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# Self-Reported Strengths and Weaknesses in the Prediction of Institutional Aggression

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Philadelphia College of Osteopathic Medicine

Department of Psychology

SELF-REPORTED STRENGTHS AND WEAKNESSES IN THE PREDICTION OF  
INSTITUTIONAL AGGRESSION

Sarah A. DeMarco

Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Psychology

June, 2014

**PHILADELPHIA COLLEGE OF OSTEOPATHIC MEDICINE  
DEPARTMENT OF PSYCHOLOGY**

**Dissertation Approval**

This is to certify that the thesis presented to us by Sarah DeMarco on the 4<sup>th</sup> day of June, 2014, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

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## Acknowledgements

I would first and foremost like to express my sincere gratitude toward my chair, Dr. Bruce Zahn for his hard work, compassion, and commitment to me and my success. He was there not only through the dissertation process, but also through the struggles of life that inevitably paralleled my studies. I would also like to extend my heartfelt appreciation to my second committee member, Dr. Petra Kottsieper. She has demonstrated a sincere care for me, not only as a student but as a person. Her guidance and advisement through the years has fostered my personal and professional growth. I would also like to thank my third committee member and mentor of my first forensic experience, Dr. Jenna Tinker. Her kindheartedness and clinical expertise helped me build a solid foundation as a developing psychologist. Thanks to the commitment of these three inspiring individuals, I persevered through the difficulties I have had to overcome in the years toward my degree. They have gone above and beyond the duties of academic advisors; and for that, I am sincerely grateful. I would also like extend a special thank you to my friends and family. Of note, to Lauren, whose support, guidance and most importantly, her friendship, will forever have a special place in my heart. Additionally, I am infinitely grateful for my Mother. She has been there for me since the beginning, believing in me all along. You are a true inspiration, an amazing mother, and a wonderful friend. Also, a special thank you to my boyfriend Joe, whose love, laughter, and support has been unconditional. I am so lucky to have you in my life. I would also like to thank my best friend Lisa. She stuck by me through it all and has been the one true friend in my life. Finally, this dissertation is dedicated to my Dad, who I miss more than words can describe. Your pride in me has and will continue to carry me through.

Your struggles have been the motivation behind my success. I help others because of how much I loved you.

## **Abstract**

Aggression on inpatient psychiatric units poses a multitude of issues not only for patients, but also for staff. Thus, the identification of dynamic risk factors that may increase and also of protective factors that may decrease the likelihood of a patient becoming aggressive is important. The current study sought to expand on the current literature by examining if there is a difference between self-perceived strengths and risk factors between aggressive and nonaggressive patients. More specifically, it was hypothesized that self-reported strengths would moderate the relationship between self-reported risk factors and institutional aggression (IA) in forensic and in civil psychiatric units at a state hospital. It was also hypothesized that patients from the forensic unit, or those transferred from the forensic to civil unit, would be more likely to engage in IA. To test these hypotheses, archival data were examined in a final sample of 300 participants. Findings revealed that when someone had at least one aggressive act, he or she was more likely to have reported at least one severe symptom or poor coping skill. However, further analysis revealed that self-reported protective factors, namely activities of daily living and cultural and religious considerations, did not moderate the relationship between self-reported risk factors, namely severe symptoms and poor coping, and IA. Finally, forensic patients were not found to be more likely to engage in IA. Low base rates are inherent to this area of research, thus future researchers might benefit from addressing this issue. Other suggestions for future research include the consideration of environmental factors specific to inpatient units that may have a direct impact on IA. Finally, it may be useful to use a valid and reliable measure to obtain self-reported risk and protective factors, which may improve the quality of findings.

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## **Chapter 1: Introduction**

### **Statement of the Problem**

Aggression is common within inpatient psychiatric settings and usually denotes behaviors that are directed toward the self via self-injurious behavior, or toward another person via physical assault, property damage, or verbal aggression (McDermott, Edens, Quanbeck, Busse, & Scott, 2008). Individuals who work in inpatient settings face the task of not only treating patients who are aggressive, but also of maintaining safety on the units (Carmel & Hunter, 1993; Martin & Daffern, 2006). Aggressive acts on an inpatient unit pose a serious threat to staff as well as to other patients (Nijman, Allertz, Merckelbach, Campt, & Ravelli, 1997). A clear understanding of the factors related to aggression within psychiatric institutions can aid in reducing the frequency of such behaviors by integrating such factors into treatment plans to begin reducing risk, starting from admission. This can be accomplished through early identification of factors that may increase or decrease the potential for aggressive acts while a patient is hospitalized.

There is a substantial body of literature that has identified risk factors associated with aggressive and violent behavior within different treatment settings (e.g., inpatient, corrections, community), such as a history of violence (Soliman & Reza, 2001), a history of substance abuse (El-Badri & Mellsop, 2006), less education, and a history of child abuse (Hoptman, Yates, Patalinjug, Wack, & Convit, 1999). Risk factors are characteristics that make it more likely that an individual will express a behavior. Such factors are typically static in nature, meaning they are historic and unchangeable. However, there is a paucity of research considering the role of clients' strengths, or protective factors, in increasing resilience and preventing violent incidents in inpatient

settings (De Ruiter & Nicholls, 2011; Wilson, Desmarais, Nicholls, & Brink, 2010). Protective factors are those that modify, ameliorate, or alter a person's response in a situation that may, in their absence, predispose an individual to a maladaptive outcome (Rutter, 1985). Converse to static risk factors, protective factors are typically dynamic in nature, meaning that they are amenable to change. Most research and measures of risk assessment have focused heavily on static factors. Yet, dynamic risk factors are considered to be essential to violence risk assessment (De Ruiter & Nicholls, 2011). Static risk factors are highly stable and more useful for long-term predictions, but dynamic factors may be more useful in short-term predictions as well as in daily treatment planning (De Ruiter & Nicholls, 2011). Thus, a focus on dynamic factors might be helpful in bridging this gap.

Traditionally, protective factors related to violence risk have been extensively explored in research with adolescents but significantly less in adults. Such established protective factors include having a positive self-concept, aspirations to attain positive personal goals, a large social network, and strong emotional support (Losel & Bliesener, 1994). Some researchers have begun to address those protective factors that exist with an adult population. For example, Ullrich and Coid (2011) identified the fact that social and emotional support, spare time spent with family or friends, involvement in religious activities, and closeness to others yielded protective effects for violence after release from prison. However, research on protective factors in the prediction of violence and aggression is sparse and exists largely in the general offender population. The literature is even more limited for adult psychiatric patients who are either forensically or civilly

committed (De Ruiter & Nichols, 2011). Thus, exploration of these factors in an adult inpatient population is warranted.

A current theoretical framework on protective factors for adult violence has not been established. However, some models have been developed in the adolescent literature. For example, Fergus and Zimmerman (2005) described this in the context of the resilience process in which risk and protective factors work in two ways: by helping to promote a positive outcome or to reduce or avoid a negative outcome. This model emphasizes the fact that protective factors can encompass both internal (e.g., prosocial attitudes) and external (e.g., social environmental) influences. Furthermore, Fitzpatrick (1997) proposed two models regarding the interplay of risk and protective factors in risk-taking youth (e.g., fighting). The first included a mediation model, which hypothesizes that protective factors act as mediators in reducing the negative effects that risk factors exert on behavior. The second is a buffering model, which suggests that risk factors have a negative impact in certain conditions, such as times when protective mechanisms are low or absent. In the examination of these models, results indicated support for the buffering hypothesis, particularly for older adolescents, when in the absence of protective factors, certain risk factors have heightened effects in predicting negative externalizing behaviors (Fitzpatrick, 1997).

Rogers (2000) suggested that an exclusive focus on risk factors creates potential bias for forensic populations. It could potentially lead to an unwarranted and negative classification of such individuals as dangerous, as well as cultivate and reinforce professionals' negative perceptions of such patients. Attending to protective factors can help both mental health professionals and their patients to identify strengths and areas for

continued positive growth, in addition to enhancing self-awareness into a capacity for growth and recovery (De Ruiter & Nicholls, 2011). Not only might individuals benefit from a patient-centered approach by self-identifying both protective and risk factors, but doing so may provide more accurate predictions of institutional aggression, compared with utilizing instruments that rely solely on clinician ratings.

In general, the field of psychology develops treatment plans based on the disease model of human functioning, attending almost exclusively to pathology, yet neglecting positive aspects of an individual (Seligman & Csikszentmihalyi, 2000). Linking a positive approach to violence risk management is a relatively new development (De Vries Robbe, De Vogel, & De Spa, 2011). More recently, there has been a shift in focus from deficit or pathology-based models to strength-based models for clinical populations.

### **Purpose of the Study**

Although research has looked at the effect of static risk factors on violence risk, there is a dearth of research focusing on protective factors, particularly with self-identified factors. A focus on risk factors, in addition to dynamic protective factors may assist clinicians in estimating risk of institutional aggression and can inform treatment plans with a focus on reducing the frequency of aggressive episodes. Utilizing self-perceived strengths can facilitate individualized treatments from a strengths-based, patient-centered approach. This study expanded on the current literature by examining dynamic protective factors based on client-perceived strengths, in addition to risk factors, in the expression of aggressive behavior. More specifically, this study sought to investigate how both protective and risk factors are related to aggression on inpatient

units; this aggression takes the form of: *verbal aggression*, *physical aggression against self*, *physical aggression against objects*, and *physical aggression against other people*.

## Chapter 2: Literature Review

### Violence and Mental Illness

The assumption that individuals with mental illness are more violent than those without mental illness has persisted through history. In an effort to establish which, if any, mental illnesses are associated with violence, studies have addressed this with inpatient and with community psychiatric samples. Findings regarding the link between a diagnosis of mental illness and violence have varied throughout history, with slight differences among community and inpatient samples. Many studies have been conducted using data from two large-scale, well known studies in the field of violence risk. Swanson, Holzer, Ganju, & Jono (1990) utilized the data from the National Institute of Mental Health's Epidemiological Catchment Area (ECA; Robins & Regier, 1991), which was a community sample of adults. Findings indicated that having a psychiatric diagnosis, and more specifically an occurrence of a major mental illness (i.e., schizophrenia, schizophreniform or major affective disorder), was associated with a significant increase in the odds of engaging in violent behavior. This risk increased, along with the number of diagnoses. The second large study was the MacArthur Violence Risk Assessment Study (Monahan et al., 2001), which included a sample of 1,136 former inpatients who were examined for various risk factors related to violence in the community. Findings revealed that a diagnosis of schizophrenia was associated with lower rates of violence than was a diagnosis of an affective disorder (i.e., depression and bipolar), but higher rates of violence than those in the community who did not carry a diagnosis (Monahan, 2002).



Looking more closely at symptomology typically associated with major mental illness, Swanson, Borum, Swartz, and Monahan (1996) found that within a community sample, those who had been violent, defined as expressing assaultive behavior (getting into a physical fight or injuring another), were significantly greater in those who had experienced delusions, as compared to those who experienced hallucinations only. A combination of delusions and hallucinations increased the odds of engaging in violent behavior. This was most substantial with those who had a perceived threat of someone else controlling them or belief that others were trying to hurt them or steal their thoughts. In a sample of patients in a high security hospital, Taylor et al. (1998) found that delusions and affective symptoms were common at the time of index offense (offense for which they were charged prior to commitment). Moreover, the proportion of those with hallucinations was higher among those who had committed a violent offense (e.g., homicide) than those who had committed other offenses. Among this sample, the hallucinations were auditory and the delusions were typically persecutory in nature. This study also supported the idea that a combination of delusions and hallucinations were influential in acting on the index offense, as compared to either symptom alone. These findings suggested that those discharged from a psychiatric hospital cannot be examined as a homogeneous group (Steadman et al., 1998). However, the persistent fear of *dangerousness* among the mentally ill has fueled the development of involuntary civil commitment laws (Monahan, 1992).

### **Civil Commitment**

Melton, Petrila, Poythress, and Slobogin (2007) outlined and described the current status of civil commitment, defined as “the state-sanctioned involuntary hospitalization of

individuals with mental disorders who require treatment, care, or incapacitation because of self-harming or dangerous tendencies” (p. 325). The idea of *dangerousness* is two-fold, relating to a “danger to self,” which typically mirrors that of a “danger to others.” A “danger to self” includes risk of suicide and suicide attempt, and a “danger to others” is based on the premise of imminent dangerousness in harming others. Although states differ regarding their individual *civil* commitment laws, each state incorporates two key elements: substantive criteria and procedural law (Melton et al., 2007). Substantive criteria comprises the existence of a mental disorder, a finding that the individual is dangerous to self or others as a result of this disorder, the inability to care for self, the need for treatment, and the least restrictive alternative. Procedural law also varies by state and involves inpatient commitment procedures related to emergency admission and long-term detention.

Melton et al. (2007) stated that not all commitments are denominated as *civil*, particularly when it involves individuals who have been incarcerated or have been acquitted by reason of insanity. In contrast, these are denominated as *criminal* commitments. More specifically, an individual involved in the judicial system may need mental health treatment for a variety of reasons. In most cases such as these, the incarcerated individual would be transferred to a forensic psychiatric treatment facility. One circumstance is that in which an individual housed in a correctional facility requires psychiatric treatment. A second relates to those who have been charged with a crime, and based on the individual’s civil rights regarding competency to stand trial, they are transferred to a psychiatric facility to restore this competency in order to proceed to trial. Another commitment that falls under the category of *criminal* is an acquittal by reason of

insanity, despite being found not guilty of their legal charges, they are committed to a psychiatric facility. This is the determination that an individual is mentally ill and dangerous and subsequently committed to a forensic hospital for treatment. Insanity acquittees are typically committed and re-evaluated on a yearly basis, and the burden of proof regarding whether or not the individual continues to meet the commitment standards, is placed on the acquittee (Melton et al., 2007). In such cases, imminent danger and least restrictive alternative doctrines may not apply and a release decision is typically made in a court room setting. The reason for these differences is based on the assumptions that such acquittees are dangerous, due to their violent act of the index offense although they're not convicted, and they are mentally ill. However, these assumptions hold a great potential for fault in terms of dangerousness and potential to be violent in the future, and vary greatly case-by-case. Moreover, an individual's mental illness may substantially improve subsequent to treatment. Regardless of commitment type, dangerousness while institutionalized, has been a widely research topic.

### **Institutional Aggression**

Aggression in inpatient psychiatric settings is common (McDermott et al., 2008), with a small number of patients tending to engage in the majority of such behavior within the institution (De Ruiter & Nicholls, 2011). For example, Lussier, Verdun-Jones, Deslauriers-Varin, Nicholls, and Brink (2009) found that during a one-year period, of 527 forensic inpatients, about 10% were responsible for more than 60% of all aggressive incidents (i.e., verbal aggression, violence against objects, violence against other people, violence against self and inappropriate sexual behaviors), which were frequent, diversified, and serious. Consequences of institutional aggression can range from

interference of therapy, to endangering the safety of staff and of other patients (Goldberg et al., 2007). Those who work in institutions have the difficult task of assessing and treating high-risk patients as well as of maintaining safety on the units (Carmel & Hunter, 1993; Douglas & Skeem, 2005; Martin & Daffern, 2006). Additionally, institutional aggression can lead to a substantial drain on resources (Soliman & Reza, 2001). In sum, these findings highlight the importance of identifying who the more violent patients may be upon admission to a psychiatric hospital.

