History of Violence, Substance Abuse, and Mental Illness:

Perceptions of Risk Factors and Communication of Risk

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To Clarice, for always believing in me and to

Pele, for always providing a smile when I needed one.
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# Table of Contents

List of Tables....................................................................................................................... vi

Abstract ................................................................................................................................. vii

Introduction .......................................................................................................................... 1

Risk Factors .......................................................................................................................... 2

History of Violence ............................................................................................................... 3

Substance Abuse .................................................................................................................. 6

Mental Illness ....................................................................................................................... 9

Risk Communication .......................................................................................................... 14

Perception of Risk ............................................................................................................... 17

Hypotheses ......................................................................................................................... 21

Method .................................................................................................................................. 22

Participants ........................................................................................................................... 22

Measures .............................................................................................................................. 23

Procedure ............................................................................................................................. 24

Results .................................................................................................................................. 24

Hypothesis 1 ......................................................................................................................... 24

Hypothesis 2 ......................................................................................................................... 25

Hypothesis 3 ......................................................................................................................... 27

Hypothesis 4 ......................................................................................................................... 28
Hypothesis 5

Hypothesis 6

Hypothesis 7

Hypothesis 8

Hypothesis 9

Hypothesis 10

Discussion

References

Table 1: Vignettes Describing High, Moderate, and Low Risk of Future Violence

Table 2: Participants’ (N = 300) Gender, Year in School, Race, Major, and Age

Appendix A: Questionnaire

Vita
List of Tables

Table 1: Vignettes Describing High, Moderate, and Low Risk of Future Violence……51

Table 2: Participants’ (N = 300) Gender, Year in School, Race, Major, and Age………52
Research on violence risk assessment has grown substantially in the last three decades. Much of this research has focused on the development of risk assessment tools, identifying factors which contribute to the risk of violence and offending. Among the risk factors investigated in this research are a history of violence, substance abuse, and serious mental illness. However, there are misperceptions within the general public (who might serve on juries making decisions informed by violence risk) about the degree to which history of violence, mental illness, and substance abuse may contribute to an individual’s risk for future violence. The current study examines the perception of these three violence risk factors, selected because of the empirical evidence suggesting that two (violence history and substance abuse) are strong, while the third (mental illness) is misperceived to be strong but is actually modest. Participants were college students, each completing one of 8 vignettes in a 2 x 2 x 2 between-subjects design in which the presence of each of these three risk factors is systematically varied.
Introduction

Violence risk assessment addresses an important question, involving the likelihood that an individual will commit future acts of violence. This is a question that occurs in a number of legal decisions, including civil commitment, capital sentencing, diversion into specialty courts, and release from a variety of forms of criminal commitment (e.g., Not Guilty by Reason of Insanity, Violent Sexual Predator). The accurate use of mental health testimony regarding such risk assessment presumes that legally-relevant individuals who are not mental health professionals (e.g., jurors, parole/probation officers, judges, attorneys) can (a) recognize that a risk assessment tool has been scientifically validated, and (b) understand that risk assessment tools function by measuring the presence of empirically-supported risk factors for violence. To the extent that either presumption is inaccurate, such individuals are less likely to make well-informed decisions regarding an individual’s risk of future violence. The proposed study considers how well college students, to some extent representative of the general public, understand and apply three risk factors (history of violence, substance abuse, and mental illness) for violence. Although undergraduates may be thought as different from the general population, recent research indicates that the use of undergraduates may not be a problem when considering external validity (Druckman & Kam, 2009). Furthermore specific research on using undergraduates as mock jurors has indicated that they are not much different from other mock jurors (Bornstein, 1999). The variables history of violence, substance abuse, and mental illness were selected because the first two are strong and apply across a variety of populations, while the third is often misperceived as strong but actually quite modest. After summarizing the scientific evidence regarding
risk assessment, this section addresses the evidence regarding each of these risk factors and its relationship to violent behavior.

