument based on this underlying taxon structure, using variables from the PCL-R and childhood antisocial behavior characteristics that were highly correlated with violent recidivism (Harris et al., 1994). The Childhood and Adolescent Taxon Scale (CATS), an 8-item instrument, was developed to assess risk of psychopathy solely from retrospective data. The CATS differs from the PCL-R in several ways, including its use of retrospective data. The CATS also uses background variables regarding antisocial and aggressive childhood behavior. Although the CATS is a newer instrument than the PCL, there have been some investigations regarding its validity as a substitute for the PCL-R, including its use as the index of psychopathy in the VRAG and other violence risk measures (Glover et al., 2002; Harris et al., 1993; Lalumiere & Quinsey, 1996; Quinsey et al., 2004; Salekin et al., 1996; Seto et al., 1996; Skilling et al., 2001). The original research this study is extending found the CATS to perform similarly to the PCL-R when used as the measure of psychopathy within the VRAG (Bolton, 2006). More recently, Lister (2011) studied the utility of the CATS as compared to the PCL-R when used in the VRAG, as well as the cross-cultural generalizability of the assessment tools. He found VRAG estimates did not

differ when using the CATS as the index of psychopathy versus the PCL-R. He also found the CATS to have good concurrent validity with the PCL-R and no significant race-related scoring differences. Furthermore, the CATS was the only risk assessment measure in Lister's study that was able to predict the length of time it took before patients were approved for transfer to a less secure setting.

Harris et al. (1994) and Quinsey et al. (2006) argue that the CATS is preferred over the PCL-R for several reasons. First, there are questions concerning the generalizability of the PCL-R, as it has predominately been used with Caucasian-Canadian samples. Secondly, the PCL-R requires a larger commitment of time and resources than the CATS. Furthermore, Quinsey et al. (2006) argue that that the second factor of the PCL-R, which is reflective of antisocial conduct related to psychopathy, is more responsible for the PCL-R's ability to predict violence, which is what the CATS has been designed to measure. Lastly, Quinsey et al. argues that the use of the CATS is more practical not just for time efficiency, but also because the test is non-restricted, allowing for a broader group of professionals to administer it. The CATS will be addressed in further detail in the Methods section.

Race and Violence Risk Assessment

Violence risk assessment instruments have primarily been used with Caucasian males from Canada (Quinsey et al., 2006). However, the majority of individuals involved in the criminal justice system and incarcerated in the United States are African-American (Guerino, Harrison, & Sabol, 2011). This raises serious questions about the applicability of these violence risk assessments to different populations (e.g., females, minorities). Additional research is being conducted in this area that is designed to assess the generalizability of these instruments, identify

any inherent biases in the assessments, and identifying factors that may impact the interpretation of the assessments, particularly with the Psychopathy Checklist (PCL; PCL-R).

One of the first studies to examine generalizability of violent risk assessment instruments across ethnic groups was by Kosson, Smith, and Newman (1990) which examined the reliability and validity of the construct of psychopathy in African-American males. They did a series of three studies to answer their research questions. In the first study, they examined the reliability of the Psychopathy Checklist (PCL) in Caucasian and African-American inmates, including the distribution of PCL scores, the internal structure, and the correlation of the PCL with self-report measures that are both relevant and irrelevant to psychopathy in Caucasians. Using a sample of 232 Caucasian and 124 African-American male inmates, they found that the PCL could be used reliably with African-Americans. However, there were some differences observed regarding the distribution of scores, the factor structure, and the strength of the association between psychopathy and impulsivity.

In the second study, Kosson et al. (1990) presented African-American psychopaths and non-psychopaths with a passive avoidance-learning task that had been shown to differentiate between Caucasian psychopaths and non-psychopaths. Using a sample of 59 African-American male inmates, they found that African-American psychopaths had difficulty inhibiting punished responses when those behaviors are also associated with an award. This is indicative of a learning deficit that is frequently reported in Caucasian psychopaths. In their last study, Kosson et al. examined criminal behavior by race (Caucasian vs. African-American) and psychopathy diagnostic group (psychopath vs. non-psychopath). Using a sample of 369 Caucasian and 116 African-American inmates, they found that those inmates diagnosed with psychopathy (PCL score of 30 or above) were charged with more offenses, both violent and nonviolent, than were

non-psychopaths, regardless of race. Overall, Kosson et al. concluded that psychopathy could be assessed in African-American inmates using the PCL. There were several indications though that the expression of psychopathy may differ in some key ways between Caucasian and African-Americans. However, the authors attributed some of the differences to potential biased use of the PCL, as all of the raters were Caucasian.

Eleven years later, Cooke, Kosson, and Michie (2001) published a subsequent study about the generalizability of the revised Psychopathy Checklist (PCL-R) in Caucasian and African-American males. Cooke et al. assessed 201 federal prison male inmates and 514 county jail male inmates. Approximately half were African-American and half were Caucasian. Results suggested that there were no significant differences in PCL-R scores between African-American and Caucasian male inmates. The authors reported that, although they found no inherent bias in the PCL-R itself, it can still be used in a biased manner, thus only qualified professionals with adequate training should administer and/or score a PCL-R. Other studies have also produced similar results, including a meta-analysis by Skeem et al. (2004) of 21 different studies, in which it was found that African-American males exceeded Caucasian males on the PCL-R by less than 1 point on average, which is non-significant. Overall, Skeem et al. provided strong evidence that African-American and Caucasian inmates do not meaningfully differ in their levels or expression of psychopathic traits.

Not all studies have found positive results for the generalizability of psychopathy to different ethnic groups. Sullivan, Abramowitz, Lopez, and Kosson (2006) examined the reliability and construct validity of the PCL-R in Latino, European-American, and African-American male inmates. Using 249 male inmates, equally split among all three racial groups (e.g., 83 participants per racial group), the authors found support for the reliability of the PCL-R

with Latino offenders, but found mixed results regarding the scores of African-American inmates. Questions regarding the antisocial facet of psychopathy in African-Americans were most notable. Antisocial factor scores were significantly higher for African-Americans than Caucasian and Latino offenders. Sullivan et al. argue that the antisocial factor scores may be overly influenced by negative life events that are more probable to occur in African-Americans (e.g., arrest, incarceration).

Swogger, Walsh, and Kosson (2008) also found mixed results in their study with African-American county jail inmates. Swogger et al. suggest that specific subgroups may exist within the construct of psychopathy, and make a distinction between primary and secondary psychopaths. Primary psychopaths exhibit higher levels of interpersonal and affective traits (e.g., superficiality, manipulativeness, lack of remorse/empathy, etc.) whereas secondary psychopaths are less likely to exhibit those traits, and are more likely to exhibit higher levels of impulsivity, anxiety, and negative affectivity. These subgroups have been replicated by other researchers within Caucasian and polyethnic groups, but not with African-Americans.

Participants in the Swogger et al. (2008) study were 262 African-American male county jail inmates and were assessed on several instruments including measures of psychopathy (PCL-R), interpersonal functioning, anxiety, and substance abuse. After completing a cluster analysis, Swogger et al. found evidence for distinctive subgroups of primary and secondary psychopaths in African-American male offenders. Although the primary psychopathic subgroup was quite similar to previous research with Caucasian male offenders, there were distinct differences in the secondary psychopathic offenders, in that African-American secondary psychopathic offenders did not score lower than primary psychopaths on the affective dimensions. In addition, three additional subgroups, or clusters, were also found, including the anxious-antisocial criminal, the

alcohol-dependent criminal, and drug-dependent criminal. This suggests a more complex structure of psychopathy for African-American inmates versus Caucasian inmates. It also suggests that using the psychopathic structure validated on Caucasian males may miss important variations or aspects of psychopathy in African-Americans males.