Aggression and violence can include a variety of behaviors and defining the construct of these terms throughout the literature has varied. This serves as a significant limitation in the ability to compare previous studies' findings (Soliman & Reza, 2001) and ultimately in leading to accurate predictions. A landmark study in the field of violence risk was the MacArthur Violence Risk Assessment study (Monahan et al., 2001), in which the definitions of violence and aggression were specifically differentiated because violence was deemed more serious in nature. For example, violence included acts of battery resulting in injury, sexual assault, or acts that included the use of a weapon. Aggressive acts, however, were those that did not result in injury, such as verbal threats and throwing objects. Although this particular study made this distinction, it has not been so clearly delineated as such in the literature at large. One common way to measure aggression within inpatient settings (i.e., institutional aggression) is with the use of the Overt Aggression Scale (OAS-R; Yudofsky, Silver, Jackson, Endicott, & Williams, 1986). The OAS-R defines aggression as including *verbal aggression*, *physical aggression against objects or other people*, and *physical aggression against self*. Where the terms *violence* and *aggression* are typically used interchangeably throughout

the literature, it is important to make this distinction in future research in an effort to establish results that are generalizable and studies that are replicable.

### **Progression of Violence Risk Assessment**

Risk assessment for violence and aggression serves to identify those risk factors that either decrease or increase the probability for violent behavior in the future (McCusker, 2007). The developing field of violence risk assessment has been improving over the past few decades. However, the prediction of violence has not been without professionals' pessimism about its inefficiency and poor ability to make accurate predictions. Much of the initial pessimism arose from a study conducted in 1974 by Steadman and Cocozza, which revealed that a substantial over-estimation of violence was made for 967 Baxstrom patients being held as "dangerous criminals"; these patients had been transferred from a maximum-security forensic hospital to a civil state hospital. Steadman and Cocozza found that of these once thought, prototypically violent forensic patients, only 20% were subsequently violent. Since this finding, great strides have been made with regard to predicting risk of future violent behavior, which can now be accomplished with moderate to high accuracy. Debate continues about the best method of assessing risk (Hanson, 2005).

### **Methods and Approaches to Violence Risk Assessment**

Approaches to risk assessment have changed in the recent decades, where the initial focus was on the validity of clinical prediction. However, research has shown that clinical judgment alone resulted in only 20 to 35% accuracy rates (See Lidz, Mulvey, & Gardner, 1993; McNiel & Binder, 1991), which cultivated motivation to improve these rates of prediction (Grisso & Appelbaum, 1992). Consequently, the field of risk

assessment advanced quickly toward empirically or statistically-based assessment tools that involve a systematic algorithm for combining risk factors and arriving at a conclusion about risk of violence (Douglas & Skeem, 2005). These tools are completely structured and are known as actuarial assessments. For example, the researchers of the aforementioned MacArthur Violence Risk Assessment studies developed a computer program that presents individual risk factors one at a time, according to the algorithms devised in the original study (McCusker, 2007). This software is known as the Classification of Violence Risk (COVR; Monahan et al., 2006), which takes approximately 10 minutes to complete and requires a clinician to conduct a chart review and question patients, while simultaneously interacting with the computer program. This yields an estimation of violence risk. The COVR was analyzed regarding how well it predicted actual violence for those classified as high risk and those as low risk. However, results implied that those classified as high risk by the COVR were almost twice as likely to be nonviolent rather than violent in the first few months of discharge from a psychiatric hospital (McCusker, 2007). These results indicated that when used to assess psychiatric patients, the COVR provides better predictions than those that would be obtained by predicting base rates. However, McCusker (2007) suggested that because of various limitations, when used in a clinical arena as opposed to a research setting, the sole use of an actuarial instrument may lead to substantial misclassification, particularly for those who have been deemed at the highest level of risk. Thus, today the dichotomous view of risk assessment (clinical or actuarial) has been replaced by assessing violence risk on a continuum comprised of completely unstructured (clinical

assessment) on one end and completely structured (actuarial assessment) on the other (Skeem & Monahan, 2011).

Structured professional judgment (SPJ) instruments fall within this continuum, which do not rely on statically selected items or algorithms. Instead, SPJs usually consist of checklists, which contain empirically based static and dynamic risk factors in order to determine the level of risk for violence (De Vries Robbe et al., 2011). Ultimately, risk for violence is rated as low, moderate, or high, which can lead to a focus on risk reduction by means of therapeutic intervention (Douglas & Skeem, 2005). Clinical judgment is used when the assessor must select, measure, and combine risk factors and ultimately provide an estimation of risk using his or her clinical experience and judgment.

Overall, Skeem and Monahan (2011) described the violence risk assessment process as having four facets: the identification of empirically valid risk factors (e.g., age, past violence), determining a method for measuring them, establishing a procedure for combining scores, and producing an estimation of risk. As the field advances, necessary adjustments and fine-tuning of risk assessment is surfacing. More specifically, there has been a recent emphasis on the classification of the risk factors into two types: those that are static and those that are dynamic in nature.

### **Risk Factors and the Prediction of Institutional Aggression**

**Static risk factors.** Static factors are those that are typically historical and highly stable in nature. A number of risk factors have been established in the prediction of violence within forensic and within civil inpatient settings. For example, in the literature, a history of violence has been highlighted as the most consistent predictor of future violence (Klassen & O'Connor, 1989; Soliman & Reza, 2001), with more recent

aggression (i.e., one month prior to admission) as an important predictor of physical aggression during hospitalization (Amore et al., 2008; Cornaggia, Beghi, Pavone, & Barale, 2011). One static factor in particular that has been consistently found to be related to institutional aggression is a history of substance abuse (Amore et al., 2008; El-Badri & Mellsop, 2006; Monahan et al., 2001; Soliman & Reza, 2001; Steadman et al., 1998; Swanson et al., 1990) or dependence (Monahan et al., 2001). Additional static factors associated with aggressive, attacking behavior in a forensic inpatient setting include younger age, less education, and a history of childhood physical abuse (Hoptman et al., 1999).

Aggressive episodes that occur in a hospital setting typically occur shortly after admission. This may be attributed to the vulnerable nature and sensing of provocation or intimidation by other patients, particularly if the patient is perceived as suspicious or distrusting of others (El-Badri & Mellsop, 2006). This finding demonstrates the importance of assessing factors that predict aggression at admission. Although aggression is common to recent admission, literature has also revealed that a patient's length of stay increases the risk of violent incidents (Cornaggia et al., 2011; Soliman & Reza, 2001). This may be reflective of a patient's severity of disturbance as determined by one's length of stay (Soliman & Reza, 2001), or that the patient simply had more time to exhibit the aggression (Cornaggia et al., 2011).

Research regarding the predictive relationship between diagnosis of mental illness and aggression has not been consistent and has long been contested (Monahan et al., 2001). For example, El Badri and Mellsop (2006) found that a diagnosis of a psychotic disorder, such as schizophrenia or mania, was associated with higher levels of aggression



within an inpatient setting. Conversely, Soliman and Reza (2001) did not find an association between schizophrenia and aggression with inpatients. However, in those released into the community, Monahan et al. (2001) found a diagnosis of a serious mental illness (i.e., schizophrenia, major depression, or bipolar disorder) to be associated with lower rates of violence than any other mental disorder or personality disorder. In a closer examination of serious mental illness, a diagnosis of schizophrenia was associated with lower rates of violence, compared with a diagnosis of depression or bipolar disorder (Monahan et al., 2001). However, the link between serious mental illness and violence may be more specific to the content of the symptoms.

Similar to the findings presented in the aforementioned study regarding psychotic symptoms and aggression (Swanson et al., 1996), Link, Stueve, and Phelan (1998) conducted a study that found a set of psychotic symptoms called the threat/control-override symptoms were associated with violent behavior (i.e., fighting and weapon use). Threat/control-override symptoms includes the feeling that the mind is dominated by forces beyond control (control-override), feelings that thoughts were put into one's head that were not one's own (control-override), and feelings that people wished harm on them (threat). All of these symptoms were independently related to violent behaviors because those experiencing these symptoms were at a significantly greater risk of engaging in violent behavior. Another study's findings using data from the National Institute of Mental Health Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) project (See Stroup et al., 2003) revealed five specific symptoms to be significantly associated with increased risk of serious violence. These included hostility,

suspiciousness/persecution, hallucinatory behavior, grandiosity, and excitement (Swanson et al., 2006).

**Dynamic risk factors.** Converse to static factors are dynamic factors, which are amenable to change through means such as treatment, coping repertoire, or change in lifestyle. Although static factors demonstrate a predictive quality to violence risk, dynamic risk factors are considered to be essential to violence risk assessment (De Ruiter & Nicholls, 2011). The malleability of dynamic factors may provide an opportunity to minimize inpatient aggression (Vitacco et al., 2009). For example, within inpatient settings, changes in dynamic risk factors may be more important for risk management and treatment planning, whereas stable, static risk factors may be most useful for long-term risk prediction (De Ruiter & Nicholls, 2011). Furthermore, changes in dynamic factors influence the likelihood of a violent occurrence increasing, decreasing, or staying the same (Quinsey, Jones, Book, & Barr, 2006). A focus on static risk factors for violence provides little room for change in risk over time, which limits the utility of risk status when treating high-risk individuals (Douglas & Skeem, 2005). Addressing changeable aspects of violence risk could not only improve clinicians' decisions regarding timing of interventions, response to treatment, and potential change in supervision, but also lead to empirically supported methods for targeting these changeable factors (Douglas & Skeem, 2005; Quinsey et al., 2006). Dynamic factors have been the most recent challenge in risk assessment, not only in the development of methods for assessing them, but also in methods for targeting them in an effort to reduce violence (Dvoskin & Heilbrun, 2001). Ideally, clinicians would be able to make informed decisions regarding the time when intervention is needed, how much patients

are responding to these interventions, and whether or not the levels of intervention should be modified (Douglas & Skeem, 2005).

Albeit based on a limited body of literature, dynamic risk factors amenable to intervention, such as stress and lack of support, have demonstrated a consistent and robust relationship to aggression within inpatient settings (McDermott et al., 2008). Other dynamic factors associated with aggressive incidents include psychosis (Swanson et al., 1996; Taylor et al., 1998) and impulsivity (McDermott et al., 2008). The main feature of impulsivity, which is expressed by a lack of control over affect, behavior, and cognition, limits one's ability to keep calm under stress, which may evoke an individual's likelihood of responding to provocation or frustration (Douglas & Skeem, 2005). Moreover, negative affectivity, such as anger and negative mood, has been shown to be an important dynamic risk factor among mentally ill and among offender populations. Mood states such as these are generally unstable and amenable to change. For example, research has revealed that anger is strongly associated with physical aggression among psychiatric inpatients (Kay, Wolkenfeld, & Murrill, 1998; Menzies & Webster, 1995). This specific affect is both a disinhibiting and a motivating factor associated with impulsiveness, heightened arousal, and directed thoughts of hostility (Douglas & Skeem, 2005). Accordingly, negative mood states can also be associated with impulsivity and irritability, setting the stage for aggression to be more likely. These states are likely related to negative cognitions about the self and others, operating as a catalyst to other risk factors such as substance abuse (Douglas & Skeem, 2005).

Although a history of substance abuse has been well established in the literature as a static risk factor in the prediction of institutional aggression (Amore et al., 2008; El-

Badri & Mellsop, 2006; Soliman & Reza, 2001), ongoing substance use is considered a dynamic and thus changeable factor, given the appropriate treatment. Findings from the MacArthur Violence Risk Assessment Study indicated that civil psychiatric patients were no more likely to be violent than their matched counterpart in the community, unless they were abusing substances (Steadman et al., 1998). There may multiple factors contributing to the reason why substance abuse has this effect, such as the disinhibiting nature of controlled substances. However, the nature of the use in and of itself is dynamic, because both intoxication and use ebb and flow; however, the effects related to substance use (e.g., relationship problems) may change more slowly than the actual usage (Douglas & Skeem, 2005).

Two specific dynamic factors related to aggression, and the degree to which they exist, are interpersonal relationships and treatment alliance and adherence. These are seen not only as risk factors when not present, but also their positive presence is seen more clearly as a protective factor in the reduction or absence of aggression. Research examining this in persons with severe mental illness (e.g., schizophrenia) has indicated that the absence of support, such as housing, financing, meals, and daily activities is related to violence (Bartels, Drake, Wallach, & Freeman, 1991); the absence of these, in addition to lack of support from family members (e.g., dissatisfied with family, arguments) predicted violence (Klassen & O'Connor, 1989). Conversely, the presence of social support was related to a reduction in violence and in suicide risk scales with psychiatric patients (Kotler et al., 1993).

A second factor, where the strength of its absence or presence determines whether it is a risk or protective factor, is treatment alliance and adherence. For example, research

has indicated that poor treatment involvement and noncompliance with medication predicts future violence among psychiatric patients (Monahan et al., 2001). Furthermore, a lack of therapeutic alliance has been associated with violent incidents (Quinsey et al., 2006). Overall, factors such as these may act as protective factors, and in their absence, risk factors associated with violence may have a greater impact on the likelihood of engaging in aggressive behavior. Within this context, without appropriate treatment or social support, risk factors such as psychotic symptoms and substance abuse may lead to violence. These findings offer a clear indication that the focus on protective factors may be as important as focusing on risk factors, particularly those that are malleable via appropriate treatment.

#### **From Prediction to Prevention: Risk State versus Risk Status**

Douglas and Skeem (2005) described the differences between *risk status* and *risk state*. Specifically, *risk status* focuses on static risk factors, leaving little room for change, whereas an individual's *risk state* emphasizes a culmination of static and dynamic factors. Risk state has a more narrow focus regarding the likelihood that one will become violent at any given time. A fluctuation of factors over time is dictated by the individual's characteristics and emotional state. Examining an individual's risk state can allow clinicians to identify those factors that are changeable over time and can inform treatment interventions to decrease an individual's level of risk (Ryba, 2008).

Attending to risk state has also shifted the focus in research and in practice away from the prediction of risk and toward advancing prevention strategies for future violence (deRuiter & Nicholls, 2011; Heilbrun, 1997). According to Heilbrun (1997), the primary goal of the prediction model is to focus on risk factors that predict the probability of a

specific event, whereas the primary goal of the prevention model is the reduction in risk of the occurrence of this event. The latter model is sensitive to the change of a person's state of risk because its focus is primarily on dynamic factors. Furthermore, because the management model focuses on risk reduction, these malleable dynamic factors can be directly addressed with interventions that are informed by best practices. A closer look at the prediction model may enhance the use of a management model through identifying factors, both static and dynamic, associated with violence.