**Risk Factors**

There has been a significant amount of research concerning both general (any offending) and violent (crimes against persons) recidivism (Andrews & Bonta, 1998; Walters, 2003; Rice & Harris, 1995; Stone, 2002). This early research has established a set of risk factors for general and violent recidivism for which there is some consensus among correctional researchers. However, this early research produced predictors mostly for criminal recidivism in general, rather than for violent recidivism (Quinsey, Harris, Rice, & Cormier, 2006). Additionally a number of early Canadian studies of released inmates and forensic patients (Hart, Kropp, & Hare, 1988; Bonta & Motiuk, 1990; Ashford & LeCroy, 1988) have noted that risk factors such as youthfulness, number of previous convictions for violent offenses, and number of general convictions are related to general criminal recidivism. Other factors such as age at first arrest, criminal versatility, alcohol abuse, and lower educational attainment have been found to be weakly related to recidivism risk (Quinsey, Harris, et al., 2006).

Violence risk factors can be divided into two categories: static and dynamic (Andrews & Bonta, 1998). Static risk factors are those which cannot be altered through intervention. They include demographic factors such as age, gender, and race, as well as historic factors such as age at first arrest and number of juvenile arrests. Since these variables cannot be altered through intervention, they do not offer targets for specific
kinds of rehabilitation. However, static risk factors can inform the judgments about baseline levels of risk.

Dynamic risk factors, which have the potential to be altered through interventions, do provide the opportunity to plan such targeted interventions. Factors such as substance abuse, vocational skill deficits, involvement with antisocial peers, antisocial attitudes, or psychosis are considered dynamic risk factors (DeMatteo & Marczyk, 2005; Douglas & Skeem, 2005). Many of the current risk assessment tools utilize these dynamic risk factors, as they have been shown to be useful in both the assessment of violence risk and the appraisal of targeted treatment needs.

Others have divided risk factors into several different categories. Monahan and Steadman (1994) used the categories of dispositional, historical, contextual, and clinical when describing risk for violence recidivism. Dispositional factors included demographic factors, such as gender and age, as well as personality disorders, such as Antisocial Personality Disorder. Historical factors included chronological factors such as arrest history, age of onset for delinquency. Contextual factors included environmental factors such as weapon availability and social support. Finally clinical factors included mental health related factors such as major psychoses and substance abuse.

**History of Violence**

One of the strongest risk factors for future violence is a history of such violent behavior (Klassen & O'Connor, 1988; Monahan et al., 2001). Multiple studies have found this link to be established (Gabor, 1986; Klassen & O'Connor, 1988; Monahan, 1981; Waller, 1974). There has been enough work to establish that past violent behavior
as a risk factor for future violence that prominent tools used for predicting violence, such as the Classification of Violence Risk (COVR) (Monahan et al., 2006), Violence Risk Appraisal Guide (VRAG) (Quinsey, Harris, et al., 2006), Historical-Clinical-Risk Management-20 (HCR-20) (Webster, Douglas, Eaves, & Hart, 1997), and Spousal Assault Risk Assessment (SARA) (Kropp & Hart, 2000) have all included history of violence as a risk factor for future violence. Melton, Petrila, Poythress, and Slobogin (2007) noted that “the single most robust predictor of future violence is a history of multiple prior offenses” (p. 316). Additionally, McNiel observed that “a history of violence has been consistently shown to be the best single predictor of future violent behavior” (1998, p.96).

Walker, Hammond, and Steer (1967) prospectively followed approximately 4300 individuals who had been convicted of any offense in Scotland in 1947 for 5 years. The study also collected retrospective data (previous criminal records) of approximately 4200 individuals in London during the same time period. Approximately 6% of the Scottish individuals and 12% of the Londoners committed another violent offense. The study found that the probability of a participant’s conviction of a subsequent violent offense rose slightly with each nonviolent offense; however, it rose significantly with each prior violent offense. In the Scottish sample, 14% of the 264 men who had been convicted of a violent offense were re-convicted of a subsequent violent offense. However, 40% of the 45 men who had been previously convicted of two violent offenses were reconvicted of a violent offense, and 55% of the 11 men with four or more previous convictions for violence were reconvicted of a violent offense. These data suggest that for the men who
have frequent previous convictions for violent offenses, such a history is strongly related to the risk of violent recidivism (Walker, et al., 1967).