Although research has been mixed regarding the reliability and generalizability of the PCL-R to ethnic populations, most of the research points to the reliability and validity of the overall PCL-R score for African-American males. However, it also underscores the need to cautiously attend to the administration, scoring, and interpretation of these instruments because bias in these areas will affect the outcome of the assessment. There is debate over the generalizability of the construct of psychopathy itself, with some evidence indicating different manifestations of psychopathy or different subgroup distinctions between African-Americans and Caucasians. Although this research has called for caution in testing, it cannot be inferred that the PCL-R is biased against or non-applicable to African-Americans. Further research is needed in this area to include assessing the reliability, validity, and comparability of the PCL-R, and other violence risk assessments when used with various ethnic groups. Snowden et al. (2010) recently did research on the generalizability of the VRAG with African-Caribbean forensic inpatients in the United Kingdom. They found the VRAG significantly predicted violence with similar accuracy to Caucasian patients. In fact, they found African-Caribbean inpatients had slightly lower scores than their Caucasian counterparts, albeit not significantly different. The present study will address this issue by examining the comparability of PCL-R and VRAG scores across Caucasian and African-American male forensic inpatients.

Current Study

The current study was designed to examine some of the same basic questions as Bolton's (2006) original work. This includes whether the VRAG scores calculated using the CATS as the index of psychopathy are comparable to VRAG scores calculated using the PCL-R and whether VRAG scores will be comparable between African-American and Caucasian patients. Regardless of the comparability of the instruments, there is evidence from Bolton's research that VRAG scores were used in a biased manner in decisions regarding level of security and restrictiveness. Specifically, a positive bias towards Caucasians was discovered. This study also examined the relationship between race, risk assessment scores, and level of security and restrictiveness. A significant limitation to Bolton's (2006) study was a small sample size (N = 40) and needed to be replicated to verify his results. The current study has addressed this by tripling the sample size of the original study.

The hypotheses tested in this study are:

1) VRAG scores calculated with the CATS as its index of psychopathy will be equivalent to scores made with the PCL-R.

2) VRAG scores will be equivalent for African-American and Caucasian subjects regardless of the measure of psychopathy.

3) African-American patients will more likely be placed within the appropriate level of restrictiveness based on their VRAG scores than Caucasian patients, who will more likely be placed in less restrictive environments than would be predicted by their VRAG scores.

CHAPTER 2

METHODS

Participants

The population from which this sample (N = 120) was taken consisted of adult male inpatients at a psychiatric hospital in the Midwest. At this hospital, the only patients who are assessed for risk of violence are those who have been declared Not Guilty by Reason of Mental Disease or Defect and, at the time of assessment, were housed in a medium-security unit. Charts for review were selected from those charts of adult male inpatients who had already been assessed for risk of violence. Out of this group, charts were selected at random based on the first letter of the patient's last name. Charts were only included for review if they met the following criteria. The patient had to be of a racial background that was African-American or Caucasian; all patients of another racial background were excluded. All patients also had a history of committing at least one violent crime. As defined by Quinsey et al. (2006), "violent crime" includes homicide, attempted homicide, kidnapping, forcible confinement, wounding, sexual assault involving physical contact, assault, battery, and armed robbery.

As for demographic factors, the sample was stratified based on race. A little over half of the sample was Caucasian (N = 65, 54.17%) and a little under half was African-American (N = 55, 45.83%). The mean age for the combined African-American and Caucasian sample was 44.32 (*SD* = 12.58), with a range of 21 to 77 years old. Mean age at the index offense was 34.13

(*SD* = 11.54), with a range of 16 to 67 years old. The total sample was incarcerated for 85.83 months, or 7.15 years, on average. The sample in this study had lengths of incarceration lasting from nine months to 33 years. Twenty-one subjects, or 17.5% of the sample, had an index offense of a sexually violent nature. The other ninety-nine subjects, or 82.5% of the sample, had non-sexual index offenses. Finally, the total sample had 11.16 years of education on average, which ranged from five to 17 years. See Table 1 for the breakdown of demographic variables by racial group.

Table 1

Demographic Variables Stratified by Race

	African-American (N = 55)	Caucasian (N = 65)	Total (N-120)
Age	*m* = 45.07 (*SD* = 12.77)	*m* = 43.68 (*SD* = 12.98)	*m* = 44.32 (*SD* = 12.85)
Age at Index Offense	*m* = 33.98 (*SD* = 10.51)	*m* = 34.25 (*SD* = 12.43)	*m* = 34.13 (*SD* = 11.54)
Months Incarcerated	*m* = 90.25 (*SD* = 92.08)	*m* = 82.09 (*SD* = 85.78)	*m* = 85.83 (*SD* = 88.78)
Years of Education	*m* = 10.98 (*SD* = 2.12)	*m* = 11.31 (*SD* = 2.05)	*m* = 11.16 (*SD* = 2.08)

Measures

Demographics

Demographic information was collected through chart review and included age, race (African-American or Caucasian), age at index offense, type of violent offense, years of education, and months of incarceration. Age was calculated by subtracting the date of birth from the date of the chart review. "Age at index offense" refers to the age of the participant at the time he committed the offense for which he is/was incarcerated at the time the violence risk assessment was completed. This was calculated by subtracting the date of the index offense from the date of birth. For purposes of this study, "type of violent offense" refers to the type of violence perpetrated during the index offense and will be defined as either sexual violence (e.g., rape, sexual assault, etc.) or non-sexual violence (i.e, armed robbery, homicide, etc.). "Years of education" refers to the number of years of school completed. "Years of incarceration" refers to the amount of time spent incarcerated for the index offense. This was calculated by subtracting the date of incarceration, or admittance to the hospital, from the date of release or date of the chart review, if still incarcerated.

Violent Recidivism: The Violence Risk Appraisal Guide

The Violence Risk Appraisal Guide (VRAG) is a 12-item instrument used to assess risk of violent recidivism in males. See Appendix A for a list of VRAG items. The VRAG was developed empirically by identifying specific individual factors that were highly correlated with violent recidivism in men from both mental health and correctional settings. It is scored from collateral data, including information pertaining to the individual's criminal offense record, previous recidivism, marital history, history of alcohol use, school maladjustment, and psychiatric diagnoses. An index score of psychopathy is also included in calculating the VRAG

score, as psychopathy is highly correlated with violent recidivism. Although the Psychopathy Checklist-Revised (PCL-R) is the most commonly used index of psychopathy in calculating VRAG scores, the Childhood and Adolescent Taxon Scale (CATS) can also be used as a substitute for the PCL-R.

The VRAG is one of the most widely used risk prediction assessments. In the initial development of the tool, Harris et al. (1993) found the level of accuracy for prediction of violence risk was moderate (AUC=.76). There have been numerous studies replicating the reliability and validity of the VRAG (Campbell et al., 2009; Douglas et al., 2005; Glover et al., 2002; Gray et al., 2007; Kroner & Mills, 2001; Quinsey, Book, & Skilling, 2004; Walters, 2006). All of these studies have supported the use of the VRAG and its comparability, and in some cases superiority, to other violence prediction methods, including actuarial and non-actuarial measures.

To score the VRAG, each of the 12 items is assigned a score, which is a weight calculation. The weights assigned to each item have been previously determined by the strength of its correlation with violent recidivism. The most heavily weighted item is the index of psychopathy, typically the PCL-R score, as it has the strongest positive correlation with violent recidivism. Several items that are included in the VRAG are inversely correlated and have a negative relationship with violent recidivism, and are weighted accordingly. These items include age at index offense, diagnosis of schizophrenia, female victim in index offense, and victim injury in index offense. See Appendix B for a listing of the correlations of each VRAG item with violent recidivism. Once all items have been scored, the sum of the weights provides a total score, which then is translated into seven and ten year probabilities of violent recidivism. The probabilities range from -26 to +38 and are then divided into nine categories. For example, if a

patient's total score was +20, that would placed him/her in category 7, which means that the probability of that patient reoffending violently if released from a secure forensic setting, would be 55% within seven years and 64% within 10 years. See Appendix C for a table that presents the VRAG scores and the corresponding seven and ten year probabilities of violent recidivism.