Although risk factors are paramount to prediction, recently, there has been a focus on a strengths-based approach to risk assessment, by means of the identification of client strengths, or the assets at the disposal of an individual, which act as protective factors (Gilgun, Klein, & Pranis, 2000). The tendency to focus on risk factors and neglecting protective factors is most likely related to the paucity of research addressing those factors that play a protective role in reducing violence risk in adults (Ryba, 2008) and a focus on the medical model, as opposed to a strengths-based recovery model.

### **Protective Factors in the Prediction of Aggression**

Contrary to risk factors, or characteristics that make it more likely that a person will engage in violent behavior, are *protective factors*, which are those that modify, ameliorate, or alter a person's response to a situation and may, in their absence, predispose them to a maladaptive outcome (Rutter, 1985). Risk assessment, in general, has heavily focused on risk and has largely failed to consider protective or strength-related factors. This practice is considered an unbalanced, one-sided approach, because practitioners focus on the negative side of the equation and rely solely on risk factors. This approach neglects the positive side in the consideration of protective factors, which

may lead to skewed decision-making in predicting and ultimately preventing violence and aggression (Ryba, 2008). Rogers (2000) provided a critical review of this unbalanced approach, focusing on the importance of considering protective factors within the forensic inpatient population. Rogers suggested that risk-only assessments produce negative biases and ultimately negative consequences, particularly for forensic patients. To illustrate, a continued focus solely on risk factors does not foster a positive view of forensic populations and may lead to unwarranted classification of aggression, professional negativism, and patient stigmatization (Rogers, 2000). Providing a balanced view of risk and of protective factors may paint a clearer picture about the actual risk such patients pose, fostering successful reintegration of this population into the community. Additionally, this shift may provide the much sought after balanced model and protect patients' civil liberties as well as maintaining public protection (Ryba, 2008).

**Instruments assessing risk using protective factors.** A fairly recent transition in the field of violence risk assessment has focused more closely not only on the assessment of risk factors but also of protective factors as well. Conceptualized from the well-established literature on the exploration of protective factors in adolescents, two instruments have been normed on forensic inpatients, in an effort to assess for protective factors in adults. The Structured Assessment of PROtective Factors for violence risk (SAPROF) was developed in 2007 by De Vogel, De Ruiter, Bouman, and De Vries Robbe (De Vries Robbe et al., 2011). The SAPROF consists of 17 protective factors, two static and 15 dynamic factors. It is designed to be used in conjunction with an SPJ risk assessment instrument (e.g., HCR-20; See Webster, Douglas, Eaves, & Hart, 1997). This instrument is a clinician rating tool that serves two purposes: informing clinicians about

potential goals for treatment, and predicting violence. The dynamic protective factors that were selected for this instrument were those that have developed out of the scientific psychological literature and include internal factors (e.g., empathy, coping, self-control), motivational factors (e.g., work, leisure activities, motivation for treatment, medication), and external factors (e.g., social network, intimate relationships, living circumstances). Moreover, these factors can be described as those that provide protection at time of assessment (key factors) or those that are targeted for intervention (goal factors).

Another instrument is The Short-Term Assessment of Risk and Treatability (START; Webster, Martin, Brink, Nicholls, & Desmarais, 2009), which is also a clinician-rated SPJ instrument intended for short-term violence risk. The START includes 20 dynamic strength and vulnerability-related factors and is designed to be used with general psychiatric, forensic, or correctional populations. Compared with the SAPROF, this instrument not only addresses issues of violence risk but also risk for self-destructive behaviors (e.g., suicide, self-harm, self-neglect).

Although these instruments' clinical utility is currently under investigation, there are limitations regarding the use of strictly clinician-rated instruments. Essentially, clinicians decide what they believe to be the strengths and vulnerabilities of the patient. Furthermore, most measures of violence risk consist of lengthy clinical interviews or file reviews and require considerable training to administer, whereas self-report may be a more efficient and effective way of assessing risk (Miller, 2006). An examination of patient-rated strengths and vulnerabilities may reveal a comparable or more accurate assessment of their personal characteristics. Moreover, using this modality eliminates the limitations that accompany the use of clinician-rated tools. More specifically,



instruments that are easy to administer may be useful in identifying individuals who may be at an increased risk for demonstrating aggression in an inpatient setting (McDermott et al., 2008). Thus, a self-report measure that assesses both risks and strengths is warranted. This may result in a more efficient and effective method of assessment and ultimately intervention with potentially violent and aggressive patients (Miller, 2006).

**The relationship between risk and protective factors.** Currently, a theoretical framework for protective factors in adult violence has not been established in the literature. However, some models have been developed in the adolescent literature. For example, Fergus and Zimmerman (2005) have described the resilience process with adolescents, during which both risk and promotive, or protective factors work in one of two ways: by help promoting a positive outcome or reducing or avoiding a negative outcome. This model emphasizes that protective factors can be both internal (e.g., prosocial attitudes, coping skills) and external (e.g., social environmental influences, community organizations). Most importantly, these protective factors are malleable, which can guide both risk management and treatment.

In an effort to explain the interplay of risk and protective factors on risk-taking youth (e.g., fighting), Fitzpatrick (1997) proposed two potential models. Fitzpatrick described and examined both the mediating and buffering models with three samples of youth at three different age groups (from grades three through 12). The *mediating model* hypothesizes that protective factors (e.g., individual or social structural) act as mediators in reducing the negative effects that risk factors exert on behavior. As protective mechanisms, risk factors have an indirect, positive effect on negative outcomes. In contrast, the *buffering model* suggests that risk factors have a negative impact in certain

conditions, such as those times when protective mechanisms are less frequent or absent. In this model, there is a combined effect of both risk and presence of protective factors. In testing these models, Fitzpatrick revealed results that indicated support for the buffering hypothesis, particularly for older adolescents, because in the absence of protective factors, certain risk factors (e.g., difficulty walking away from fights, abusing substances) have heightened effects in predicting negative externalizing behaviors. Because these models have focused primarily on adolescents, the most important protective variables that exist for adults are not well known. This is particularly true for adults with mental illness, both for those who are and for those who are not involved in the criminal justice system.

**Protective factors in adolescents.** The majority of the literature regarding the relationship of protective factors and violence and aggression has focused on adolescent populations and particularly with those who are involved in the juvenile justice system. Lodewijks, De Ruiter, and Doreleijers (2010) administered the Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2002) among three samples of juvenile offenders (i.e., before trial, during residential treatment, after release from a juvenile justice facility). Both the dynamic risk and protective scales were significant predictors of desistance from violent recidivism, defined as an act of battery or physical violence, sexual assault, or a threat made with a weapon in hand. However, the dynamic risk scale failed to reach significance once the protective scale was accounted for, which indicated that the protective scale items accounted for a unique variance in the likelihood of violent reoffending. Moreover, it was found that strong social support and strong attachments to prosocial adults were significant predictors of desistance.

Research has also consistently indicated an inverse relationship between numbers of protective factors and numbers of non-violent and of general offenses (Rennie & Dolan, 2010). In assessing this relationship among delinquent youth with co-occurring psychiatric diagnoses, it was found that level of intelligence (Rennie & Dolan, 2010) and reading skills (Vance, Bowen, Fernandez, & Thompson, 2002) predicted lower rates of aggression. Moreover, having realistic self-esteem (Rennie & Dolan, 2010) and a positive self-concept, feelings of self-efficacy, self-perception of being less helpless, being achievement-oriented, and having aspirations to attain positive personal goals, were predictors of desistance and lower rates of aggression (Losel & Bliesener, 1994). Similar to the suggestions of Lodewijks et al. (2010), it is thought that a large social network, good emotional support (Losel & Bliesener, 1994; Vance et al., 2002) and specifically, increased satisfaction with such social support were significant predictors.

**Dynamic protective factors in adults.** Despite the extant literature examining protective factors in adolescents, little has been established with adults in the fields both of general and of forensic mental health in an understanding of the prevention of violence through a balanced view of clients' strengths (protective factors) and vulnerabilities (risk factors) (De Ruiter & Nicholls, 2011).

Although research on the utility of protective factors with adults is limited, some authors have begun to identify factors that play a protective role in the outcome of aggression and violence in correctional settings. For example, Ullrich and Coid (2011) investigated the relationship of dynamic predictors with reoffending 800 male prisoners released into the community. Fifteen different protective factors were examined, with five specific factors providing highly significant protective effects for violence. All five

factors were related to support and social networks, namely social support, emotional support, spare time spent with family or friends, and closeness to others. Furthermore, these effects were examined within one, two, three, and three or more years of release. A place to stay upon release (i.e., “Do you have an address to go on release?”) was significant only for the first year of release.

Miller (2006) examined strengths in a sample of pre-released general offenders and found an index of a summation of personal resources and environmental resources (e.g., behavioral and anger regulation, education training) to be negatively correlated to offenders being sent back to prison. Furthermore, attending religious worship (e.g., church) and identifying with a religious group has also consistently shown to serve as a protective factor in the expression of violence and engaging in criminal activity (DeMatteo, Heilbrun, & Marczyck, 2005; Pettersson, 1991; Ullrich & Coid, 2011).

Within a community sample, DeMatteo et al., (2005) found considerably more protective factors in participants who were non-criminal and non-institutionalized, such as strong family connections, participation in structured activities, exposure to positive role models, social support, steady employment, and reading ability.

More recently, protective factors have been examined in the mental health field, but still within the arena of corrections, namely outpatient forensic patients. For example, among female forensic psychiatric patients reintegrated into the community, those who were successful were released to a stable supportive environment, demonstrated prosocial attitudes, engaged in prosocial activities, and actively participated in treatment (e.g., medication) (Viljoen, Nicholls, Greaves, De Ruiter, & Brink, 2011). Other research has indicated that the number of social institutions with which a person

associates to be negatively correlated with violent offenses. More specifically, club participation (i.e., structured leisure activities) was associated with a lower number of offenses for forensic outpatients for violent and for property related self-reported offenses (Bouman, De Ruiter, & Schene, 2010). There was an absence of violent offenses for those who visited church and a low rate of such offenses for those who had stable contacts at work. Additionally, Klassen and O'Connor (1989) found that among released inpatients, intimate relationships have been shown to be related to a low level of violence (i.e., simple assault, aggravated assault, arson, robbery, rape, and homicide) at a one-year follow up. However, the participants' perceived family satisfaction was of greater importance.

Although the aforementioned studies provide an introduction into the protective factors for recidivism and violence after discharge, some evidence suggests that these factors are not identical to those that predict aggression during hospitalization (Steadman & Morrissey, 1981; Steinert, 2002). Stubner, Grob, and Nedopil (2006) conducted a study in Germany, utilizing a sample of 1550 forensic inpatients in the examination of protective factors for incidents during hospitalization. Findings revealed that social skills, especially cooperativeness, were emphasized as protective factors. These skills included reliability, respect for rules, and honesty, having coping mechanisms, and the quality of relationships with relatives, other patients or the treatment team. Moreover, characteristics of the therapeutic process were regarded as protective factors, such as stability and trust in the therapeutic relationship.

Overall, the literature regarding protective factors has focused primarily on the offender population, particularly those released into the community. Protective factors

have been examined far less often among hospitalized patient samples, regardless of civil or criminal commitment. This is especially true among those who have a sole civil commitment, as well as with those who have been transferred from a forensic to a general psychiatric inpatient facility. Although some protective factors found among community and incarcerated samples may apply to an inpatient psychiatric population, the identification of factors, specifically among inpatients, is imperative. Environmental factors that exist within an institution are inherently different from those experienced in the community. Protective and risk factors that exist among the inpatient population may differ, thus warranting this specific investigation.

### **Assessing Individual Strengths in Reducing Risk for Aggression**

The field of mental health generally, when developing treatment plans, ascribes to the use of the disease model of human functioning, which attends almost exclusively to pathology, and neglects the positive aspects of an individual (Seligman & Csikszentmihalyi, 2000). This diagnostic approach is useful in helping persons with mental illness cope with their symptoms. More recently there has been a shift from a pathology-based approach to a more functional, or strengths-based approach, to manage symptoms (Aarti, 2006). This approach attempts to understand clients in terms of their strengths and involves examining skills, abilities, knowledge, resources and desires in an effort to help them meet their goals (Saleebey, 1996). This is commonly known as positive psychology, in which the goal is to facilitate the development and expression of prosocial qualities that help people not only to survive, but also to flourish.

This has led to a larger movement in the philosophy of recovery-based mental health models. Resnick, Fontana, Lehman, and Rosenheck (2005) explained that

“recovery is a process representing the belief that all individuals, even those with severe mental psychiatric disabilities, can develop hope for the future, participate in meaningful activities, exercise self-determination, and live in a society without stigma and discrimination” (p.120). The recovery movement has acted as the fuel behind many areas of policy change and advocacy concerns throughout the field. Resnick et al. conducted research to propose four domains in approaching the conceptualization of the recovery orientation: the capacity to feel empowered in one’s life; self-perceptions of knowledge about mental illness and available treatments; satisfaction with quality of life; and hope and optimism for the future.

More recently, the recovery paradigm has received attention in forensic mental health programming. Considering the unique treatment needs of forensic patients, namely additional areas to overcome (e.g., legal issue, heightened sense of stigma), their recovery becomes more complex (Simpson & Penney, 2011). Consequently, the philosophies and strength-based models of offender rehabilitation have been developed in the recent years. One prime example is the Good Lives Model (GLM) of offender rehabilitation, which is a strengths-based approach focusing on valued aspects of human functioning and living (Ward & Brown, 2004). Another is the Risk-Needs-Responsivity (RNR) model, which includes three core principles: risk, including matching the level of service needed to the offender’s risk to re-offend; need, including the assessment of criminogenic needs and targeting these in treatment; and responsivity, which includes the application of CBT, tailoring the intervention to the learning style, motivation, abilities, and strengths of the offender (Andrews & Bonta, 2006). One of the areas of focus is on criminogenic needs, which are the dynamic factors that are directly linked to criminal

behavior. The responsivity aspect then focuses on consideration of personal strengths and socio-biological-personality factors, to which this treatment is tailored (Bonta & Andrews, 2007).

Linking this positive approach to violence risk assessment and management is a relatively new development (De Vries Robbe et al., 2011). However, both the GLM and RNR models demonstrate the increase in attention of personal strengths and overall well-being. This is consistent with the recovery movement and a clear reflection of the recent movement in the field of violence risk assessment to have a balanced view both of risk and of protective factors (Simpson & Penney, 2011). This theoretical advancement, as well as critiques of the current practice of risk assessment (See Rogers, 2000), demonstrate the necessity of the inclusion of client strengths in state-of-the-art risk assessment and management strategies and tools (Webster, Nicholls, Martin, Desmarais, & Brink, 2006).