Nuffield (1982) followed approximately 2500 Canadians released from penitentiaries over a 3-year period. Nearly 13% of those released committed a violent crime, which was defined as any charge for homicide, assault, violent sexual offense, armed robbery, and robbery. Using the Burgess system of categorization of individuals, it was possible to predict inmates who were almost certain not to recidivate violently, although the overall accuracy of this approach was insufficient to render it broadly applicable. However, it did identify factors such as “previous convictions for a violent crime” and “current violent offense” as contributing to the prediction of future violence (Quinsey, Harris, et al., 2006).

A prospective study by Klassen and O’Connor (1988) followed a group of adult males (who were at risk for violent behavior) for six months after release from a community mental health center. The investigators found that past violent behavior as measured by arrest, as well as self-reported violence not resulting in arrest, had predictive power for future violence (Wolfgang, Figlio, & Sellin, 1972). This also applied when arrests for violent crimes were taken from arrest data. The study found that the highest correlation with the discriminant score for violence/non-violence was the total number of arrests for disturbing the peace. The investigators concluded that peace disturbances may actually have been acts of violence, since the charges may not have reflected the actual event (particularly applicable in cases involving domestic violence allegations). Additionally the study found that recent violence and current allegations of assault were predictive of future violence.
In a study studying the relationship between violence in the community before emergency civil commitment, McNiel, Binder, and Greenfield (1988) found a significant association between violence in the first 72 hours of emergency civil commitment and violence in the community within the past 2 weeks. The investigators reviewed the medical charts of 238 patients involuntarily admitted to a university-based inpatient unit. The study found the strongest distinction between patients who were violent in the first 72 hours of hospitalization and those who were not was related to whether the individual had been violent in the community in the 2 weeks prior to hospitalization.

**Substance Abuse**

Although there have been multiple studies indicating the relationship between substance abuse and violence, 40-50% of violent acts occur without any substance use (Chermack & Blow, 2002; Loseke, Gelles, & Cavanaugh, 2005). Specifically, Fagan (1993) noted that more than half of all homicides in the United States involve alcohol or illicit substances, with an even higher percentage involved in non-fatal violent acts. There may also be a difference between alcohol use and drug use with relation to violence. A review by Parker and Auerhahn (1998) noted evidence of a link between alcohol and violence; however, they added that there is little evidence that illicit drugs were uniquely associated with violence. They concluded that alcohol is the substance most frequently implicated with homicide offenders.

United States Department of Justice, Office of Justice Programs (1999) found that about 50% of all incarcerated juveniles have reported using drugs and/or alcohol at the time they committed the offense. Recent research has shown that substance abuse is a strong predictor of juvenile delinquency and criminal recidivism (United States Public
Health Service, Office of the Surgeon General, 2001). Apparently, however, the strength of this risk factor decreases as the adolescent gets older; substance abuse is a stronger predictor of antisocial behavior and juvenile delinquency for an eight-year-old than a thirteen-year-old (2001). Also, there is little known about the association between substance abuse and criminal/antisocial activity. There is evidence that substance abuse contributes to continued criminal/antisocial behavior, but there is limited evidence about the relationship between substance abuse and the start of criminal/antisocial activity. Although many studies concentrate on illicit drug use, alcohol use is also a significant predictor of delinquency. A meta-analysis by Lipsey and Derzon (1998) found that substance use was among the highest predictors of serious and persistent delinquency.

Chermak and Blow (2002) studied a group of 125 men and women in a 90 day period before entering a substance abuse program. Focusing specifically on the use of alcohol and cocaine, the authors found that greater use of both alcohol and cocaine were positively associated with self-reported incidents of violence. Additionally, the alcohol or cocaine consumption on the day of the act was positively associated with the severity of the violent act. Regression analysis revealed that general alcohol and cocaine use patterns were positively related to the violence severity of the most violent event. Furthermore, the alcohol and cocaine use as well as the combination of alcohol and cocaine use were associated with the severity of the most violent act.

Cale, Plecas, Cohen, and Fortier (2010) compared a Canadian sample of one time homicide offenders and a matched sample of repeat homicide offenders. Logistical regression analysis revealed that alcohol use and “drug-influenced lifestyle” were predictors of inclusion in the repeat homicide group. Additionally, in the repeat homicide
group, the time between the first and second homicide was accompanied by a trend toward more severe alcohol and drug abuse (Cale, et al., 2010).