Psychopathy

There are two assessments used in this study to measure the construct of psychopathy, the Psychopathy Checklist-Revised and the Childhood and Adolescent Taxon Scale.

Psychopathy Checklist-Revised. The Psychopathy Checklist-Revised (PCL-R) is a 20-item instrument designed by Hare (1980; 1991) to classify an individual's level of psychopathy. See Appendix D for a list of PCL-R items. Items are scored based on both collateral data and an interview, although an interview is not required if sufficient collateral data is available. The items are rated on a three-point Likert scale ranging from zero to two. A score of zero indicates that criteria were not met for an item. A score of one indicates that only some criteria were met for an item, whereas a score of two indicates that all criteria were explicitly met. A total score on the PCL-R of 30 or above is indicative of psychopathy. The PCL-R is the most widely used psychopathic assessment and is the most commonly used index of psychopathy when calculating VRAG scores (Hare, 1999; Quinsey et al., 2006). Numerous studies, including international research studies, have been conducted to replicate and support the reliability and validity of the PCL-R as a sound measure of psychopathy (Glover et al., 2002; Hare, 1991, 1999; Hare et al., 1990; Hare et al., 2000; Reiss, Leese, Meux, & Grubin, 2001; Salekin, Rogers, & Sewell, 1996).

Childhood and Adolescent Taxon Scale. The Childhood and Adolescent Taxon Scale (CATS) is an eight-item instrument that is also designed to measure psychopathy in adult

male offenders. The CATS was designed to replace the PCL-R as a more efficient and accessible measure. Items on the CATS are based on antisocial characteristics from childhood and adolescence, which include educational maladjustment, adolescent and parental alcohol abuse, childhood aggression, and early criminal record (see Appendix E for a list of CATS items). Each item receives a score of zero or one, with zero indicating that the criteria for the item have not been met and a score of one indicating the criteria have been met. Total scores can range from 0 to 8. Scores are then converted to weights when factored into the VRAG.

As the CATS is a newer instrument and not widely used, its psychometric properties have yet to be thoroughly investigated. With that said, there is some research that has shown the CATS to be a reliable and valid measure of psychopathy, as well as an effective "substitute" for the PCL-R when calculating VRAG scores (Belmore & Quinsey, 1994; Harris, Rice, & Quinsey, 1993, 1994; Erickson et al., 1999; Lalumiere & Quinsey, 1996; McHattie, Hills, Smiley, & MacKenzie, 1999; Quinsey, Book, & Skilling, 2004; Seto, Khattar, Lalumiere, & Quinsey, 1997). Regarding concurrent validity, Glover et al. (2002) compared accuracy of multiple measures in predicting violent recidivism and found the CATS and PCL-R performed similarly. Lister (2011) also found good concurrent validity between the CATS and PCL-R. Finally, Quinsey et al. (2006) found the CATS performed almost identically to the PCL-R in the VRAG and did not degrade the VRAG's overall predictive accuracy (d=1.04, ROC area=.75).

Recommendation Regarding Level of Security and Restrictiveness

The recommendation regarding level of security and restrictiveness is made by a staff psychologist at the site of study who performs the risk assessment. Risk assessments are performed on medium-security forensic inpatients to assess fitness for increased privileges and/or a transfer to a less secure setting. The assessment process includes collecting all relevant

background and clinical information; collaborating with other staff and treatment specialists; interviewing the patient; and completing several assessment measures, including the PCL-R and VRAG. It should be noted that the decision made by the psychologist is merely a recommendation and does not have to be followed.

For purposes of this evaluation, the recommendations were categorized in two ways. First, the recommendations were categorized as follows: 1) No change in privileges or setting; 2) Transfer to a more secure setting; 3) Transfer to a less secure setting; 4) Increased privileges on grounds; 5) Increased privileges off grounds; and 6) Supervised community release. Descriptive statistics will be provided about the breakdown of these categories. Second, for purposes of statistical analysis and hypothesis testing, the recommendations were placed into one of two more basic categories. The first category reflected no change in privileges or setting. The second category subsumed the above-listed categories three through six and reflected upward change in privileges or setting. This all-encompassing "change" category reflected any change made that resulted in a reduction in security, whether it be an increase in privileges, movement to a less secure setting, or supervised release to the community. The above-listed "transfer to a more secure setting" category was removed because there were no subjects who fell into this category.

Procedures

This study was archival in nature, in that the investigator performed a chart review to obtain information and did not conduct any interviews with subjects or perform any invasive procedures. For these reasons, obtaining written informed consent was not necessary. The investigator obtained demographic information from the patient charts, as well as PCL-R scores and VRAG scores, as they had already been completed during the course of the patient's

hospitalization. The score for every VRAG item was documented due to the need to re-score the VRAG with the CATS score. Using retrospective information from the chart, the investigator completed and scored the CATS. Using the CATS score instead of the PCL-R score, the investigator recalculated the VRAG score. Finally, the investigator documented the psychologist's recommendation regarding level of security and restrictiveness, which was also available through the chart review.

Missing Data

There were five files reviewed that did not include the individual scores for each VRAG items. This was essential to the recalculation of the VRAG score with the CATS as its measure of psychopathy, so these files were excluded from the study.

Design

This study was primarily correlational in nature. A cursory examination of the data was completed through calculation of a correlation matrix between all study variables. Paired samples t-tests were employed to compare the PCL-R and CATS and examine for any significant differences in the prediction of violent recidivism, as measured by their use within the VRAG. An analysis of covariance (ANCOVA) was used to examine any differences between racial groups on the risk assessment measures while statistically controlling for the effect of other related covariates. In addition to the results of the correlation matrix, two one-way analyses of variance (ANOVAs) were performed to determine if race was significantly related to recommendations regarding level of security and restrictiveness.

Data Analysis

General descriptive statistics were calculated, including the mean and standard deviation of the subjects' current age, age at index offense, years incarcerated, and years of education.

Frequencies and percentages were calculated for race (African-Americans or Caucasians), type of violent offense (sexual versus non-sexual violence), and recommendation for level of security and restrictiveness. Means and standard deviations for risk assessment scores by race were also calculated. Hypotheses were tested utilizing correlational analyses, paired samples t-tests, two one-way independent ANOVAs, and an ANCOVA.

CHAPTER 3

RESULTS

This chapter will present the findings of this study as they address the prediction of risk, the generalizability of risk assessment instruments across racial groups, and racial differences in recommendations regarding level of security and restrictiveness.

Intercorrelation of Study Variables

Correlations related to the PCL-R, the CATS, the VRAG calculated with the PCL-R (VRAG-P), the VRAG calculated with the CATS (VRAG-C), and recommendations regarding level of security and restrictiveness are addressed directly, as well as other correlations of importance and statistical significance. For all other correlations, refer to Table 2.

The correlation between the PCL-R and CATS was strong ($r = .52$, $p < .001$). A very strong correlation was also found between the VRAG-P and VRAG-C ($r = .964$, $p < .001$). As for the recommendation regarding level of security and restrictiveness, all risk assessment instruments were significantly correlated. Strong correlations were evidenced between the recommendation regarding level of security and the PCL-R *(*$r = -.42$, $p < .001$), the CATS ($r = -.22$, $p < .02$), and both the VRAG-P ($r = -.41$, $p < .001$) and VRAG-C ($r = .36$; $p < .001$). This indicated that as psychopathy scores on the PCL-R or CATS increased, or the risk of violent recidivism increased as measured by the VRAG-P or VRAG-C, the recommendation for level of security was more likely to be "no change" versus change to lessened security or increased

privileges. It is worthy of note that race was not correlated with recommendations regarding level of security and restrictiveness ($r = .09$, $p = .35$). This is discussed in greater detail below.