### **Current Study**

The current study expanded on the existing literature by examining if self-reported dynamic strength and risk factors predicted the occurrence of institutional aggression. More specifically, the study sought to demonstrate if such self-reported strengths act as protective factors in the reduction of the likelihood of someone engaging in an aggressive act. This approach may reveal that patients who have self-identified protective factors, in addition to identified risk factors, may be less likely to engage in aggressive behaviors in inpatient settings. Moreover, this study examined if there is a differential relationship among four different types of aggression: *verbal aggression*, *physical aggression against self*, *physical aggression against objects*, and *physical*



*aggression against other people.* Finally, it was investigated if patients in the forensic unit, or those transferred from the forensic to the civil unit, were more likely to be aggressive.

### Chapter 3: Research Question and Hypotheses

#### Research Question

Is there a significant difference between self-perceived strengths and risk factors between aggressive and non-aggressive patients?

#### Hypotheses

Based on existing research, the following hypotheses are proposed:

1. Self-reported protective psychosocial factors (i.e., *Activities of Daily Living and Cultural and Religious Consideration*) moderate the relationship between self-reported risk factors (i.e., *Severe Symptoms/Poor Coping*) and aggression in those with mental illness residing in an inpatient hospital setting.
2. There will be a significant difference between aggressive and non-aggressive patients, such that forensic patients, or those transferred from the forensic to civil unit, will be more likely to engage in institutional aggression, as compared with patients from the civil section.

## **Chapter 4: Method**

### **Overview**

This study analyzed archival data from an inpatient psychiatric hospital. It sought to investigate if there is a difference between self-perceived strengths and risk factors between aggressive and non-aggressive patients. More specifically, the current study assessed if self-perceived dynamic strengths served as protective factors in the relationship between self-perceived risk factors and the likelihood of engaging in any aggressive act. Furthermore, it investigated if patients from the forensic unit, or transferred from forensic to civil units, were more likely to engage in aggressive behavior.

### **Design and Design Justification**

In order to address this research question, in addition to testing the proposed hypotheses, a retrospective between-subject case control design was conducted. Using a moderation model, the analysis included the investigation of whether or not self-perceived dynamic strengths moderated the relationship between self-perceived risk factors and aggression. These hypotheses were tested through quantitative means, using hierarchical logistic regression analyses.

### **Participants**

Participants were selected from Norristown State Hospital's (NSH) archival administrative data set, in Norristown, Pennsylvania. Norristown State Hospital (NSH) is an inpatient psychiatric facility, providing services to the eastern portion of Pennsylvania. The hospital campus consists of multiple patient units composed both of general psychiatry (civil section) and of the Regional Forensic Psychiatric Center (RFPC). Data

and charts were examined from patients with discharge dates between January 1, 2010 and December 31, 2012. Data examined were of patients who were admitted no earlier than January 1, 2006. Of the 890 discharged in the aforementioned three years, 384 (33.7%) were eligible for participation. Of these 890 patients, 506 (56.9%) were excluded, based either on missing data or based on the exclusion criteria. Of the 384 eligible participants, 84 (9.4%) had blank Self-Assessment for Treatment/Recovery Planning data sheets, which were used to extract predictor variables in this study. The final sample was 300 participants.

### **Inclusion and Exclusion Criteria**

Eligibility for the current study was established by the inclusion criteria. Specifically, patients were included for potential study participation if they had completed filed paper charts, with The Self-Assessment for Treatment/Recovery Planning from admission, and if all data in the archival data base were present. Additionally, patients were included if they were admitted both in general psychiatry (civil) and in the RFPC under the Pennsylvania Legal Sections that are commitment periods of more than 30 days (See Pennsylvania Mental Health Procedures) and diagnosed with any primary medical record mental health diagnosis as indicated by the International Classification of Diseases (ICD). Additional inclusion criteria consisted of being any age above 18, having English as primary language, and being of any identified race.

Conversely, ineligibility for the study was established by the exclusion criteria. All data needed to be present for eligibility, which included full, accessible paper charts and all data in the archival data base. Patients were excluded if The Self-Assessment for

Treatment/Recovery Planning from admission was not completed in the chart. Patients were also excluded from the potential study participation if they were admitted to general psychiatry or the RFPC under Pennsylvania Legal Sections that included commitment periods of less than 30 days. Additionally, patients were excluded if they were under the age of 18 or were non-English speaking (required interpreter services).

### **Measures**

**Historical and clinical indicators.** *Census* is a hospital-wide electronic database designed and developed by Norristown State Hospital (NSH) that includes a variety of patient demographic information. Upon admission, patient information is gathered by NSH staff; this is ultimately entered into this electronic database. For the purposes of the current study, the following information was evaluated from the *Census* database: patient identification number, age, sex, race, religion, primary diagnosis (including a diagnosis of MR), admission information (e.g., unit location, county of admission), commitment code, and any criminal conviction. Diagnoses of a mental health disorder are given by the psychiatrist at NSH after consideration of history and symptomology, according to the criteria of the ICD.

**Indicators of institutional aggression.** The Office of Mental Health and Substance Abuse Services (OMHSAS) Risk Management Database is a database that contains incidents involving patients at NSH. Incidents include a variety of events that are recorded by NSH staff, each coded according to parameters defined by the OMHSAS. Incidents include any event involving patients from assault, aggression, self-injurious behavior to sexual activity, medication errors, and death. Each recorded incident includes information such as patient name, target, location, outcome, restraint used,

person who was involved, and person who witnessed the event. This information is then sent to and controlled by the Performance Improvement (PI) department at NSH. For the interests of the current study, the following definitions provided the information that was extracted from this database.

***Aggression.*** Verbal or physical threats by a patient toward another person without actual physical contact, and which results in restraint, seclusion, administration of STAT medication for psychiatric reasons, or being placed on an increased level of observation.

***Alleged nonconsensual sexual activity (substantiated/unsubstantiated).*** Alleged nonconsensual sexual activity is defined as witnessed or reported sexual activity of a nonconsensual nature.

***Assault, patient/staff.*** This type of assault is defined as an aggressive act by a patient toward a staff person(s) involving physical contact which may or may not result in injury.

***Assault, patient/patient.*** This type of assault is defined as an aggressive act by a patient toward another patient(s) involving physical contact which may or may not result in injury.

***Assault, patient/other.*** This type of assault is defined as an aggressive act by a patient toward a visitor, family member or any other individual, exclusive of staff or peer, involving physical contact which may or may not result in injury.

***Fire setting.*** Any accidental or willful action, which results in the ignition of a fire.

***Property damage.*** Any willful damage by a patient of state or personal property, including throwing furniture or other items.

***Self-injurious behavior.*** Self-directed or purposeful acts that injure the patient, not rising to the level of an intentional suicide attempt.

***Suicide attempt.*** An intentional act to terminate one's life, including self-injurious behaviors which are life threatening.

***Institutional aggression.*** An event that includes a perpetrator and a target within an institution and defined, based on the parameters of the Overt Aggression Scale – Revised (OAS-R; Yudofski et al., 1986). The OAS-R defines an aggressive behavior as one that includes *verbal aggression, physical aggression against self, physical aggression against objects, and physical aggression against other people.*

**Self-reported strengths and weaknesses.** The Self-Assessment for Treatment/Recovery Planning is a 99-item check list designed by NSH, which is given to each patient upon admission and is to be completed by the patient. This list comprises various *strengths, concerns,* and items that follow *it helps me when I...*, for the patient to endorse those which apply to them. *Strengths* include items such as “I can work full-time,” “I am good at art and music,” and “I need medication.” *Concerns* include items such as “I hear voices and they bother me,” “I do not like medications,” “I feel like hurting myself at times.” For the purposes of the current study, the 58 items making up the *strengths* and *concerns* were utilized in the subsequent analysis.

## **Procedures**

**Data collection.** Permission to obtain all data was granted by the Institutional/Research Ethics Review Board of NSH. Data from the Self-Assessment for

Treatment/Recovery Planning information was obtained in paper form from medical records or from patient charts (for those still admitted) and following the study, will be locked in a file drawer in a secure office at NSH for at least seven years. These were extracted from patient files and de-identified by assigning an arbitrary number, prior to entry into the database by the primary investigator.

Data retrieved from *Census* and the OMHSAS Risk Management Database were obtained from the Performance Improvement (PI) department at NSH, where they are maintained. These data were originally gathered and recorded by NSH staff and placed in archival format. The researcher transferred the archival data to a statistical analysis program. Data was analyzed on a computer located on the NSH campus, which was password protected and stored in a secure office at NSH. In order to de-identify patients, an arbitrary number was assigned to each patient by a research assistant prior to the receipt of the data by the primary investigator. All information involved in the research was kept confidential to the extent possible by law.

**Data coding.** All historical and clinical variables from the archival records of *Census* were coded dichotomously, indicating presence or absence (0 = absent; 1 = present), or nominally if included more than one level. This included location (forensic or civil) and all demographic information, such as sex, race, and diagnosis. Furthermore, data from the OMHSAS Risk Management Database were decoded and statistically analyzed as variables. These variables were grouped according the parameters defined by the OAS-R, such that an aggressive behavior is one that includes *verbal aggression*, *physical aggression against self*, *physical aggression against objects*, and *physical aggression against other people*. Events that were included as “aggression” (i.e., verbal



threats; See aforementioned OMSHAS definitions) were categorized under *verbal aggression*. Events that included “self-injurious behavior” and “suicide attempt” were categorized under *physical aggression against self*. Events that included “fire setting” and “property damage” were categorized under *physical aggression against objects*. Events that included “assault,” whether it was directed toward another patient, staff, or other, were categorized under *physical aggression against other people*. Finally, this variable was dichotomized into “0” = absent, “1” = present and is explained in further detail in the next chapter.

Diagnoses were originally given according to the International Classification of Diseases (ICD). For the purposes of the current study, they were collapsed into three categories: *psychotic disorder*, *affective disorder*, and *other*. *Psychotic disorder* included diagnoses of schizophrenia, paranoid, unspecified and residual types; schizoaffective disorder; delusional disorder; unspecified paranoid state; and unspecified psychosis. *Affective disorder* included diagnoses of bipolar I and unspecified bipolar; manic affective disorder; major depressive disorder or not elsewhere classified; unspecified or specified episodic mood disorder; adjustment disorder with mixed disturbance of emotions and conduct; posttraumatic stress disorder; unspecified adjustment reaction; intermittent explosive disorder. *Other* included diagnoses of unspecified transient mental disorder in conditions classified elsewhere; unspecified nonpsychotic mental disorder; impulse control disorder, unspecified; other unknown and unspecified cause of morbidity or mortality.

## Chapter 5: Results

### Background Characteristics

**Demographic Information.** The final sample included 300 eligible participants, composed of 223 (74.3%) males and 77 (25.7%) females, with ages ranging from 22 to 80-years-old ( $M = 43$ ). Of the sample, 46% ( $n = 138$ ) were identified as White Non-Hispanic, followed by 47% ( $n = 141$ ) Black Non-Hispanic African Origin, 5% ( $n = 15$ ) White Hispanic, 1.3% ( $n = 4$ ) Asian Pacific Islander, and .7% ( $n = 2$ ) Black Hispanic. Of the 300 participants, 190 (63.3%) were located in the RFPC (Forensic) and 110 (36.7%) were located in civil (general psychiatric) section of the hospital. Of these 110 civil patients, 40 (13.3%) were initially admitted to the RFPC and later transferred to the civil section of the hospital.

Of the 300 participants, 227 (75.7%) were diagnosed with a *psychotic disorder*, 62 (20.7%) with an *affective disorder*, and nine (3%) with *other*. Two participants were missing diagnoses. Furthermore, 147 had legal charges, which included six (2%) sex offenses, 12 (4%) Arson, 107 (35.7%) Assault, 19 (6.3%) Murder, and 3 (1%) Attempted Murder. Three additional participants were committed as not guilty by reason of insanity (NGRI). These 147 patients included forensic patients with pending charges who had been sent from the jail for competency restoration, or those committed civilly in lieu of a prison sentence. There were no observed differences among diagnosis or legal charge in relation to the outcome variable (See Table A1).

**Institutional Aggression.** Exploration of the dependent variable revealed that of 300 participants, the number of participants who engaged in any incident of *verbal aggression* was 88 (29.3%); *physical aggression against self* was 35 (11.7%); *physical aggression against objects* was 46 (15.3%); and *physical aggression against other people*

was 127 (42.3%). Of the 300 participants, there were a total of 148 acts of aggression (49.3%), named *combined aggression*, which included any one incident of any subtype of aggression. The total of 148 acts of aggression was a count of acts, which suggested that more than one act may have been from the same person. Multiple acts by the same person were not controlled for in the current study. Because of the relatively low outcome of the number of incidents in each subtype of aggression, they were omitted from both preliminary and final analyses. Instead, any instance of the aforementioned aggression types, namely *combined aggression* ( $N = 148, 49.3\%$ ), comprising all four subtypes, was used in the analyses (See Table A1).

### **Preliminary Analyses**

Preliminary analyses were conducted on the background characteristics to explore their relationship with the dependent variable, *combined aggression*, in order to determine inclusion in final analyses. More specifically, chi-square tests of independence were performed to examine the relationship between *combined aggression* and relevant demographic data, namely diagnosis, race, sex, and legal charges. Findings did not reveal any significant relationships ( $p > .05$ ) and thus none of these variables were included as predictors in the final analyses.

### **Deriving Protective and Risk Factors**

A principle components analysis (PCA) was performed in order to identify and compute composite variables underlying items from The Self-Assessment for Treatment/Recovery Planning checklist. This analysis was implemented twice, once to determine self-reported strengths (protective) and once for weaknesses (risk) factors. Initial considerations in determining these factors included testing the appropriateness to

conduct a factor analysis on these data. This test was considered to be appropriate, based on the Kaiser-Mayer-Okin measure of sampling adequacy (KMO); this yielded a value of .874 as well as a highly significant Bartlett's test of sphericity ( $\chi^2(595) = 3577.18, p < .001$ ). In determining weakness factors, this test was also considered to be appropriate based on the Kaiser-Mayer-Okin measure of sampling adequacy (KMO); this yielded a value of .836 as well as highly significant Bartlett's test of sphericity ( $\chi^2(253) = 1674.42, p < .001$ ).

Although nine strength factors and six weakness factors had eigenvalues greater than one, the scree test (Catell, 1966) suggested retaining two strength and one weakness factor. The two strength, or protective factors, accounted for a total of 31.61% of the variance. The first factor explained 25% of the variance and the second 6.62%, with eigenvalues of 8.75 and 2.32, respectively. The weakness, or risk factor, explained 24.56% of the variance, with an eigenvalue of 5.65.

In order to determine factor loading for both the strengths and weakness items, a Varimax rotation was performed, with a cut-off criteria of .4. The resulting factors remained uncorrelated, thus demonstrating the utility of a Varimax rotation (See Table A3). The first strength component loaded four items, namely "I can cook," "I can shop," "I can use public transportation," and "I can manage financial affairs," which was identified as *Activities of Daily Living*. Component two included three items, namely "I want my religious beliefs to be understood and respected," "I need a special diet for my culture/religious beliefs" and "I want my cultural values to be understood and respected," which was identified as *Cultural and Religious Considerations*. The sole weakness component loaded five items, namely "I feel like hurting myself at times," "I feel like

killing myself at times,” “I hear voices and they bother me,” “I drink or take drugs to cope,” and “I am very depressed,” which was identified as *Severe Symptoms/Poor Coping*. The factor loading matrix for this final solution is presented in Table A2. Finally, an investigation about the internal reliability of these factor loadings was conducted. An examination of Cronbach’s Alpha revealed stable reliability in *Activities of Daily Living*, *Culture and Religious Considerations*, and *Severe Symptoms/Poor Coping* ( $\alpha = .77, .76$ , and  $.75$ , respectively).