Scott, Schafer, and Greenfield (1999) studied the influence of lifetime alcohol use and drinking at the time of the event on the risk of physical assault and victimization. A secondary analysis on the 1990 National Alcohol Survey, which included approximately 2500 adults in the United States, was conducted. The analysis found that lifetime prevalence of alcohol use was associated with physical assault perpetration. Additionally, lifetime drinking history was also associated with victimization.

Gustavson, Stahlberg, Sjodin, Forsman, Nilsson, and Anckarsater (2007) studied the relationship between age of onset of substance abuse as a factor in aggression, psychopathy, and violent recidivism. A total of 56 subjects with a history of substance abuse were studied, with 31 individuals identified as early-onset substance abusers. Duration of substance use was not associated with aggression, psychopathy, or violent recidivism. However, age at onset correlated strongly with aggression, psychopathy, and violent recidivism.

Stresky (2009) combined data from the National Household Survey on Drug Abuse and the Survey on Drug Abuse and Survey of Inmates in state and federal correctional facilities to study the relationship between methamphetamine use and homicide. The results indicated that the odds of committing a homicide were nearly nine times greater for methamphetamine users. This association was unaffected even after adjusting for alternative substance use (including alcohol, heroin, crack, cocaine, PCP, and LSD), sex, race, income, age, marital status, previous arrests, military experience, and education level.
The MacArthur study of mental disorder and violence study calculated rates of violence in three broad diagnostic groups: (1) major mental disorder (schizophrenia, schizophreniform, schizoaffective, depression, dysthymia, mania, cyclothymia, or other psychotic disorder with no diagnosis of substance abuse or dependence), (2) major mental disorder with substance abuse/dependence, (3) other mental disorder diagnosis (personality disorder, adjustment disorder, or suicidality) with substance abuse/dependence. The inclusion of a co-occurring diagnosis of alcohol or drug abuse/dependence was significantly related to violence, with 25.5% of patients with co-occurring alcohol or drug abuse/dependence violent during the first 20 weeks compared to 10% of patients with no co-occurring disorder (Monahan, et al., 2001).

**Mental Illness**

Historically it was believed that individuals with serious mental illness were prone to violent behavior (Andrade, 2009). However, recent research has indicated that this issue may be more complicated. Much of the early research was mixed, with some studies describing no relationship between serious mental illness and crime (Beck & Wencel, 1998; Monahan & Steadman, 1994) and others providing evidence of some relationship (Ashford, 1988; Hodgins, Mednick, Brennan, Schulsinger, & Engberg, 1996; Link & Stueve, 1995). Much of the early research documenting such a relationship was done with individuals who were involved in treatment, increasing the likelihood of selection biases within such studies (Ashford, Sternbach, & Balaam, 2009). Several early studies have also found a risk of those with major mental disorder as 4-6 times higher than that observed in the general population (Hodgins, 1992; Lindqvist & Allebeck, 1990; Tengstrom, 2001). Recent research using probability samples has indicated that
individuals diagnosed with a mental disorder were more likely to have a history of arrest and arrest for violent offenses (Hodgins & Janson, 2002). Furthermore, these rates tended to increase when such individuals also had a comorbid diagnosis of a substance abuse disorder. However, many other studies find that there is no difference between recidivism risk for mentally ill offenders and ordinary offenders (Harris & Koepsell, 1996; 1998). Others have found that individuals diagnosed with a major mental disorder have a lower risk of committing violent acts than those diagnosed with a personality disorder (Rice & Harris, 1992; Steadman et al., 1998).

The MacArthur study of mental disorder and violence also studied the differences between mental disorders among the three groups: major mental disorder, major mental disorder with substance abuse/dependence, and other mental disorder with substance abuse/dependence.