Other correlations worthy of note include the relationship between race and type of index offense ($r = .19$, $p < .05$). This indicates a higher percentage of African American subjects (25.5%) were incarcerated for sexually violent offenses than Caucasian subjects (10.8%).

Table 2

The Correlations and Level of Significance of Study Variables for All Patients

	Race	Years of Education	Months Incarcerated	Age at Index Offense	Type of Violent Offense	PCL-R	VRAG-P Score	Recom-mendation	CATS	VRAG-C Score
Age	.054 $p = .556$	.049 $p = .595$	.426** $p = .000$	.770** $p = .000$	.085 $p = .358$	-.020 $p = .827$	-.377** $p = .000$	.102 $p = .267$	-.239** $p = .009$	-.459** $p = .000$
Race		-.078 $p = .395$	.046 $p = .618$	-.011 $p = .901$	.193* $p = .035$	.100 $p = .278$	-.005 $p = .957$	.087 $p = .346$	.073 $p = .429$	-.009 $p = .923$
Years of Education			.058 $p = .526$	.071 $p = .442$	-.077 $p = .400$	-.207* $p = .024$	-.312** $p = .001$	-.042 $p = .645$	-.314** $p = .000$	-.347** $p = .000$
Months Incarcer-ated				-.135 $p = .142$	.046 $p = .620$	-.093 $p = .313$	-.150 $p = .101$	.125 $p = .173$	.005 $p = .957$	-.140 $p = .127$
Age at Index Offense					-.032 $p = .731$	-.020 $p = .828$	- .361** $p = .000$	.079 $p = .389$	-.284** $p = .002$	-.450** $p = .000$
Type of Violent Offense						.106 $p = .250$	.099 $p = .280$	-.086 $p = .348$	.025 $p = .787$	.047 $p = .612$
PCL-R Score							.772** $p = .000$	-.421** $p = .000$	.517** $p = .000$	.653** $p = .000$
VRAG-P Score								-.408** $p = .000$	.659** $p = .000$	.964** $p = .000$
Recom-mendation									-.215* $p = .019$	-.356** $p = .000$
CATS										.748** $p = .000$

Note: ** Correlation is significant at the .01 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

Results indicate strong relationships for several other study variables. Age was strongly correlated with the CATS (r = -.24, p < .01) and both the VRAG-P and VRAG-C (r = -.38, r = -.46, respectively; p < .001 for both r values). Age at index offense strongly correlated with the same measures, including the CATS (r = -.28, p < .01) and both the VRAG-P and VRAG-C (r = -.36, r = -.45, respectively; p < .001 for both r values). In contrast, the PCL-R did not evidence a significant relationship with either age (r= -.20, p = .83) or age at index offense (r = -.20, p = .83). These results indicate that as age and age at index offense increased, level of psychopathy, as measured by the CATS, and risk of violent recidivism, as measured by the VRAG-P and VRAG-C, decreased. Years of education strongly negatively correlated with all risk assessment measures, including the PCL-R (r= -.21, p < .03), the CATS (r= -.31, p < .001), and both VRAG-P (r= -.31, p < .01) and VRAG-C (r = -.35, p < .001). The correlation between years of education and the PCL-R was not as strong as the correlation with the CATS, VRAG-P, and VRAG-C. These results indicate that as years of education increased, level of psychopathy, as measured by the CATS and PCL-R, and level of risk of violent recidivism, as measures by the VRAG-P and VRAG-C, decreased. Based on these results, it was determined these variables (age, age at index offense, and years of education) were significantly related to risk assessment scores and therefore, were included as covariates in subsequent analyses.

Comparison of Measures of Psychopathy

To determine if the CATS and PCL-R performed differently when employed as part of the VRAG, paired samples t-tests were conducted for the entire sample and on both racial groups. For the entire sample, the VRAG-P and VRAG-C scores were significantly correlated (r = .96, p < .001). The mean difference between the VRAG-P and VRAG-C total scores was .98 (SD = 2.90). This difference between VRAG scores, based on the index of psychopathy, was

significant ($t = 3.68$, df = 119, $p < .001$, two-tailed). This indicates that violence risk scores on the VRAG were significantly different when the CATS was employed as the index of psychopathy versus the PCL-R. Specifically, VRAG scores calculated using the CATS were significantly lower than VRAG scores calculated using the PCL-R. Furthermore, the category of risk, as defined by the VRAG, was calculated for all subjects based on both the VRAG-P score and VRAG-C score. As discussed above, the category of risk is based on the VRAG score and provides probabilities of violent recidivism at seven-year and ten-year intervals. The mean difference between categories of risk, albeit small ($m = .18$, $SD = .68$), was also significantly different based on the index of psychopathy used ($t = 3.15$ df = 119, $p < .01$, two-tailed). This further suggests significant differences in predicted level of risk, as measured by the VRAG, when using the CATS versus the PCL-R.

For African-American subjects, the VRAG-P and VRAG-C scores were significantly correlated as well ($r = .90$, $p < .001$). The mean difference between the VRAG-P and VRAG-C total scores was .24 ($SD = .64$). This difference was also significant ($t = 2.75$, df = 54, $p < .01$, two-tailed). As for Caucasian subjects, the VRAG-P and VRAG-C scores were significantly correlated, as well ($r = .94$, $p < .001$). The mean difference between the VRAG-P and VRAG-C total scores was .12 ($SD = .60$). While the mean difference between VRAG-P and VRAG-C scores was significant for African-American subjects, it was not significantly different for Caucasian subjects ($t = 1.66$, df = 64, $p = .10$, two-tailed). See Table 3 for the paired samples t-test summary.

Table 3

Paired Samples T-Tests for Total Sample, African-American, and Caucasian Subjects

	Mean Difference	Standard Deviation of Mean Difference	*t*	*df*	Sig. (2-tailed)
African-American (N = 55)	.25	.64	2.75	54	$p = .01$
Caucasian (N = 65)	.12	.60	1.65	64	$p = .10$
Total (N = 120)	.98	2.90	3.68	119	$p = .000$

Risk Assessment Performance by Race

To determine if there were differences in risk assessment scores between racial groups, an ANCOVA was used. Age, age at index offense, and years of education were included as covariates given their strong relationship with risk assessment scores. There was no significant difference between Caucasian and African American subjects on mean PCL-R ($F = .878$, $p > .05$), CATS ($F = .355$, $p > .05$), VRAG-P ($F = .039$, $p > .05$), or VRAG-C scores ($F = .078$, $p > .05$). The mean PCL-R score for African-American subjects was 20 ($SD = 7.75$) and the mean score for Caucasian subjects was 18.43 ($SD = 7.96$). The mean CATS score for African-American subjects was 3.05 ($SD = 2.13$) and the mean score for Caucasian subjects was 2.74 ($SD = 2.21$). For the VRAG-P, African-American subjects received a mean score of 3.89 ($SD = 10.05$) and Caucasian subjects received a mean score of 4.00 ($SD = 11.59$). For the

VRAG-C, African-American subjects received a mean score of 2.87 (*SD* = 9.61) and Caucasian subjects received a mean score of 3.06 (*SD* = 11.48). See Table 4 for the ANCOVA summary.