### **Multivariate Analyses**

Prior to addressing the research question, assumptions of a multiple analysis of variance (MANOVA) and T-Tests were tested to determine the appropriateness of parametric tests. This revealed a violation of normality distribution and thus these tests could not be used. To explain further, *Activities of Daily Living*, *Culture and Religious Considerations*, and *Severe Symptoms/Poor Coping* were differentially skewed and thus could not be transformed. Based on the examination of the distribution of scores, the data supported two categories. Thus, to analyze these variables through nonparametric inferential tests, they were dichotomized. More specifically, *Activities of Daily Living* was coded as “1” if a participant had four items endorsed and “0” if three or less were endorsed, and *Culture and Religious Considerations* and *Severe Symptoms/Poor Coping* as coded “1” if one or more items were endorsed and “0” if no items were endorsed. *Activities of Daily Living* as coded differently due to the participants’ tendency to endorse all of the items that compose this factor, or endorse none (See Figures B1 through B3). This can be visually illustrated in Figure B1.

In order to answer the research question of whether or not there is a significant difference between self-perceived strengths and risk factors between aggressive and non-aggressive patients, chi-square tests of independence were conducted. Findings did not reveal significant differences between self-perceived strengths regarding *Activities of Daily Living* ( $\chi^2(1) = 3.36, p = .067$ ) or *Culture and Religious Considerations* ( $\chi^2(1) = .651, p = .420$ ), for either aggressive or non-aggressive patients. However, there was a significant difference between self-perceived *Severe Symptoms/Poor Coping* and aggressive and non-aggressive patients ( $\chi^2(1) = 8.389, p < .01$ ). More specifically, when someone had at least one aggressive act, he or she was 1.5 times more likely to have at least one *Severe Symptoms* or *Poor Coping* skill, a small effect (Cramer's  $V = .167$ ) based on effect size standards in the literature.

In order to test the first hypothesis of whether or not *Activities of Daily Living* and *Culture and Religious Considerations* moderated the relationship between *Severe Symptoms/Poor Coping* and *combined aggression*, a hierarchical logistic regression was conducted. Prior to analysis, these data were assessed for multicollinearity using linear regression analysis in SPSS. It has been recommended by Menard (1995) that a tolerance value of less than .1 indicates a serious problem with collinearity, with a .20 as a cause for concern. Findings did not reveal any significance regarding multicollinearity. Furthermore, as suggested by Field (2005), none of the Variance Inflation Factors (VIF) was larger than 10. Finally, a bivariate correlation matrix was examined, using Pearson's correlation coefficient, which did not reveal any two variables of having a correlation of .90 or above.

In using a hierarchical logistic regression model, *Severe Symptoms/Poor Coping* was entered into the first block; this produced a statistically significant change over a base ( $p < .01$ ). However, this produced a Cox & Snell  $R^2$  of .028 and a Nagelkerke  $R^2$  of .037, which explained only a very small amount of variance. The two protective factors, *Activities of Daily Living* and *Culture and Religious Considerations*, were then added into the second block. Interaction terms for *Activities of Daily Living* and *Severe Symptoms/Poor Coping* as well as *Activities of Daily Living* and *Severe Symptoms/Poor Coping* were also entered in the second block. This addition did not produce a statistically significant improvement to the model ( $p = .167$ ). Furthermore, the alternative hypothesis was rejected due to the non-significant interaction between either of the protective factors and the risk factor. In summary, the data did not support either *Activities of Daily Living* or *Culture and Religious Considerations* as moderating the relationship between *Severe Symptoms/Poor Coping* and *combined aggression*. Tables A4 and A5 display regression results. The ability to detect a meaningful effect may have been limited by the split in the dependent variable. More specifically, there was not enough variance explaining the dependent variable, as demonstrated by the Cox & Snell  $R^2$  of .028 and a Nagelkerke  $R^2$  of .037. A larger sample size may have provided more variance in which to explain this relationship, even if the proportion of the dependent variable is an accurate depiction in the population.

In order to test the second hypothesis, a chi-square test of independence was performed to determine if there was a significant difference between those who were civilly or forensically committed or transfers on from forensic to civil concerning whether or not they engaged in an aggressive act. Results revealed a significant

difference between civil and forensic committed patients ( $\chi^2(1) = 27.125, p < .001$ ) on whether or not they engaged in an aggressive act. More specifically, when someone had no aggressive acts, he or she was 3.47 times more likely to be forensically committed. However, this represented a small effect (Cramer's  $V = .123$ ). There was not a significant difference between aggressive and non-aggressive patients on whether or not they were transferred from the forensic section. In other words, there was no difference between those who were original civil commitment patients or original forensic commitment patients on their likelihood of engaging in aggression.



## **Chapter 6: Discussion**

The current study sought to examine the role of both static and dynamic risk factors, and more specifically, dynamic protective factors in predicting IA. Much of the literature to date has focused largely on static risk factors and has neglected to address the role of dynamic protective factors and how these may mitigate the expression of aggression and violence. Identifying the role of protective factors is important not only in violence risk assessment, but also in determining their utilization in treatment planning. When considering protective factors in treatment planning, there is a lesser focus on prediction of risk and a greater focus on risk management, or prevention.

The purpose of this study was to investigate a potential difference between self-perceived strengths and risk factors in aggressive patients. More specifically, the study sought to evaluate if self-identified dynamic strengths (protective factors) moderated the relationship between weakness, or vulnerability (risk) factors and aggression. Additionally, data were examined for a potential difference in the likelihood of a patient's becoming aggressive if he or she was forensically committed or had since been transferred from forensic to civil sections of the state hospital.

### **Predicting Institutional Aggression**

First, demographic information was obtained for examination with the dependent variable to determine control variables in the final analyses. However, these preliminary analyses failed to reveal any significant relationship between any of the demographic variables (i.e., sex, race, diagnosis, legal charge) and the likelihood of engaging in IA. Many factors may explain the lack of significant findings. This might be directly related to the inconsistencies in the literature regarding the predictive validity of some static risk

factors. For example, the predictive quality of mental health diagnosis and aggression has been inconsistent throughout research (Monahan et al., 2001). Some researcher have found a significant association between a diagnosis of a psychotic disorder and higher levels of aggression in an inpatient setting (El Badri & Mellsop, 2006), yet others have found a diagnosis of a serious mental illness to be associated with lower rates (Monahan et al., 2001). Furthermore, there was no significance found with gender, whereas prior research has found males to be more aggressive (Amore et al., 2008). Given the overall lack of significance of these demographic and background characteristics of the sample, no control variables were entered into the main analysis.

The research question sought to answer whether or not there was a difference between self-perceived strengths and risk factors in aggressive and non-aggressive patients. The current study's findings did not reveal a significant difference regarding self-perceived strengths on whether or not someone was aggressive. However, findings indicated a significant difference between self-reported risk factors, namely *Severe Symptoms/Poor Coping*, on whether or not someone was aggressive. More specifically, when any patient had at least a single aggressive act, he or she was 1.5 times more likely to report a severe symptom or poor coping skill. The finding that *Severe Symptoms/Poor Coping* is related to aggression is also supported by the literature. In the current study, the items that loaded under the factor *Severe Symptoms/Poor Coping* included items such as "I hear voices and they bother me," and "I drink or take drugs to cope." Although these factors were not assessed for their differential predictability, previous literature has demonstrated their independent relationship with aggression. More specifically, the history of substance abuse and dependence has consistently been found to have a

significant association with institutional aggression throughout the literature (Amore et al., 2008; El-Badri & Mellsop, 2006; Monahan et al., 2001; Soliman & Reza, 2001; Steadman et al., 1998; Swanson et al., 1990). Furthermore, previous findings in the literature have also demonstrated a significant association between positive symptoms of psychosis and violence (Stroup et al., 2003). It appears that experiencing a severe symptom, such as auditory hallucinations, coupled with a maladaptive means of coping with them, such as abusing substances, may lead to acting in an aggressive manner. One may assume that these maladaptive coping skills are not effective, which could increase irritability and lower frustration tolerance.

The first hypothesis proposed that *Activities of Daily Living* and *Cultural and Religious Considerations* would moderate the relationship between *Severe Symptoms/Poor Coping* and IA. Consistent with findings of the research question, *Severe Symptoms/Poor Coping* significantly added to the regression model, although only a small amount of variance was explained by this factor. When testing the moderating effect of the protective factors, no significance was found. This finding is inconsistent with that of previous studies, in which results have demonstrated the protective effects of factors such as involvement in religious activities (Ullrich & Coid, 2011, DeMatteo et al., 2005; Pettersson, 1991), not only in the outcome of aggression but in criminal activity at large. Moreover, this finding did not support proposed models previously discussed.

The resilience process hypothesizes that protective factors, both internal and external, may help by promoting a positive outcome or reduce a negative one (Fergus & Zimmerman, 2005). Fitzpatrick (1997), suggested that protective factors may work in two ways. The first hypothesizes that protective factors reduce the negative effects that

risk factors exert on certain behaviors. The current study may have shown some support of the second proposal by Fitzpatrick, namely the buffering model. This suggests that risk factors have a negative impact in conditions in which protective mechanisms are absent or low. The buffering model has demonstrated support in the adolescent literature. Findings from the current study did not allow ease of testing this model to the dichotomous dependent variable and the consequential, near equal number of self-reported protective and risk factors among the sample. Overall, and despite the non-significant findings in the current study, there is a growing body of literature, rich with significance in the examination of the protective effects of strength factors on aggression and violence.

One major limitation in the current study that may have affected much of the analyses was the low base rate of patients who actually engaged in aggressive acts. The sample size of 300 did not provide a wide enough range of aggressive acts. Many more participants engaged in no aggression than engaged in any one aggressive act, which produced a skewed distribution. Consequently, this necessitated the dichotomization of the dependent variable for the purposes of statistical analyses that do not assume a normal distribution. It is important to consider the fact that base rates of aggression of inpatient violence are typically low (Rogers & Shuman, 2005). Considering this inherent limitation when conducting inpatient studies examining predictors of violence, it is often the case that researchers find greater accuracy in predicting non-violent patients (Haim, Rabinowitz, Lereya, & Fenning, 2002).

By creating a dichotomized dependent variable in the current study, it was not possible to examine the differences between those who had only one aggressive act and

those who were frequently aggressive. Thus, potentially important and significant relationships were not investigated. Initial consideration of the frequencies of the subtypes of aggression revealed that the majority of the *combined aggression* may have been accounted for by reports of *physical aggression against other people*. Other subtypes were limited in the number of acts, such as *verbal aggression* and *aggression against self*. It is possible that the frequency of *verbal aggression* was so low due to its common occurrence on psychiatric units. It is unlikely that a staff member completes an incident report upon every instance in which someone is verbally aggressive. As for self-injury, it is typically a small number of the same people who engage in such behavior, thus naturally limiting its occurrence among a group of people.

As a result of this dichotomous transformation, much information was lost. Likewise, the investigation of outliers was not possible. It may be of significant relevance and an important area of future research, to investigate closely the factors contributing to those patients who repeatedly and frequently engage in IA. Case studies and qualitative research may shed some light on these outliers that exist in many forensic and civil hospital settings.

Another potential reason for the lack of significant findings may have been the result of the invalid check-list used to derive the self-reported risk and protective factors. The Self-Assessment for Treatment/Recovery Planning is a check-list that has not been empirically validated or deemed reliable through statistical means, but is a checklist developed by staff members at NSH. As a result, it cannot be assumed that it is a true measure of the participants' self-perceived strengths and weaknesses. It is a self-report and often completed without the help of others. It is also completed upon admission,

which is a time when patients are most likely unmedicated, emotionally dysregulated, and actively psychotic. Given factors such as these, a self-report measure itself has its limitations. The patient may not be completely honest in reporting and present him or herself either as favorable or as unfavorable. Various psychiatric symptoms may lead participants to view themselves in a more negative manner. Moreover, such symptoms may hinder a patient's ability to think clearly and thus create the inability to accurately evaluate him or herself. Finally, there was the potential for a patient to endorse at random, with no real meaning or consideration of his or her responses.

Despite this potential limitation in the current study, past research findings have demonstrated the ability to use self-report when assessing for protective factors. For example, Miller (2006) utilized the Inventory of Offender Risk, Needs, and Strengths (IORNS), finding that personal resources were negatively correlated with offenders returning to prison. The IORNS is a dichotomous true/false self-report measure assessing risk, dynamic needs, and protective strengths. This measure differs from that in the current study due to the empirically tested reliability and validity of the IORNS.

Although Miller (2006), found significance in using self-report, most literature in this area has utilized empirically established, and clinician-rated instruments in identifying protective factors. For example, The Structured Assessment of PROtective Factors for violence risk (SAPROF; De Vogel et al., 2007) consists of 17 protective factors, two static and 15 dynamic factors. This has been designed for use in conjunction with an SPJ risk assessment instrument (e.g., HCR-20; See Webster et al., 1997). Another instrument is The Short-Term Assessment of Risk and Treatability (START; Webster, Martin, Brink, Nicholls, & Desmarais, 2009), which includes 20 dynamic

strength and vulnerability-related factors and is designed to be used with general psychiatric, forensic, or correctional populations. These instruments would be useful in future research to ensure that variables would be derived from measures that have demonstrated good validity and reliability. Researchers that have used these measures in inpatient settings have found protective effects of strength-related factors such as stable supportive environment, prosocial attitudes, engagement in prosocial activities, and participation in treatment (Viljoen et al., 2011).

The second hypothesis suggested that there would be a higher incidence of patients who engaged in at least one act of aggression if they were forensically committed (i.e., located in the RFPC), or if they have been transferred to civil commitment from the RFPC. Findings did not support this hypothesis, because forensic patients were not more likely to be involved in an aggressive incident. Furthermore, being transferred from the RFPC did not increase the likelihood of being aggressive. This finding is consistent with the literature emphasizing the general public's misconception about the dangerousness of forensic patients. This also highlights the findings of Steadman and Cocozza (1974), whose hypothesis originally assumed that those transferred from a maximum-security hospital to a civil state hospital would inevitably become violent. However, only 20% were subsequently violent.

Results from other studies have demonstrated similar findings when examining the difference between civil and forensic patients. For example, forensic patients have exhibited better premorbid adjustment than civil patients (Schulz, 1995). Additionally, Heilbrun, Golloway, Shourky, and Gustafson (1995) found that although forensic patients were more likely to be threatening or hostile toward others, civil patients were more

likely to be aggressive toward others or to destroy property. Similarly, Seto, Harris, and Rice (2004) found that forensic patients had similar or fewer criminogenic problems (e.g., antisociality and aggression, problems of institutional management), did not differ on life skills or social problems, and scored lower on clinical problems (i.e., psychiatric symptoms), as compared with civil patients.