Differences in one year prevalence rate of serious acts of violence were statistically significant, with such violence observed in 14.8% of individuals with schizophrenia, 28.5% of individuals with depression, and 22% of those with bipolar disorder. Corresponding violence rates were also statistically significant for the first 20 weeks, with 8.1% for individuals with schizophrenia, 18.8% for those with depression, and 15.2% for individuals with bipolar disorder. Monahan, et al. (2001) concluded that a diagnosis of major mental disorder was associated with a lower rate of violence than a diagnosis of other mental disorders. Furthermore, a diagnosis of schizophrenia was associated with lower rates of serious violence than was a diagnosis of depression or bipolar disorder.
Rice and Harris (1992) examined 96 men in a study who met the DSM-III criteria for schizophrenia and a matched control group of those admitted for pretrial psychiatric assessment in the same facility. These individuals were matched with regard to seriousness of the original criminal charge for the index offense, criminal history, age, and offence recency. Finally, these were individuals who had never returned to the institution for treatment. Rice and Harris (1992) found that the offenders with schizophrenia exhibited a lower rate of criminal recidivism compared to matched offenders (35% vs. 53%). Individuals with schizophrenia also exhibited a lower rate of violent recidivism; however, this difference was not statistically significant (16% vs. 24%). It is important to add that Rice and Harris observed that the best predictors of violent recidivism for offenders with schizophrenia were the same as those with non-mentally disordered offenders, including variables such as previous offense history, marital status, alcohol abuse, and past aggressive behavior.

Additionally there have been questions about the relationship between schizophrenia, psychopathy, alcohol abuse, and violent recidivism. A study by Rice & Harris (1995) analyzed 685 offenders who had diagnoses including schizophrenia, psychopathy, and alcohol abuse. An initial analysis of the cohort found that there were a small number of individuals with a co-occurrence of psychopathy and schizophrenia (13 in total). Additionally offenders with psychopathy were much more likely and offenders with schizophrenia much less likely to have had an alcohol problem. The investigators found that schizophrenia was inversely related to violent recidivism, with 16% of schizophrenic offenders reoffending, compared to 35% of the other offenders. Both psychopathy and alcohol abuse were positively related to violent recidivism. There were
two interactions of interest: psychopathy with alcohol and schizophrenia with psychopathy. Alcohol was related to violence recidivism only in non-psychopathic offenders. Additionally among psychopathic offenders there was a larger difference in recidivism rates between those who had schizophrenia and those who did not. Further analysis indicated that offenders with schizophrenia who committed their index offense in response to a delusion were less likely to commit another violent act. Even among delusional offenders there was a significant correlation between violent recidivism and PCL-R score, and between recidivism and alcohol abuse. The authors concluded that psychopathy was more strongly related to violent recidivism than schizophrenia, with schizophrenia actually negatively related to violent recidivism. However the study also found that men with both alcohol abuse and schizophrenia were more likely to violently recidivate than were those with schizophrenia alone; 26% of schizophrenic offenders with alcohol abuse reoffended violently, compared to only 7% of schizophrenic offenders without alcohol abuse.

As may be seen, there has been significant debate regarding the relationship between severe mental disorder and violent offenses. Quinsey, Harris, Rice, and Cormier (2006) offer two possible explanations. Their “most likely” explanation involves the composition of the mental disorders and the comparison groups: studies which have found a higher rate of violence or offending among mentally ill participants have used the general population as their comparison group. When this comparison group is used, individuals with severe mental illness appear to be at higher risk. However, when a general offender comparison group is used, individuals with severe mental illness appear to be at lower risk. These two comparison groups differ substantially from one another,
with offender groups having a higher percentage of individuals with personality disorders and substance abuse (Quinsey, Harris, et al., 2006). The authors also suggest that another explanation may lie in the recency of the psychotic symptoms. There are several studies which have found that current psychotic symptoms were related to recent occurrences of violent behavior and that, if the symptoms were controlled, mentally illness was no longer significantly related to violence (Link, Andrews, & Cullen, 1992). However, the MacArthur risk assessment study data are not supportive of this point; the study indicated that psychotic symptoms and threat-control override symptoms were negatively related to violent behavior 20 weeks later (Monahan, et al., 2001). Two additional studies have indicated that psychotic symptoms measured 1 month prior to a violent act were unrelated to violent recidivism (Quinsey, Coleman, Jones, & Altrows, 1997; Quinsey, Jones, Book, & Barr, 2006).