Table 4

ANCOVA Results for Risk Assessment Scores by Race

	Mean scores for African-Americans (N= 55)	Mean scores for Caucasian (N = 65)	*F*	Sig.
PCL-R	20.00 (*SD*=7.75)	18.43 (*SD*=7.96)	.878	.351
VRAG-P	3.89 (*SD*=10.05)	4.00 (*SD*=11.59)	.039	.843
CATS	3.05 (*SD*=2.13)	2.74 (*SD*=2.21)	.355	.552
VRAG-C	2.87 (*SD*=9.61)	3.06 (*SD*=11.48)	.078	.780

Recommendations for Level of Security and Restrictiveness by Race

Based on the results of the correlation matrix (see Table 2), it was determined that recommendations regarding level of security and restrictiveness were not related to racial group membership ($r = .09$, $p = .35$). As discussed above, results of the correlation matrix did indicate that recommendations were significantly related to risk assessment scores. To further explore this relationship, two one-way ANOVAs were completed, one for African-American subjects and one for Caucasian subjects. Recommendations to reduce security, either by transfer to a less secure setting or an increase in privileges, were consistent with significant reductions in risk of

violent recidivism, as measured by the VRAG-P and VRAG-C. This was found for both African-American and Caucasian subjects.

The mean VRAG-P score for African-American subjects who were not recommended for a reduction in security (m = 8.91, SD = 10.19) was significantly higher than for African-American subjects who were recommended for a reduction in security (m = .28, SD = 8.36; F (1) = 11.86, p <.01). The mean VRAG-P score for Caucasian subjects who were not recommended for a reduction in security (m = 8.08, SD = 10.69) was also significantly higher than for Caucasian subjects who were recommended for a reduction in security (m = 1.07, SD = 10.77; F (1) = 11.70, p <.01). As for the VRAG-C, the mean score for African-American subjects who were not recommended for a reduction in security (m = 7.00, SD = 9.57) was significantly higher than for African-American subjects who were recommended for a reduction in security (m = -.09, SD = 8.62; F (1) = 8.27, p <.01). The mean VRAG-C score for Caucasian subjects who were not recommended for a reduction in security (m = 6.72, SD = 10.74) was also significantly higher than for Caucasian subjects who were recommended for a reduction in security (m = -1.48, SD = 10.89; F (1) = 9.27, p <.01). See Tables 5 and 6 for the full ANOVA summaries.

Table 5

One-way ANOVA Results for Caucasian Subjects

	Mean scores for recommended (N= 29)	Mean scores for not recommended (N = 36)	*F*	Sig.
VRAG-P	-1.07 (*SD*=10.77)	8.08 (*SD*=10.69)	11.696	.001
VRAG-C	-1.48 (*SD*=10.89)	6.72 (*SD*=10.74)	9.265	.003

Table 6

One-way ANOVA Results for African-American Subjects

	Mean scores for Recommended (N= 32)	Mean scores for not recommended (N = 23)	*F*	Sig.
VRAG-P	.28 (*SD*=8.36)	8.91 (*SD*=10.19)	11.864	.001
VRAG-C	-.09 (*SD*=8.62)	7.00 (*SD*=9.57)	8.272	.006

Note: "Recommended" refers to those subjects who were recommended for an increase in privileges or transfer to a less secure setting. "Not recommended" refers to those subjects who were not recommended for an increase in privileges or transfer to a less secure setting.

Descriptive statistics were also used to better understand the breakdown of recommendations for level of security and restrictiveness by race. Approximately 55% of Caucasian subjects and 40% of African-American subjects were not recommended for a reduction in security. Of those who were recommended for a reduction in security, the most common recommendation was for increased privileges on grounds. This was found for both Caucasian and African-American subjects (32.3% and 36.4%, respectively). See Table 7 for a full breakdown of recommendations by race.

Table 7

Recommendations for Level of Security and Restrictiveness by Race

	Mean scores and percentages for African-Americans (N= 55)	Mean scores and percentages for Caucasians (N = 65)
No change	23 (41.8%)	36 (55.4%)
Change	32 (58.2%)	29 (44.6%)
Increased privileges on grounds	20 (36.4%)	21 (32.3%)
Increased privileges off grounds	2 (3.6%)	0 (0%)
Transfer to less secure unit	10 (18.2%)	5 (7.7%)
Supervised community release	0 (0%)	3 (4.6%)

CHAPTER 4

DISCUSSION

Violence risk assessment is an essential practice within forensic psychology and has received increasing research attention over the past several decades (Quinsey et al., 2006). This study examined three different actuarial assessments often used within violence risk assessment: the Violence Risk Appraisal Guide (VRAG), the Psychopathy Checklist-Revised (PCL-R), and the Childhood and Adolescent Taxon Scale (CATS). Developed as a shorter and more efficient alternative to the PCL-R, the validation of the CATS as an equivalent alternative to the PCL-R is an important step in its recognition as a valid and useful tool in violence risk prediction. Furthermore, it is important all assessments be generalizable to a variety of populations. Given that the majority of correctional inmates and forensic psychiatric patients are racial minorities, most commonly African-American, any potential bias in risk assessment instruments, or the scoring or application of these assessments, carries with it even greater implications regarding their use in forensic settings.

This study was an extension of previous research completed by Bolton (2006) in which he examined similar questions about the comparability of the PCL-R and CATS, as well as the generalizability of these assessments between African-American and Caucasian patients. This study's results diverged from his in several ways. Addressing the first hypothesis, results of this study show the CATS is not an equivalent alternative to the PCL-R when used within the

VRAG. The CATS produced VRAG scores that, on average, were significantly lower than VRAG scores calculated with the PCL-R. While the mean difference in scores seems minimal (M = 0.98), it could be problematic. This is a difference of almost one point, which can differentiate someone between one category of risk and another. When directly measuring differences in category of risk, as defined by the VRAG, results were also statistically significant, albeit quite small.

Overall, results suggest the VRAG may predict lower levels of risk when it employs the CATS as its index of psychopathy. As the PCL-R is the more widely researched, accepted, and utilized instrument, it could be argued these results indicate the CATS, when used in the VRAG, leads to an underestimation of risk of violent recidivism. While more conservative estimates of violence risk are often valued and encouraged, as risk assessment is an imprecise science and carries with it serious implications for an individual's freedom, underestimating risk of violence is problematic as well, and can carry serious implications for public safety. It could also be argued that while the CATS and PCL-R are scoring the same construct (psychopathy), as evidenced by their strong correlation with each other, they may be scoring that construct differently, as VRAG-P and VRAG-C scores were significantly different and the only difference between scores was the index of psychopathy used. This could be reflective of the differences in the theoretical foundation of the tests, as the PCL-R is based a dimensional model of psychopathy, whereas the CATS is based on a categorical model. This difference is not problematic in and of itself, but it becomes an issue when the differences in scores are resulting in significantly different outcomes when used within the VRAG.

These results contraindicate previous findings, including the results of the original study this research is extending. Further research is warranted, though, before firm conclusions can be

made, as previous studies have found the CATS to be an appropriate alternative to the PCL-R (Belmore & Quinsey, 1994; Harris, Rice, & Quinsey, 1993, 1994; Erickson et al., 1999; Lalumiere & Quinsey, 1996; Lister, 2011; McHattie, Hills, Smiley, & MacKenzie, 1999; Quinsey, Book, & Skilling, 2004; Seto, Khattar, Lalumiere, & Quinsey, 1997). It is also important to note the correlation between the CATS and PCL-R; the VRAG-P and VRAG-C; and the CATS and PCL-R to the VRAG scores. The significant relationship between the CATS and PCL-R lends more evidence to the concurrent validity of the CATS and that all instruments are measuring similar variables, which ultimately relate to risk of violent recidivism.