There may be multiple factors or explanations about the reasons why forensic patients were not found to be more aggressive in the current study. Overall, management of forensic patients may be more effective. This may include the fact that staff is hired specifically for security purposes and are consistently present on the unit. This results in a higher staff-to-patient ratio, in addition to a sense of security among the patients. Moreover, security staff may be better equipped or be trained to handle or defuse problems among the patients they oversee. Another reason may be that forensic patients are already involved in the legal system and do not wish to acquire more charges. Some are still awaiting trial and some are awaiting release. It is likely that they have more incentive not to engage in behavior that would exacerbate or extend their legal issues. A final reason for this finding may be that the forensic patients are not as chronically ill as those who are civilly committed. Patients at the RFPC are primarily committed for restoration of legal competency. This commitment is short-term and the patient will ultimately be discharged back to jail, where he or she will deal with the legal issues. On the other hand, civil commitment can include years of residence in the state hospital due to the chronicity of the persons' mental illness.



**Implications**

These findings carry important implications. The stereotype of forensic patients to become violent can negatively impact overall treatment and interactions as the result of negativistic views and false assumptions. Although being on guard in these settings is imperative, literature suggests that the risk of aggression is not more likely in a forensic setting. Furthermore, the negative stereotype toward forensic patients perpetuates the stigmatizing association between mental illness and violence. This is not only ever-present in the media but also has its implications regarding internalized stigma, which can lead to negative outcomes related to recovery (Yanos, Roe, Markus, & Lysaker, 2008).

Another important implication of this finding suggests that forensic patients could be safely diverted to general mental health settings. Forensic resources are in high demand and beds for those who are in need of forensic services can be more readily available. Since the deinstitutionalization of patients from long-term psychiatric centers, there has been an influx of persons with mental illness entering into the criminal justice system. This can provide support for jail diversion programs, where mentally ill persons involved in the legal system may require treatment in lieu of incarceration.

Despite the lack of significance in the current study regarding the moderating effects of protective factors, prior research does indeed support this relationship. This suggests that protective factors may be just as effective at predicting decreased levels of institutional aggression as risk factors are in predicting increased levels of institutional aggression. This illustrates the ongoing shift toward a strength-based model of risk management and recovery. A shift in focus toward strength and protective factors may result in multiple benefits regarding the enhancement of the therapeutic alliance, as well

as promoting recovery and motivation in clients (Ullrich & Coid, 2011). Furthermore, self-perceived strengths and weaknesses can lead to a feeling of self-efficacy in an individual's involvement in his or her own recovery. This shift has also been seen in the area of risk assessment. A one-sided assessment of risk has been deemed unbalanced when it focuses exclusively on risk and does not consider the positive effects of dynamic protective factors. This focus on pathology can lead to potential biases and negative consequences. Instead, a more balanced view both of risk and of strength-related factors may provide a clear picture of actual risk and ultimately prevent violence through risk management (Ryba, 2008; Rogers, 2000).

Other studies have also validated the idea that focusing on dynamic factors amenable to change via methods of treatment or lifestyle change, constitutes an essential aspect of risk assessment in general (De Ruiter & Nicholls, 2011). A narrowed focus exclusively on risk factors leaves little room for change, because most are static and unchangeable in nature. Changing factors can be utilized and implemented not only in risk assessment, but also in risk management interventions. Because the field of risk assessment is headed in this direction, the continued effort to assess for changing factors remains paramount to this area of research.

### **Other Considerations of Limitations**

One significant area that was not considered in the current study was environmental factors specific to inpatient settings. In the current study, a lack of significant findings might be attributed to the complexity of the inpatient psychiatric environment. Daffern and Howells (2002) reviewed various situational and contextual factors that may serve either to aggravate or to mitigate the engagement of aggression.

For example, staff factors, such as a young age, less experience, poor motivation, and team instability can have an influence on the occurrence of aggression (Taylor & Schanda, 2000). Research has demonstrated that, according to patients, better communication with staff may have prevented them from acting out aggressively (Sheridan, Herion, Robinson, & Baxter, 1990). They often felt disrespected and that their rights had been violated. Historically, it has been demonstrated through research that ward structure and routine have been environmental contributors to inpatient aggression. For example, irritating noise, boredom, limited privacy, and overcrowding have been considered indirect contributors (Dietz & Rada, 1982; Edwards & Reid, 1983).

One particular restriction in secure forensic settings, that may have, in fact, impacted the current study's findings, is the lack of access to those factors that have been deemed as protective in nature. Although research has demonstrated the protective effects of multiple factors such as social support, time spent with family, becoming involved in clubs or social activities, religious involvement, having strong emotional support and positive role models may be lacking in secure settings (DeMatteo et al., 2005; Pettersson, 1991; Ullrich & Coid, 2011; Viljoen et al., & Brink, 2011; Bouman et al., 2010).

Many inpatient hospital settings, and more specifically forensic settings, are secure and locked with limited access to family, friends, and activities patients may have enjoyed in the community. This limits access to these self-identified strengths that may serve as protective factors in times of distress. Often, these protective factors act as coping mechanisms and in their absence, may leave a patient to respond in a maladaptive way (e.g., aggressively). Although one may endorse having many of these factors, a lack

of access to them may prevent their maximum utility or any utility at all. Moreover, in order to examine the true dynamics of these factors, it is necessary not only to identify what they are, but to incorporate them appropriately into treatment, over time.

This limitation creates a challenge with applying the recovery-oriented, strengths-based approach to treatment in secure settings such as these. Solutions to this systemic issue may extend beyond the immediate treatment team's abilities. Allowing patients to have access to these self-identified strengths may be an issue of security. For example, many secure facilities allow phone calls or visits during certain times and only to particular people. Patients may identify activities such as hobbies, art, or music as coping mechanisms, which serve as protective factors in times of distress. For reasons of security, patients may not have access to art supplies such as pencils, scissors, or knives. There may also be limited social support-related activities, such as religious services or hobby groups. Increasing access to these groups would create a need for an increase in the number of staff.

Much of the literature demonstrating the protective effects of these factors have been examined largely on offenders or psychiatric patients released into the community and less so on inpatient populations. This may suggest that the protective factors on inpatient units may be different from those found in previous studies. This further suggests that those who identify themselves as having some of the aforementioned protective factors may in fact do well when released. However, their stay on the inpatient unit may be more challenging as a result of the discrepancy between existing protective factors and the implementation of them. Future research may benefit from exploring this limitation and potentially developing means by which the patients can have access to

their protective coping mechanisms. Another way may be to assess for those that are particular to the inpatient unit that one could utilize while residing there.

Another limitation is that the current study is retrospective, which presents various potential methodological issues. For example, in a retrospective study, data used are obtained from patient charts and archival databases. The origins of the current data are unknown and were likely obtained by various staff employed at NSH. Thus, a uniform method of data collection was not implemented or controlled by the researcher. This could create a potential threat to the validity of this information, given the fact that it is unlikely obtained and recorded by the same staff members. Training according to a standardized method of data collection was not possible. Consequently, this information may be biased or incorrectly transferred into the database from which it was obtained.

An additional limitation is the ungeneralizable nature of the results to populations other than that of an inpatient setting. Thus, these results cannot be generalized either to the general public or to individuals with mental health issues residing in the community. Results are specific to an inpatient setting, where institutional factors may play a significant role in the relationship between protective and risk factors and aggression, specific to that facility. Moreover, these factors may differ across forensic and civil psychiatric units. Such potential restrictions and environmental factors were not considered in the analyses of the current study.

The current study also did not investigate the differential effects of the individual items of the checklist. Instead, a principle components analysis was performed to assess how the items statistically grouped. Consequently, information was lost and many items from the checklist were not included in the analysis. Examples of items not included

pertained to education and vocational history, discharge planning, and treatment compliance. Findings from previous literature have demonstrated an association between some of these variables and aggression (Viljoen et al., 2011).

A final limitation is that the current study measured the independent variable only at a single time point. This may not have captured the full utility of dynamic risk and protective factors that change over time. Changes in these factors were not assessed, despite the dependent variable being measured across the length of stay for most participants. Thus, the exact changes in the independent variable as related to change in the dependent variable could not be assessed.

### **Other Considerations of Future Research**

Overall, research is limited in the specific exploration of the relationship between protective factors and aggression in adults. More specifically, there is a paucity of research that has addressed this in inpatient settings, which warrants further investigation. Much of the research regarding protective factors has been conducted with adolescents and in correctional settings with adults. As a result, this area of research would certainly benefit from examining this relationship with inpatient populations, not only in forensic settings, but also and, specifically, in civil psychiatric or general psychiatric inpatient settings. Research in this area involved in civil psychiatric settings is seriously limited. To address the issue of increased aggression in forensic or civil populations accurately, more research is warranted in both areas.

Given the commonly low base rates of aggression within inpatient settings, consideration of these settings in future research may be necessary. This may include the integration of base rates along with clinical information in order to predict IA accurately

(Vitacco et al., 2009). Other means of solving this problem might be assessing aggression in a larger sample size or using data from multiple sites. Additionally, collection in a longitudinal time frame would potentially increase the frequency of IA. It may also be beneficial to collect data at multiple time points not only for IA, but for the dynamic predictor variables as well. This methodology increases the reliability of capturing change in dynamic risk and protective factors associated with IA (Douglas & Skeem, 2005).

Due to the current study's low base rate issue, it was not possible to assess for differences in subtypes of IA. Authors seeking to examine predictors of IA may want to consider investigating the differential effects of various types of aggression. Failure to obtain consistent findings throughout the literature may be due to neglect in accounting for different types of aggression (Viljoen et al., 2011). Testing differential relationships may provide a clearer picture about the predictors for each specific subtype. Moreover, future research may benefit from assessing instrumental and reactive subtypes as well, due to a well-developed theoretical and empirically driven understanding of these subtypes (See Fontaine, 2007).

Future research in the area might also benefit from assessing these factors by self-report in a prospective study, rather than in a retrospective manner, as in the current study. Given the significant findings in other studies using self-report in this context, consideration of how self-report may offer an accurate picture of risk should be considered. Doing so in a prospective manner would increase the internal validity of the findings related to a more uniform and consistent gathering and organizing of the data used for analysis. Moreover, researchers may want to continue a comparison of

differences both in forensic and in civil inpatient units. It is also important to include environmental factors specific to those units that may influence a patient's likelihood of becoming aggressive.

Finally, it may be useful to explore the differences in aggression among those patients who are cooperative and those patients who are not cooperative when it comes to reporting characteristics of themselves or simply filling out paperwork. For example, the current study utilized a self-report check-list that 84 of the eligible participants refused to complete. Patients who refused to comply with hospital procedures may compose a special group. Thus, examining their likelihood to be aggressive as compared with those who are compliant and cooperative through the admission process may be warranted. This may reveal that refusal to complete surveys or related forms may be a particular risk factor in and of itself.



### References

- Aarti, R. (2006). Strengths perspective in mental health (evidence based case study). *The Brisbane Institute of Strengths Based Practice, Inc.* Retrieved from <http://www.strengthbasedstrategies.com/PAPERS/16RanganFormatted.pdf>
- Amore, M., Menchetti, M., Tonti, C., Scarlatti, F., Lundgren, E., Esposito, W., & Berardi, D. (2008). Predictors of violent behavior among acute psychiatric patients: Clinical study. *Psychiatry and Clinical Neurosciences*, *62*, 247-255. doi: 10.1111/j.1440-1819.2008-01790.x
- Andrews, D. A., & Bonta, J. (2006). *The psychology of criminal conduct* (4th ed.). Newark, NJ: LexisNexis/Anderson.
- Bartels, S. J., Drake, R. E., Wallach, M. A., & Freeman, D. H. (1991). Characteristic hostility in schizophrenic outpatients. *Schizophrenia Bulletin*, *17*, 163-171.
- Bonta, J., & Andrews, D. A. (2007). *Risk-need-responsivity model for offender assessment and rehabilitation* (Corrections Research User Report No. 2007-06). Ottawa, Ontario: Public Safety Canada.
- Borum, R., Bartel, P., & Forth, A. (2002). *Manual for the Structured Assessment of Violence Risk in Youth (SAVRY), consultation edition, Version 1*. Tampa: University of South Florida.
- Bouman, Y. H. A., Ruiter, C. de., & Schene, A. H. (2010). Social ties and short-term self-reported delinquent behavior of personality disordered forensic outpatients. *Legal and Criminological Psychology*, *15*, 357-372. doi: 10.1348/135532509X444528
- Carmel, H., & Hunter, M. (1993). Staff injuries from patient attack: Five years' data. *The Bulletin of the American Academy of Psychiatry and the Law*, *21*(4), 485-493.

- Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 245-276.
- Cornaggia, C. M., Beghi, M., Pavone, F., & Barale, F. (2011). Aggression in psychiatry wards: A systematic review. *Psychiatry Research, 189*, 10-20. doi: 10.1016/j.psychres.2010.12.024
- Daffern, M., & Howells, K. (2002). Psychiatric inpatient aggression: A review of structural and functional assessment approaches. *Aggression and Violent Behavior, 7*, 477-497.
- DeMatteo, D., Heilbrun, K., & Marczyk, G. (2005). Psychopathy, risk of violence, and protective factors in a noninstitutionalized and noncriminal sample. *International Journal of Forensic Mental Health, 4*(2), 147-157.
- Dietz, P. E., & Rada, R. T. (1982). Battery incidents and batterers in a maximum security hospital. *Archives of General Psychiatry, 39*, 31 – 34.
- Douglas, K. S., & Skeem, J. L. (2005). Violence risk assessment: Getting specific about being dynamic. *Psychology, Public Policy, and Law, 11*(3), 347-383. doi: 10.1037/1076-8997.11.3.347
- Dvoskin, J. A., & Heilbrun, K. (2001). Risk assessment and release decision-making: Toward resolving the great debate. *Journal of the American Academy of Psychiatry Law, 29*, 6-10.
- Edwards, J. G., & Reid, W. H. (1983). *Violence in psychiatric facilities in Europe and the United States*. In J. R. Lion, & W. H. Reid (Eds.), *Assaults within psychiatric facilities* (pp. 131 – 142). New York: Grune & Stratton.

- El-Badri, S. M., & Mellsop, G. (2006). Aggressive behavior in an acute general adult psychiatric unit. *Psychiatric Bulletin*, *30*, 166-168. doi: 10.1192/pb.30.5.166
- Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*, *26*, 399-419. doi: 10.1146/annurev.publhealth.26.021304.144357
- Field, A. (2005). *Discovering statistics using spss* (2<sup>nd</sup> ed.). London, England: Sage.
- Fitzpatrick, K. M. (1997). Fighting among America's youth: A risk and protective factors approach. *Journal of Health and Social Behavior*, *38*(2), 131-148.
- Fontaine, R. G. (2007). Disentangling the psychology and law of instrumental and reactive subtypes of aggression. *Psychology, Public Policy, and Law*, *13*, 143-165. doi: 10.1037/1076-8971.13.2.143.
- Gilgun, J. F., Klein, C., & Pranis, K. (2000). The significance of resources in models of risk. *Journal of Interpersonal Violence*, *15*(6), 631-650. doi: 10.1177/088626000015006005
- Goldberg, B. R., Serper, M. R., Sheets, M., Beech, D., Dill, C., & Duffy, K. G. (2007). Predictors of aggression on the psychiatric inpatient service: Self-esteem, narcissism, and theory of mind deficits. *Journal of Nervous and Mental Disease*, *195*(5), 436-442. doi: 10.1097/01.nmd.0000253748.47641.99
- Grisso, T., & Appelbaum, P. S. (1992). Is it unethical to offer predictions of future violence? *Law and Human Behavior*, *16*(6), 621-633. doi: 10.1007/BFR01884019
- Haim, R., Rabinowitz, J., Lereya, J., & Fenning, A. (2002). Predictions made by psychiatrist and psychiatric nurses of violence by patients. *Psychiatric Services (Washington, D.C.)*, *53*, 622-624. doi: 10.1176/appi.ps.53.5.622

- Hanson, R. K. (2005). Twenty years of progress in violence risk assessment. *Journal of Interpersonal Violence, 20*(2), 212-217. doi: 10.1177/0886260504267740
- Heilbrun, K. (1997). Prediction versus management models relevant to risk assessment: The importance of legal decision-making context. *Law and Human Behavior, 21*(4), 347-359. doi: 10.1023/A:1024851017947
- Heilbrun, K., Golloway, G. G., Shoukry, V. E., & Gustafson, D. (1995). Physical control of patients on an inpatient setting: Forensic vs. civil populations. *Psychiatric Quarterly, 66*, 133-145.
- Hoptman, M. J., Yates, K., Patalinjug, M. B., Wack, R. C., & Convit, A. (1999). Clinical prediction of assaultive behavior among male psychiatric patients at a maximum-security forensic facility. *Psychiatric Services, 50*, 1461-1466.
- Kay, S. R., Wolkenfeld, F., & Murrill, L. M. (1998). Profiles of aggression among psychiatric patients: II. Covariates and predictors. *Journal of Nervous & Mental Disease, 176*, 547-557.
- Klassen, D., & O'Connor, W. (1989). Assessing the risk of violence in released mental patients: A cross-validation study. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 1*(2), 75-81. doi: 10.1037/1040-3590.1.2.75
- Kotler, M., Finkelstein, G., Molcho, A., Botsis, A. J., Plutchik, R., Brown, S., & Van Praag, H. M. (1993). Correlates of suicide and violence risk in an inpatient population: Coping styles and social support. *Psychiatry Research, 47*, 281-290. doi: 10.1016/0165-1781(93)90085-U

- Lidz, C. W., Mulvey, E. P., & Gardner, W. (1993). The accuracy of predictions of violence to others. *The Journal of the American Medical Association*, 269(8), 1007-1011. doi: 10.1001/jama.1993.03500080055032.
- Link, B. G., Stueve, A., & Phelan, J. (1998). Psychotic symptoms and violent behaviors: Probing the components of “threat/control-override” symptoms. *Social Psychiatry and Psychiatric Epidemiology*, 33(13), 55-60. doi: 10.1007/s001270050210
- Lodewijks, H. P. B., De Ruiter, C., & Doreleijers, T. A. H. (2010). The impact of protective factors in desistance from violent reoffending: A study in three samples of adolescent violent offenders. *Journal of Interpersonal Violence*, 25, 568-587.
- Losel, F., & Bliesener, T. (1994). Some high-risk adolescents do not develop conduct problems: A study of protective factors. *International Journal of Behavioral Development*, 17(4), 753-777. doi: 10.1177/016502549401700411
- Lussier, P., Verdun-Jones, S., Deslauriers-Varin, N., Nicholls, T., & Brink, J. (2009). Chronic violent patients in an inpatient psychiatric hospital. *Criminal Justice and Behavior*, 37(1), 5-28. doi: 10.1177/0093854809347738
- Martin, T., & Daffern, M. (2006). Clinician perceptions of personal safety and confidence to manage inpatient aggression in a forensic psychiatric setting. *Journal of Psychiatric and Mental Health Nursing*, 13(1), 90-99. doi: 10.1111/j.1365-2850.2006.00920.x
- McCusker, P. J. (2007). Issues regarding the clinical use of the classification of violence risk (COVR) assessment instrument. *International Journal of Offender Therapy and Comparative Criminology*, 51(6), 676-685. doi: 10.1177/0306624X07299227

McDermott, B. E., Edens, J. F., Quanbeck, C. D., Busse, D. & Scott, C. L. (2008).

Examining the role of static and dynamic risk factors in the prediction of inpatient violence: Variable-and person-focused analyses. *Law and Human Behavior*, 32, 325-338. doi: 10.1007/s10979-07-9094-8

McNiel, D. E., & Binder, R. L. (1991). Clinical assessment of the risk of violence among psychiatric inpatients. *The American Journal of Psychiatry*, 148(10), 1317-1321.

Melton, G. B., Petrila, J., Poythress, N. G., & Slobogin, C. (2007). *Psychological evaluations for the courts: A handbook for mental health professionals and lawyers*. New York, NY: The Guilford Press.

Menard, S. (1995). *Applied logistic regression analysis*. Sage university paper series on quantitative applications in the social sciences, 07-106. Thousand Oaks, CA: Sage.

Menzies, R., & Webster, C. D. (1995). Construction and validation of risk assessment in a six-year follow-up of forensic patients: A tridimensional analysis. *Journal of Consulting and Clinical Psychology*, 63,766-778. doi: 10.1037/0022-006X.63.5.766

Miller, H. A. (2006). A dynamic assessment of offender risk, needs, and strengths in a sample of pre-release general offenders. *Behavioral Sciences and the Law*, 24, 767-782. doi: 10.1002/bsl.728

Monahan, J. (2002). The macarthur studies of violence risk. *Criminal Behavior and Mental Health*, 12, S67-S72.

- Monahan, J., & Steadman, H. (2001). Violence risk assessment: A quarter century of research. In L. E. Frost, & R. J. Bonnie (Eds.), *The evolution of mental health law* (pp. 195-211). doi:10.1037/10414-010
- Monahan, J., Steadman, H. J., Appelbaum, P. S., Grisso, T., Mulvey, E. P., Roth, L. H.,...Silver, E. (2006). The Classification of violence risk. *Behavioral Sciences and the Law*, 24, 721- 730. doi: 10.1002/bsl.725
- Monahan, J., Steadman, H., Silver, E., Appelbaum, P., Robbins, P., Mulvey, E.,...Banks, S. (2001). *Rethinking risk assessment: The MacArthur study of mental disorder and violence*. New York, NY: Oxford University Press.
- Nicholls, T. L., Brink, J., Desmarais, S. L., Webster, C. D., & Martin, M. L. (2006). The short-term assessment of risk and treatability (START): A prospective validation study in a forensic psychiatric sample. *Assessment*, 13(3), 313-327. doi: 10.1177/1073191106290559
- Nicholls, T. L., Brink, J., Greaves, C., Lussier, P., & Verdun-Jones, S. (2009). Forensic psychiatric inpatients and aggression: An exploration of incidence, prevalence, severity, and interventions by gender. *International Journal of Law and Psychiatry*, 32, 23-30. doi: 10.1016/j.ijlp.2008.11.007
- Nijman, H. L. I., Allertz, W. F. F., Merckelbach, H. L. G. J., Campt, J. L. M. G., & Ravelli, D. P. (1997). Aggressive behavior on an acute psychiatric admissions ward. *European Journal of Psychiatry*, 11(2), 106-114.
- Pennsylvania Mental Health Procedures (n.d.) in *The Pennsylvania Code*. Retrieved from <http://www.pacode.com/index.html>

- Pettersson, T. (1991). Religion and criminality: Structural relationships between church involvement and crime rates in contemporary Sweden. *Journal for the Scientific Study of Religion, 30*(3), 279-291.
- Quinsey, V. L., Jones, G. B., Book, A. S., & Barr, K. N. (2006). The dynamic prediction of antisocial behavior among forensic psychiatric patients: A prospective field study. *Journal of Interpersonal Violence, 21*(12), 1539-1565. doi: 10.1177/0886260506294238
- Rennie, C. E., & Dolan, M. C. (2010). The significance of protective factors in the assessment of risk. *Criminal Behavior and Mental Health, 20*, 8-22. doi: 10.1002/cbm.750
- Resnick, S. G., Fontana, A., Lehman, A. F., & Rosenheck, R. A. (2005). An empirical conceptualization of the recovery orientation. *Schizophrenia Research, 75*(1), 119-128.
- Robins, L., & Regier, D. (Eds.). (1991). *Psychiatric disorders in America: The Epidemiological Catchment Area study*. New York: Free Press.
- Rogers, R. (2000). The uncritical acceptance of risk assessment in forensic practice. *Law and Human Behavior, 24*(5), 595-605. doi: 10.1023/A:1005575113507
- Rogers, R., & Shuman, D. W. (2005). *Fundamentals of forensic practice: Mental health and criminal law*. New York: Springer Science + Business Media.
- Ruiter, C., de., & Nicholls, T. L. (2011). Protective factors in forensic mental health: A new frontier. *International Journal of Forensic Mental Health, 10*, 160-170. doi: 10.1080/14999013.2011.600602



- Rutter, M. (1985). Resilience in the face of adversity. Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, *147*, 598-611. doi: 0.1192/bjp.147.6.598
- Ryba, N. L. (2008). The other side of the equation: Considering risk state and protective factors in violence risk assessment. *Journal of Forensic Psychology Practice*, *8*(4), 413-423. doi: 10.1080/15228930802199382
- Saleebey, D. (1996). The strengths perspective in social work practice: Extensions and cautions. *Social Work*, *41*(3), 296-305.
- Schulz, D. E. (1995). A comparison of thought disorder, premorbid adjustment, and psychopathy between forensic and civil psychiatric inpatients. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, *56*(11), 6406. (UMI No. 9608023).
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive Psychology: An introduction. *American Psychologist*, *55*(1), 5-14. doi: 10.1037/0003-066X.55.1.5
- Seto, M. C., Harris, G. T., & Rice, M. E. (2004). The criminogenic, clinical, and social problems of forensic and civil psychiatric patients. *Law and Human Behavior*, *28*(5), 577-586. doi: 10.1023/B.LAHU.0000046435.98590.55
- Sheridan, M., Herion, R., Robinson, L., & Baxter, V. (1990). Precipitants of violence in a psychiatric inpatient setting. *Hospital and Community Psychiatry*, *41*(7), 776 – 780.

- Simpson, A. I. F., & Penney, S. R. (2011). Editorial: The recovery paradigm in forensic mental health services. *Criminal Behavior and Mental Health, 21*, 299-306. doi: 10.1002/cbm
- Skeem, J. L., & Monahan, J. (2011). Current directions in violence risk assessment. *Current Directions in Psychological Science, 20*(1), 38-42. doi: 10.1177/0963721410397271
- Soliman, A., & Reza, H. (2001). Risk factors and correlates of violence among acutely ill adult psychiatric inpatients. *Psychiatric Services, 52*(1), 75-80.
- Steadman, H. J., & Cocozza, J. J. (1974). *Careers of the criminally insane: Excessive social control of deviance*. Lexington, MA: D C Health.
- Steadman, H. J., & Morrissey, J. P. (1981). The statistical prediction of violent behavior: Measuring the costs of a public protectionist versus a civil libertarian model. *Law and Human Behavior, 5*(4), 263-274. doi: 10.1007/BF01044942
- Steadman, H. J., Mulvey, E. P., Monahan, J., Robbins, P. C., Appelbaum, P. S., Grisso, T., Roth, L. H., & Silver, E. (1998). Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhoods. *Archives of General Psychiatry, 55*, 393-401. doi: 10.1001/archpsych.55.5.393
- Steinert, T. (2002). Prediction of inpatient violence. *Acta Psychiatrica Scandinavica, 106*, 133-141. doi: 10.1034/j.1600-0447.106.s412.29.x
- Stroup, T. S., McEvoy, J. P., Swartz, M. S., Byerly, M. J., Glick, I. D., Canive, J. M.,...Lieberman, J. A. (2003). The national institute of mental health clinical antipsychotic trials of intervention effectiveness (CATIE) project: Schizophrenia trial design and protocol development. *Schizophrenia Bulletin, 29*, 15-31.

- Stubner, S., Grob, G., & Nedopil, N. (2006). Inpatient risk management with mentally ill offenders: Results of a survey on clinical decision-making about easing restrictions. *Criminal Behaviour and Mental Health, 16*, 111-123. doi: 10.1002/cbm.619
- Swanson, J. W., Borum, R., Swartz, M. S., & Monahan, J. (1996). Psychotic symptoms and disorders and the risk of violent behaviour in the community. *Criminal Behaviour and Mental Health, 6*, 309-329.
- Swanson, J. W., Holzer, C. E. III, Ganju, V. K., & Jono, R. T. (1990). Violence and psychiatric disorder in the community: Evidence from the epidemiologic catchment area surveys. *Hospital and Community Psychiatry, 41*, 761-70.
- Swanson, J. W., Swartz, M. S., Van Dorn, R. A., Elbogen, E. B., Wagner, H. R., Rosenheck, R. A.,...Lieberman, J. A., (2006). A national study of violent behavior in persons with schizophrenia. *Archives of General Psychiatry, 63*, 490-499.
- Taylor, P. J., Leese, M., Williams, D., Butwell, M., Daly, R., & Larkin, E. (1998). Mental disorder and violence: A special (high security) hospital study. *British Journal of Psychiatry, 172*, 218-226.
- Taylor, P. J., & Schanda, H. (2000). *Violence against others by psychiatric hospital in patients: prevention strategies and challenges to their evaluation*. In S. Hodgins, & R. Muller Isberner (Eds.), *Violence, crime and mentally disordered offenders: concepts and methods for effective treatment and prevention* (pp. 251 – 275). Bognor Regis: Wiley.