When the VRAG-P and VRAG-C scores were compared by race, the results for African-Americans were similar to the overall results but the results for Caucasian subjects were not. While the mean VRAG-P and VRAG-C scores were significantly different for African-Americans, they were not significantly different for Caucasians. This suggests that using the CATS as the index of psychopathy within the VRAG is potentially problematic when evaluating African-Americans. It is important to note that there was no other evidence of race being related to any risk assessment scores, including the CATS, or any other study variable, for that matter. This suggests that while the instruments do not perform differently based on race, the VRAG does perform differently when using different measures of psychopathy, particularly on African-American subjects. This potentially suggests the CATS is inappropriate to use as part of the VRAG when assessing African American individuals.

As mentioned above, statistical analyses indicated all risk assessment instruments, including the CATS, PCL-R, VRAG-P, and VRAG-C, performed similarly with different racial groups, which supports this study's second hypothesis. This lends further evidence to the growing body of research that supports the use of these instruments with minority populations,

specifically African-Americans. However, given the previously discussed results, it seems that the use of the CATS in the VRAG may warrant caution, particularly with African-Americans.

The final hypothesis of this study was not supported, as race was not significantly related to recommendations regarding level of security and restriction. This is contradictory to Bolton's (2006) original findings. These results are positive, though, as they suggest fair and unbiased decision making in the recommendations that were made. Furthermore, results indicate the recommendations were significantly related to risk assessment scores. Those subjects, both African-American and Caucasian, who did not receive reductions in security had higher levels of risk for violent recidivism, as measured by the VRAG-P and VRAG-C. Those subjects, both African-American and Caucasian, who received reduction in security had lower levels of risk. These results confirm what would be expected, which is that risk assessment scores should have bearing on recommendations regarding level of security and restrictiveness, with those who are higher risk being more secured and those who are lower risk being less secured. The difference in results between this study and Bolton's original research seem to reflect a bias in the groups making the decisions versus bias in the instruments themselves.

Other significant findings include the strong relationship between risk assessment scores and age, age at index offense, and years of education. These are important, albeit not surprising, as all three have been repeatedly shown to relate to risk of violent recidivism (Quinsey et al., 2006). Specifically, as age increases, risk decreases, especially those aged 39 or older. This also applies to age at index offense. Education has also been cited as a protective factor that reduces risk of recidivism. Finally, the CATS negatively correlated to age at index offense. As the CATS score increased, age at index offense decreased. This could be viewed as evidence that

the CATS is measuring psychopathic traits that begin at a young age, which is the intended purpose of the instrument.

There are several strengths and limitations to the current study. First, the major strength of this study is the increased sample size (N = 120). Bolton's (2006) previous research in this area was hindered by inadequate sample size (N = 40). Another strength of this study is that it adds further research evidence to an under-researched area of forensic psychology by examining the utility of the CATS and other actuarial risk assessment instruments. There is even less research on the generalizability of these instruments for minority offenders and potential racial bias in the scoring and application of actuarial risk assessments.

There are also several limitations in this study. First, there were no data collected regarding the predictive validity of the instruments used. What was examined was the comparability of the PCL-R and CATS as indexes of psychopathy in the VRAG, and differences in scores across racial groups. These instruments could be flawed and misclassify individuals at risk or not at risk, but as long as they all consistent, it would not affect the results of this study. This is why further research in areas regarding the predictive validity of these assessments, particularly the newer CATS, is important. Additionally, comparisons of this research to the original study (Bolton, 2006) are limited by the fact that data was collected at different sites. While the sites are similar in nature, in that they house adult male forensic inpatients who are criminally committed, they are located in different areas of the country. The original site of study was in the rural South, whereas the site of study for this research was located in an urban area of the Midwest. Additionally, Bolton's population seemed to be primarily African-American, whereas this investigator had to oversample Caucasians to get enough African-American subjects. Due to differences in sites and locations, there may be differences in

attitudes and behaviors, both at the staff and patient level, which may affect results, such as the way recommendations are made regarding security and restrictiveness.

Future recommendations and directions for research include continued research on the CATS to understand its usefulness as a substitute for the PCL-R when calculating VRAG scores. While the CATS is a much shorter and more time efficient tool than the PCL-R, this study did not find evidence for its use as an equivalent alternative to the PCL-R, although other studies have. There are additional issues of concern related to the use of the CATS that could be further explored and studied. The CATS is limited, as it only accounts for factors related to childhood and adolescence. The PCL-R, while more laborious and time-consuming, provides such a wealth of information that many consider invaluable to the assessment of psychopathy and risk of violent recidivism. The PCL-R also takes into consideration characterological factors that many also consider essential to the assessment of psychopathy. For its use in the VRAG, though, Harris et al. (1994) found that the behavioral factors on the PCL-R, which are reflected in the CATS, are the most important elements when it comes to predicting risk of violent recidivism. The PCL-R also reflects the widely accepted dimensional model of psychopathy, whereas the taxometric model of the CATS is controversial and not as well accepted. This is likely part of the reason this tool is not more widely used. For these reasons, there is a need for more research to better understand and qualify this potentially useful measure.

Further research is also needed on the validity and generalizability of violence risk assessment instruments for minority offenders. While each instrument performed similarly between racial groups, there was potential evidence that using the CATS within the VRAG produced significantly different results for African-Americans, albeit in the direction of less risk. While most minorities within forensic populations are African-American, research on the

applicability of these assessment instruments to other racial minority populations (e.g., Latino, Asian) and female offenders would be beneficial. Given the high number of minority individuals in this population, more research examining racial disparities in forensic evaluations and forensic mental health treatment is imperative. There is a general need for research looking at samples that reflect the full diversity of our criminal justice system.

REFERENCES

Belmore, M.F., & Quinsey, V.L. (1994). Correlates of psychopathy in a non-institutional sample. *Journal of Interpersonal Violence, 9,* 339-349.

Binderman, M.R. (2001). Understanding VRAG: The violence risk assessment guide. *Forensic Examiner, 10*(1), 28-31.

Campbell, M.A., French, S., & Gendreau, P. (2009). The prediction of violence in adult offenders: A meta-analytic comparison of instruments and methods of assessment. *Criminal Justice and Behavior, 36*(6), 567-590.

Cooke, D.J., Kosson, D.S., & Michie, C. (2001). Psychopathy and ethnicity: Structural, item, and test generalizability of the Psychopathy Checklist – Revised (PCL-R) in Caucasian and African-American participants. *Psychological Assessment, 13*(4), 531-542.

Cooke, D.J., Michie, C., & Skeem, J. (2007). Understanding the structure of the Psychopathy Checklist – Revised: An exploration of methodological confusion. *British Journal of Psychology, 190,* 39-50.

Dolan, M., & Doyle, M. (2000). Violence risk prediction: Clinical and actuarial measures and the role of the Psychopathy Checklist. *British Journal of Psychiatry, 177,* 303-311.

Douglas, K.S., Yeomans, M., & Boer, D.P. (2005). Comparative validity analysis of multiple measures of violence risk in a sample of criminal offenders. *Criminal Justice and Behavior, 32*(5), 479-510.

Erickson, K., Spidel, A., Giesbrecht, K., Hemphill, J., & Herve, H. (1999). The Hare PCL-R and the Childhood and Adolescent Taxon Scale (CATS) [Abstract]. *Canadian Psychology, 40*(2a), 108.

Guerino, P., Harrison, P.M., & Sabol, W.J. (2011). *Prisoners in 2010*. (Report No. NCJ 236096). Retrieved from Bureau of Justice Statistics: http://bjs.ojp.usdoj.gov/content/pub/pdf/p10.pdf.

Gendreau, P., Goggin, C., & Smith, P. (2002). Is the PCL-R really the "unparalleled" measure of offender risk?: A lesson in knowledge cumulation. *Criminal Justice and Behavior, 29*(4), 397-426.