- Ullrich, S., & Coid, J. (2011). Protective factors for violence among released prisoners-effects over time and interactions with static risk. *Journal of Consulting and Clinical Psychology, 79*(3), 381-390. doi: 10.1037/a0023613
- Vance, J. E., Bowen, N. K., Fernandez, G., & Thompson, S. (2002). Risk and protective factors as predictors of outcome in adolescents with psychiatric disorder and aggression. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*(4), 36-43.
- Viljoen, S. M., Nicholls, T., Greaves, C., Ruiter, C., de., & Brink, J. (2011). Resilience and successful community reintegration among female forensic psychiatric patients: A preliminary investigation. *Behavioral Sciences and the Law, 29*, 752-770. doi: 10.1002/bsl.1001
- Vitacco, M. J., Van Rybroek, G. J., Rogstad, J. E., Yahr, L. E., Tomony, J. D., & Saewert, E. (2009). Predicting short-term institutional aggression in forensic patients: A multi-trait method for understanding subtypes of aggression. *Law of Human Behavior, 33*, 308-319. doi: 10.1007/s10979-008-9155-7
- Vogel, V. De., Vries Robbe, M. De., Ruiter, C. De., & Bouman, Y. (2011). Assessing protective factors in forensic psychiatric practice: Introducing the SAPROF. *International Journal of Forensic Mental Health, 10*, 171-177. doi: 10.1080/14999013.2011.600230
- Vries Robbe, M. De, Vogel, V. De, & Spa, E. De. (2011). Protective factors for violence risk in forensic psychiatric patients: A retrospective validation study of the SAPROF. *International Journal of Forensic Mental Health, 10*, 178-186. doi: 10.1080/14999013.2011.600232

- Yudofski, S. C., Silver, J. M., Jackson, W., Endicott, J., & Williams, D. (1986). The Overt Aggression Scale for the objective rating of verbal and physical aggression. *American Journal of Psychiatry*, *143*(1), 35-39.
- Ward, T., & Brown, M. (2004). The good lives model and conceptual issues in offender rehabilitation. *Psychology, Crime and Law*, *10*, 243-257.
- Webster, C. D., Martin, M. L., Brink, J., Nicholls, T. L., & Desmarais, S. L. (2009). *Manual for the Short-Term Assessment of Risk and Treatability (START) (Version 1.1)*. Port Coquitlam, Canada: BC Mental Health & Addiction Services.
- Webster, C. D., Nicholls, T. L., Martin, M. L., Desmarais, S. L., & Brink, J. (2006). Short-term assessment of risk and treatability (START): The case for a new structured professional judgment scheme. *Behavioral Sciences and the Law*, *24*, 747-766. doi: 10.1002/bsl.737
- Wilson, C. M., Desmarais, S. L., Nicholls, T. L., & Brink, J. (2010). The role of client strengths in assessments of violence risk using the short-term assessment of risk and treatability (START). *International Journal of Forensic Mental Health*, *9*(4), 282-293. doi: 10.1080/14999013.2010.534694
- Yanos, P.T., Roe, D., Markus, K., & Lysaker, P.H. (2008). Pathways between internalized stigma and outcomes related to recovery in schizophrenia-spectrum disorders. *Psychiatric Services*, *59*, 1437-1442.

**Appendix A**

Table A1

*Number of Participants and Percentages (N=300) for Sociodemographic, Location of Commitment, Legal History, and Institutional Aggression*

Variable	N	%
<b>Sex</b>		
-Male	223	74.3%
-Female	77	25.7%
<b>Race</b>		
-White, Non-Hispanic	138	46%
-Black, Non-Hispanic, African Origin	141	47%
-White Hispanic	15	5%
-Asian, Pacific Islander	4	1.3%
-Black Hispanic	2	0.7%
<b>Location of Commitment</b>		
-RFPC (Forensic)	190	63.3%
-Civil (General Psychiatric)	110	36.7%
-Transfer from RFPC to Civil	40	13.3%
<b>Legal History</b>		
-Sex Offense	6	2%
-Arson	12	4%
-Assault	107	35.7%
-Murder	19	6.3%

Table A1 (Continued)

Variable	<i>N</i>	%
-Attempted Murder	3	1%
Diagnosis		
-Psychotic Disorder	227	75.7%
-Affective Disorder	62	20.7%
-Other	9	99.3%
Institutional Aggression (Dichotomous)		
-Verbal Aggression	88	29.3%
-Aggression Against Self	35	11.7%
-Aggression Against Objects	46	15.3%
-Aggression Against Others	127	42.3%
-Combined Aggression (Any type)	148	49.3%
Self-Reported Protective and Risk Factors		
-Activities of Daily Living	168	43.8%
-Cultural and Religious Considerations	149	38.8%
-Severe Symptoms/Poor Coping	155	40.4%

Table A2

*Factor Loadings for Activities of Daily Living, Cultural and Religious Considerations, and Severe Symptoms/Poor Coping Based on the Principle Components Analysis with Varimax Rotation (N=300)*

Item	Factor I	Factor II	Factor III
	Activities of Daily Living	Cultural and Religious Considerations	Severe Symptoms/Poor Coping
I can cook	.791		
I can use public transportation	.743		
I can shop	.650		
I can manage financial affairs	.530		
I want my cultural values to be understood		.847	
I want my religious beliefs to be understood and respected		.763	
I need a special diet for my cultural/religious beliefs		.687	
I feel like hurting myself at times			.822
I feel like killing myself at times			.820
I hear voices and they bother me			.665
I drink or take drugs to cope			.518
I am very depressed			.514



Table A3  
*Factor Correlations Following Varimax Rotation*

Factor	Activities of Daily Living	Cultural and Religious Considerations	Severe Symptoms/Poor Coping
Activities of Daily Living	1	.142	-.091
Cultural and Religious Considerations	.142	1	.094
Severe Symptoms/Poor Coping	-.091	.094	1

Table A4

*Logistic Regression Statistics for Moderation Model (N = 300) of Protective Factors*

Block	Chi-Square	df	p	-2LL	Cox & Snell R <sup>2</sup>	Nagelkerke R <sup>2</sup>	Model Change	Chi-Square	df	Sig
<u>Block 1</u>	8.43	1	.004	407.41	.028	.037				
Sxs/Coping <sup>1</sup>										
<u>Block 2</u>	6.47	4	.167	400.94	.048	.065	14.894	5	0.11	
Activities <sup>2</sup>										
Culture&Rel <sup>3</sup>										
Activities*Sxs <sup>4</sup>										
Culture*Sxs <sup>5</sup>										

<sup>1</sup>Severe Symptoms/Poor Coping (Risk)

<sup>2</sup>Activities of Daily Living (Protective)

<sup>3</sup>Cultural and Religious Considerations (Protective)

<sup>4</sup>Activities of Daily Living\*Severe Symptoms/Poor Coping (Interaction Term)

<sup>5</sup>Cultural and Religious Considerations\*Severe Symptoms/Poor Coping (Interaction Term)

Table A5

*Logistic Regression Analysis of Effects of Protective Factors on the Relationship between Risk Factors and Aggression*

Variable	Block 1					Block 2				
	B	S.E.	Wald	Sig	Exp (B)	B	S.E.	Wald	Sig.	Exp (B)
Sxs	.676	.234	8.30	.004	1.966	.266	.404	.433	.511	1.305
Coping <sup>1</sup>										
Activities						-.874	.357	5.999	.014	.417
<sup>2</sup>									*	
Culture& Rel <sup>3</sup>						.328	.354	.861	.353	1.388
Activities						.869	.485	3.206	.073	2.383
*Sxs <sup>4</sup>										
Culture*						-.246	.485	3.206	.073	2.383
Sxs <sup>5</sup>										

<sup>1</sup>Severe Symptoms/Poor Coping (Risk)

<sup>2</sup>Activities of Daily Living (Protective)

<sup>3</sup>Cultural and Religious Considerations (Protective)

<sup>4</sup>Activities of Daily Living\*Severe Symptoms/Poor Coping (Interaction Term)

<sup>5</sup>Cultural and Religious Considerations\*Severe Symptoms/Poor Coping (Interaction Term)

**Appendix B**

Figure B1

*Distribution of Activities of Daily Living*

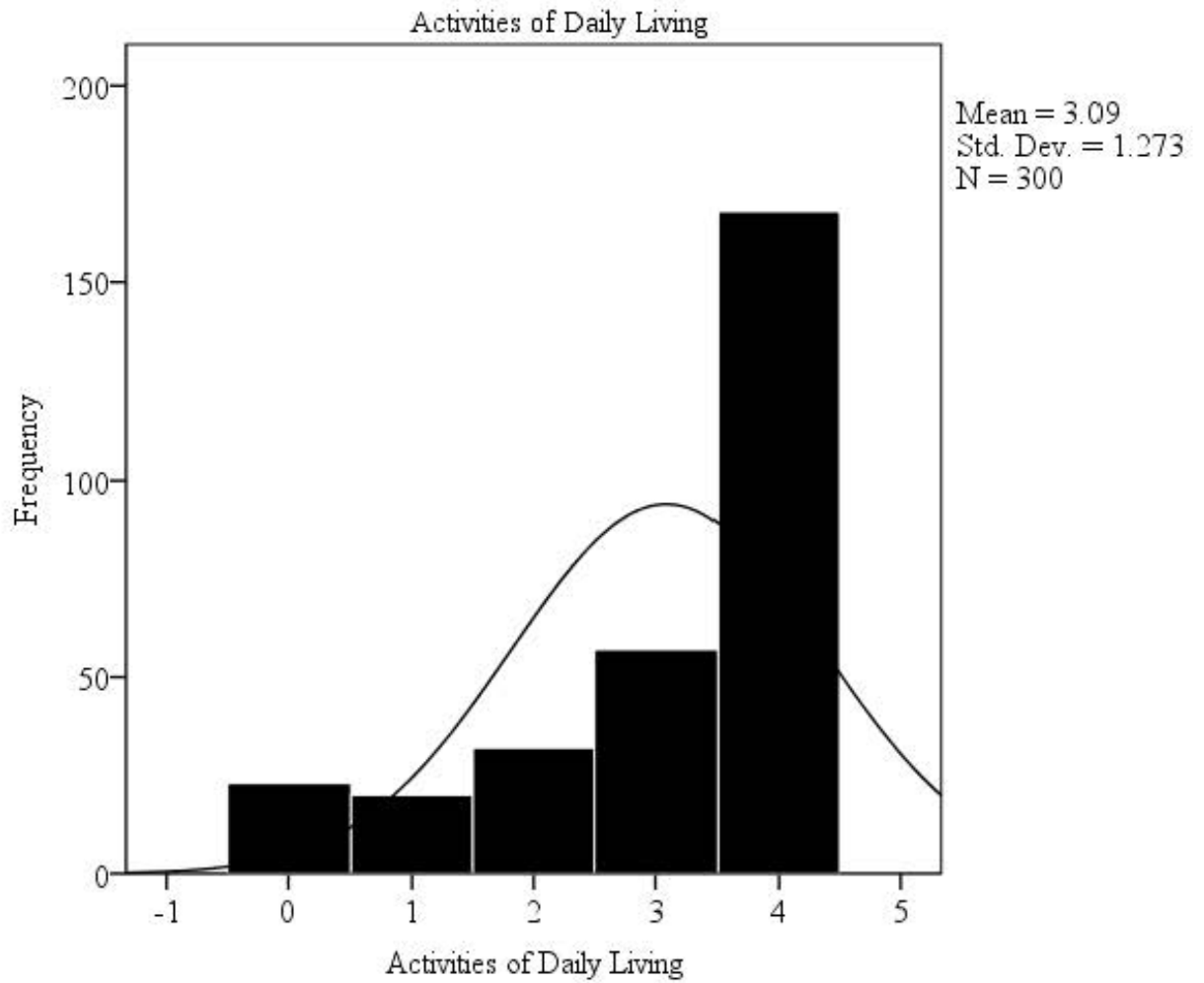


Figure B2

*Distribution of Cultural and Religious Considerations*

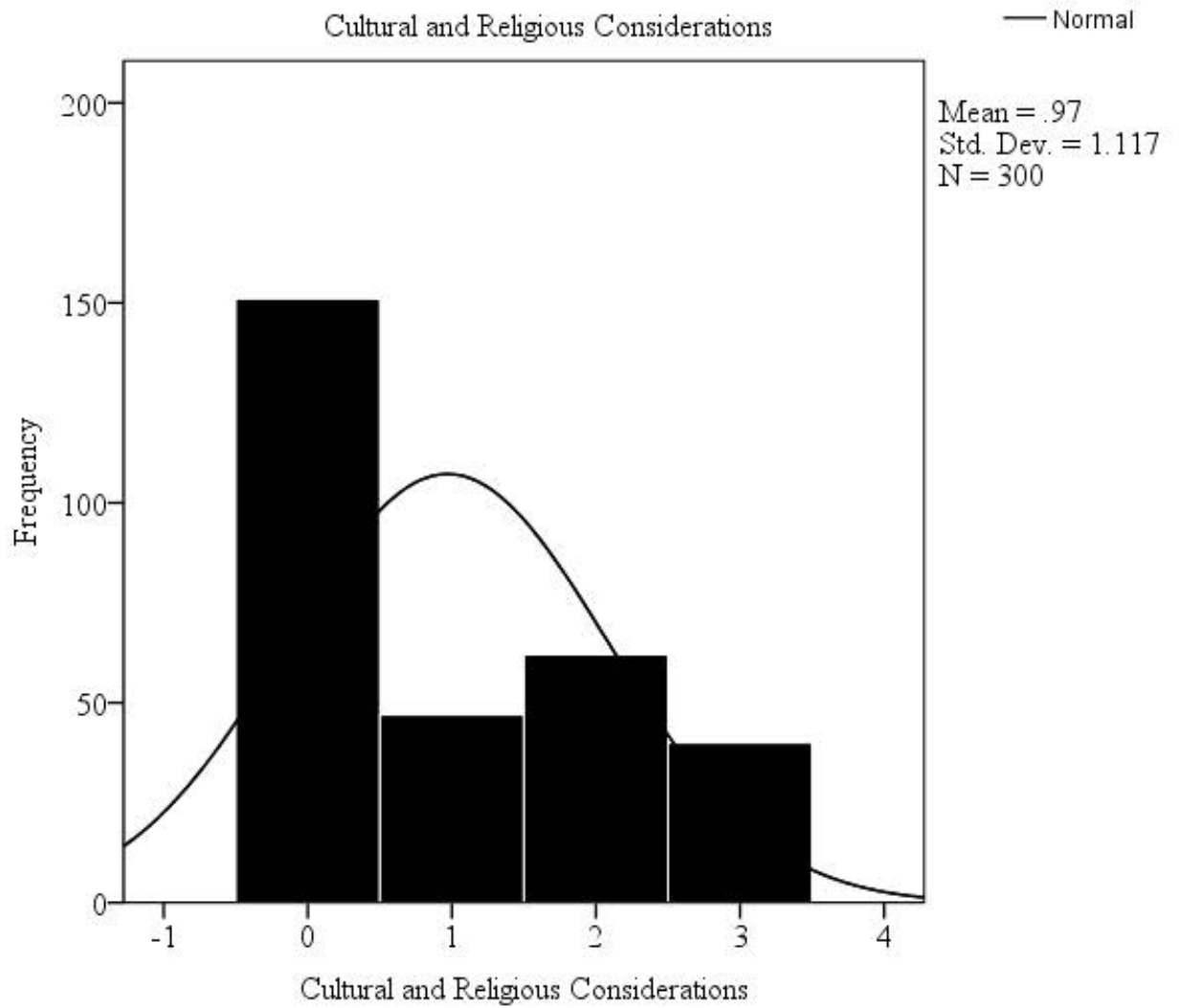


Figure B3

*Distribution of Severe Symptoms/Poor Coping*