Glover, A., Nicholson, D., Hemmati, T., Bernfeld, G., & Quinsey, V. (2002). A comparison of predictors of general and violent recidivism among high-risk federal offenders. *Criminal Justice and Behavior, 29*(3), 235-249.

Gray, N.S., Fitzgerald, S., Taylor, J., MacCullough, M.J., & Snowden, R.J. (2007). Predicting future reconviction in offenders with intellectual disabilities: The predictive validity of VRAG, PCL-SV, and the HCR-20. *Psychological Assessment, 19*(4), 474-479.

Hall, H.V. (2007). *Forensic psychology and neuropsychology for criminal and civil cases.* Boca Raton, FL: CRC Press.

Hare, R.D. (1980). A research scale for the assessment of psychopathy in criminal populations. *Personality and Individual Differences, 1*, 111-119.

Hare, R.D. (1991). *The Hare Psychopathy Checklist-Revised manual*. New York: Multi-Health Systems, Inc.

Hare, R.D. (1998). The Hare PCL-R: Some issues concerning its use and misuse. *Legal and Criminological Psychology, 3*(1), 99-119.

Hare, R.D. (1999). Psychopathy as a risk factor for violence. *Psychiatric Quarterly, 70*(3), 181-197.

Hare, R.D., Clark, D., Grann, M., & Thornton, D. (2000). Psychopathy and the predictive validity of the PCL-R: An international perspective. *Behavioral Sciences and the Law, 18,* 623-645.

Hare, R., Harpur, T., Hakstian, A., Forth, A., Hart, S., & Newman, J. (1990). The revised Psychopathy Checklist: Reliability and factor structure. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2*(3), 338-341.

Harris, G.T., Rice, M.E., & Cormier, C.A. (1991). Psychopathy and violent recidivism. *Law and Human Behavior, 15,* 625-637

Harris, G.T., Rice, M.E., & Cormier, C.A. (2002). Prospective replication of the Violence Risk Appraisal Guide in predicting violent recidivism among forensic patients. *Law and Human Behavior, 26*(4), 377-394.

Harris, G.T., Rice, M.E., & Quinsey, V.L. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior, 20*(4), 315-335.

Harris, G.T., Rice, M.E., & Quinsey, V.L. (1994). Psychopathy as a taxon: Evidence that psychopaths are a discrete class. *Journal of Counsulting and Clinical Psychology, 62*(2), 387-397.

Hastings, M.E., Krishnan, S., Tangney, J.P., & Stuewig, J. (2011). Predictive and incremental validity of Violence Risk Appraisal Guide scores with male and female jail inmates. *Psychological Assessment, 23*(1), 175-183.

Hemphill, J.F., Hare, R.D., & Wong, S. (1998). Psychopathy and recidivism: A review. *Legal and Criminological Psychology,3*(1), 139-170.

Hemphill, J.F., & Hare, R.D. (2004). Some misconceptions about the Hare PCL-R and risk assessment: A reply to Gendreau, Goggin, and Smith. *Criminal Justice and Behavior, 31*(2), 203-243.

Hilton, N.Z., & Simmons, J.L. (2001). The influence of actuarial risk assessment in clinical judgments and tribunal decisions about mentally disordered offenders in maximum security. *Law and Human Behavior, 25*(4), 393-408.

Kosson, D.S., Smith, S.S., & Newman, J.P. (1990). Evaluating the construct validity of psychopathy in Black and White male inmates: Three preliminary studies. *Journal of Abnormal Psychology, 3,* 250-259.

Kroner, D.G., & Mills, J.F. (2001). The accuracy of five risk appraisal instruments in predicting institutional misconduct and new convictions. *Criminal Justice and Behavior, 28*(4), 471-489.

Kroner, C., Stadtland, C., Eidt, M., & Nedopil, N. (2007). The validity of the Violence Risk Appraisal Guide (VRAG) in predicting criminal recidivism. *Criminal Behaviour and Mental Health, 17*(2), 89-100.

Lynn, R. (2002). Racial and ethnic differences in psychopathic personality. *Personality and Individual Differences, 32,* 273-316.

Lynn, R. (2003). Race differences in psychopathic personality: A reply to Skeem and Zuckerman. *Personality and Individual Differences, 35,* 1471-1477.

McHattie, L., Hills, A., Smiley, C., & MacKenzie, R. (1999). Does the CATS predict recidivism as well as the PCL-R? [Abstract]. *Canadian Psychology, 40*(2a), 109.

Quinsey, V.L., Book, A., & Skilling, T.A. (2004). A follow-up of deinstitutionalized men with intellectual disabilities and histories of antisocial behavior. *Journal of Applied Research in Intellectual Disabilities, 17,* 243-253.

Quinsey, V.L., Harris, G.T., Rice, M.E., & Cormier, C.A. (2006). *Violent offenders: Appraising and managing risk* (1st ed.). Washington, DC: American Psychological Association.

Salekin, R., Rogers, R., & Sewell, K. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist—Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice, 3*(3), 203-215.

Skeem. J.L., Edens, J.F., Camp, J., & Colwell, L.H. (2004). Are there ethnic differences in levels of psychopathy? A meta-analysis. *Law and Human Behavior, 28*(5), 505-527.

Skeem, J.L., Edens, J.F., Sanford, G.M., & Colwell, L.H. (2003). Psychopathic personality and racial/ethnic differences reconsidered: A reply to Lynn (2002). *Personality and Individual Differences, 35*, 1439-1462.

Skilling, T.A., Quinsey, V.L., & Craig, W.M. (2001). Evidence of a taxon underlying serious antisocial behavior in boys. *Criminal Justice and Behavior, 28*(4), 450-470.

Snowden, R., Gray, N., & Taylor, J. (2010). Risk assessment for future violence in individuals from an ethnic minority group. *The International Journal of Forensic Mental Health*, *9*(2), 118-123.

Sullivan, E.A., Abramowitz, C.S., Lopez, M., & Kosson, D.S. (2006). Reliability and construct validity of the Psychopathy Checklist-Revised for Latino, European American, and African American male inmates. *Psychological Assessment, 18*(4), 382-392.

Swogger, M.T., Walsh, Z., & Kosson, D.S. (2008). Psychopathy subtypes among African American county jail inmates. *Criminal Justice and Behavior, 35*(12), 1484-1499.

Vitacco, M.J., Erickson, S.K., Kurus, S., & Apple, B.N. (2012). The role of the Violence Risk Appraisal Guide and Historical, Clinical, Risk-20 in U.S. courts: A case law survey. *Psychology, Public Policy, and Law, 18*(3), 361-391.

Walters, G.D. (2006). Risk-appraisal versus self-report in the prediction of criminal justice outcomes: A meta-analysis. *Criminal Justice and Behavior, 33*(3), 279-304.

APPENDIX A: VIOLENCE RISK APPRAISAL GUIDE

(VRAG; Quinsey, Harris, Rice, & Cormier, 2006)

1. Lived with both biological parents to age 16 (except for death of parent):
   - Yes ..... -2
   - No..... +3

2. Elementary School Maladjustment:
   - No Problems..... -1
   - Slight (Minor discipline or attendance) or Moderate Problems..... +2
   - Severe Problems (Frequent disruptive behavior and/or attendance or behavior resulting in expulsion or serious suspensions) ..... +5

3. History of alcohol problems (Check if present):
__ Parental Alcoholism __ Teenage Alcohol Problem __ Adult Alcohol Problem
__ Alcohol involved in prior offense __ Alcohol involved in index offense

   - No boxes checked..... -1
   - 1 or 2 boxes checked 0
   - 3 boxes checked ..... +1
   - 4 or 5 boxes checked ..... +2

4. Marital status (at the time of or prior to index offense):
   - Ever married (or lived common law in the same home for at least six months) ..... -2
   - Never married..... +1

5. Criminal history score for nonviolent offenses prior to the index offense (from the Cormier-Lang system, see below)
   - Score 0 ..... -2
   - Score 1 or 2..... 0
   - Score 3 or above ..... +3

6. Failure on prior conditional release (includes parole or probation violation or revocation, failure to comply, bail violation, and any new arrest while on conditional release):

No.....0
Yes..... +3

7. Age at index offense

Enter Date of Index Offense: ___/___/_____
Enter Date of Birth: ___/___/_____
Subtract to get Age:

39 or over ..... -5
34 - 38 ..... -2
28 - 33 ..... -1
27 0
26 or less..... +2

8. Victim Injury (for index offense; the most serious is scored):
*NOTE: Admission for the gathering of forensic evidence only is NOT considered as either treated or hospitalized; ratings should be made based on the degree of injury.

Death..... -2
Hospitalized.....0
Treated and released..... +1
None or slight (includes no victim)..... +2

9. Any female victim (for index offense)

Yes..... -1
No (includes no victim)..... +1

10. Meets DSM criteria for any personality disorder (must be made by appropriately licensed or certified professional)

No..... -2
Yes..... +3

11. Meets DSM criteria for schizophrenia (must be made by appropriately licensed or certified professional)

Yes ..... -3
No..... +1

12a. Psychopathy Checklist score (if available, otherwise use item 12b. CATS score).....
*NOTE: Note: If there are two or more PCL scores, average the scores.

4 or under ..... -3
5 – 9..... -3
10-14 ..... -1
15-24 0
25-34 ..... +4
35 or higher ..... +12

12. b. CATS score (from the CATS worksheet)
0 or 1 ..... -3
2 or 3 0
4 ..... +2
5 or higher ..... +3

12. WEIGHT (Use the highest circled weight from 12 a. or 12 b.) ....._____

TOTAL VRAG SCORE (SUM CIRCLED SCORES FOR ITEMS 1 – 11 PLUS THE WEIGHT FOR ITEM 12): _____

CORMIER – LANG CRIMINAL HISTORY SCORES FOR NONVIOLENT OFFENSES

Instructions: Include ALL ARRESTS for ALL COUNTS for the following criminal offenses, including juvenile offenses. Write down the number of times the offender has been arrested (or the number of separate counts charged, which ever is highest) for each type of offense. Multiply that number by the weight in the column on the right and write that number in the blank. Total all of the resulting scores to obtain the total Cormier-Lang Criminal History Score.

Offense	Arrests/Charges	Weight Score
Robbery (bank, store).....	_____	.....X 7 = _____
Robbery (purse snatching)	_____	.....X 3 = _____
Arson and fire setting (church, house, barn)	_____	.....X 5 = _____
Arson and fire setting (garbage can).....	_____	.....X 1 = _____
Threatening with a weapon	_____	.....X 3 = _____
Threatening (uttering threats).....	_____	.....X 2 = _____
Theft over * (includes car theft and possession stolen prop)	_____	.....X 5 = _____
Mischief to public or private property over *	_____	.....X 5 = _____
Break and enter and commit indictable offense (burglary)	_____	.....X 2 = _____
Theft under *(includes possession stolen goods under)	_____	.....X 1 = _____
Mischief to public or private property under * (also public)	_____	.....X 1 = _____
Break and enter (includes break and enter with intent)	_____	.....X 1 = _____
Fraud (extortion, embezzlement)	_____	.....X 5 = _____
Fraud (forged check, impersonation)	_____	.....X 1 = _____

Possession of a prohibited or restricted weapon ..... _____.....X 1 = _____
Procuring a person for, or living on the avails of prostitution ..... _____.....X 1 = _____
Trafficking in narcotics..... _____.....X 1 = _____
Dangerous driving, impaired driving (including DWI)..... _____.....X 1 = _____
Obstructing peace officer (including resisting arrest)..... _____.....X 1 = _____
Causing a disturbance..... _____.....X 1 = _____
Wearing a disguise with the intent to commit an offense..... _____.....X 1 = _____
Indecent exposure..... _____ …..X2 = _____
TOTAL CORMIER – LANG NONVIOLENT SCORE .... _____

APPENDIX B: CORRELATION OF VRAG ITEMS WITH VIOLENT RECIDIVISM

(Quinsey, Harris, Rice, & Cormier, 2006)

VARIABLES	*CORRELATIONS*
Hare PCL-R Score	.34
Elementary School Maladjustment	.31
DSM Diagnosis of Personality Disorder	.26
Age at Index Offense	-.26
Lived with Both Parents to Age 16 (except for parental death)	.25
Failure on Prior Conditional Release	.24
Non-Violent Offense Score (CLCH)	.20
Marital Status	.18
DSM Diagnosis of Schizophrenia	-.17
Victim Injury for Index Offense (score most serious)	-.16
History of Alcohol Abuse	.13
Female Victim for Index Offense	-.11

APPENDIX C: VIOLENCE RISK APPRAISAL GUIDE (VRAG) SCORES AND THE CORRESPONDING 7- AND 10-YEAR PROBABILITIES OF VIOLENT RECIDIVISM

(Quinsey, Harris, Rice, & Cormier, 2006)

	VRAG SCORE	7-YEAR PROBABILITY	10-YEAR PROBABILITY
1.	≤ -22	.00	.08
2.	-21 to -15	.08	.10
3.	-14 to -8	.12	.24
4.	-7 to -1	.17	.31
5.	0 to +6	.35	.48
6.	+7 to +13	.44	.58
7.	+14 to +20	.55	.64
8.	+21 to +27	.16	.82
9.	≥ to +28	1.00	1.00

APPENDIX D: PSYCHOPATHY CHECKLIST-REVISED (PCL-R) ITEMS

(Hare, 1991)

Factor 1 Items:

1. Glibness/superficial charm
2. Grandiose sense of self-worth
4. Pathological lying
5. Conning/manipulative
6. Lack of remorse or guilt
7. Shallow affect
8. Callous/lack of empathy
16. Failure to accept responsibility for actions

Factor 2 Items:

3. Need for stimulation/proneness to boredom
9. Parasitic lifestyle
10. Poor behavior controls
12. Early behavior problems
13. Lack of realistic, long-term goals
14. Impulsivity
15. Irresponsibility
18. Juvenile delinquency
19. Revocation of conditional release

Items that Load on Neither Factor:

11. Promiscuous sexual behavior
17. Many short-term marital relationships
20. Criminal versatility

APPENDIX E: CHILDHOOD AND ADOLESCENT TAXON SCALE (CATS) ITEMS

(Harris, Rice, & Quinsey, 1994)

1. Elementary School Maladjustment
   - No Problems 0
   - Slight (Minor discipline or attendance) or Moderate Problems 0
   - Severe Problems (Frequent disruptive behavior and/or attendance or behavior resulting in expulsion or serious suspensions) 1

2. Teenage Alcohol Problem:
   - No..... 0
   - Yes..... 1

3. Childhood Aggression Rating:
   - No Evidence of Aggression 0
   - Occasional Moderate Aggression.....0
   - Occasional or Frequent Extreme Aggression...1

4. More than 3 DSM Conduct Disorder symptoms (see below):
   - No..... 0
   - Yes..... 1

5. Ever suspended or expelled from school:
   - No 0
   - Yes.....1

6. Arrested under the age of 16:
   - No 0
   - Yes.....1

7. Parent alcoholism:
   - No 0
   - Yes.....1

8. Lived with both biological parents to age 16
(except for death of parents):

Yes.....0
No 1

TOTAL CATS SCORE: (Sum of Circled Scores 1 - 8) ___