The explanations offered by Quinsey et al. (2006) clarify the reasons why there have been various findings on the relationship between mental illness and violence. More recent research has shifted the focus to our lack of knowledge concerning the circumstances which may be involved in mental illness being related to violence (Heilbrun, Douglas, & Yasuhara, 2009). Douglas, Guy, and Hart (2009) conducted a meta-analysis in which they analyzed 204 studies that reported the relationship between psychosis and violence. The authors reported that the presence of psychosis yielded a 50-70% increase in the odds of violence. However, there were several moderators:

- studies conducted in the community had higher odds ratios than those conducted in hospitals or correctional facilities,
- studies comparing those with externalizing disorders had smaller odds ratios compared to studies comparing those with primarily internalizing disorders,

- comparison of people with psychosis to people with no known mental disorder resulted in larger odds ratios than studies that compared those with psychosis to people with non-psychotic mental disorder,

- studies which measured level of symptoms produced larger odds ratios than those conducted at the level of diagnosis, and

- cases with positive symptoms produced higher odds ratios compared to negative symptoms (Heilbrun, et al., 2009).

Such analysis indicates that although severe mental illness may be related to violence, there are many circumstances which must be considered before a conclusion can be made about the nature of this relationship.

**Risk Communication**

Paralleling the emergence of a substantial body of risk assessment literature has been the question of how risk is best communicated. In early studies of violence risk communication, variations in the use of difference scales influenced forensic evaluators’ risk estimates. Case vignettes with scales from 1-100 were assigned higher risk than were identical vignettes for which the scale range was 1-40 (Slovic & Monahan, 1995). Additionally it was also found that frequency language (e.g. 10 out of 100) were associated with lower perceived risk levels than probability language (e.g. 10%) when the two were numerically equal (e.g. 4 out of 10 vs. 40%) (Slovic, Monahan, & MacGregor, 2000). Furthermore the frequency communication was found to be more likely to result
in conservative decision (e.g., “do not release”) than the probability language. Such differences could be related to the vividness of the image associated with frequency language; participants asked to assess the risk associated with “four out of ten” may be engaged in “imaging the numerator” and actually imagining four individuals involved in violent acts.

Heilbrun, O’Neill, Stevens, Strohman, Bowman, and Lo (2004) studied the preferences for risk communication style and how they differ when cases involved low or high risk, static or dynamic risk factors, and prediction or case management. A total of 1000 psychologists were asked to evaluate eight vignettes, which covered all possible combinations of the previous variables. For each case, participants were asked to rate the value of six different types of risk communication styles, involving prediction (e.g. Mr. X has an $y\%$ likelihood of a violent act), management-oriented (e.g. Mr. X’s risk of violence is dependent upon $y$ factors; to reduce such risks $z$ intervention should be given), and descriptive styles (e.g. Mr. X is a $y$ year old with no violence history and no substance abuse). The study found that across all of the vignettes, the management-oriented style was perceived as the most valuable, followed by the descriptive style, then a prediction style involving the use of high/moderate/low risk levels. The least valuable was a style indicating the percent likelihood an individual would commit a violent act. Additionally participants preferred prediction styles for low risk cases and management-oriented style for high risk cases. Furthermore prediction was preferred when vignettes involved static risk factors and management-oriented style was preferred when dynamic variables were involved.
Hilton, Harris, Rawson, and Beach (2005) examined possible effects to decision making of 60 forensic clinicians with regard to the information which was communicated to them. Case information, a likelihood of violent recidivism statement, and actuarial level were manipulated to determine if any of these factors would change the decisions of the clinicians. Clinicians reported using case information when there was no likelihood statement available. However, this also lead to the clinicians deferring decisions with implications for public safety. Furthermore, a summary likelihood statement improved communication of risk when available. Estimated likelihood of violent recidivism was unaffected by the use of percentages or frequencies. Additionally, the study found that there the estimated likelihood of violence and comparative risk were highly correlated, suggesting that clinicians do not distinguish between absolute and comparative risk (low/moderate/high). Finally, the study participants in open-ended responses indicated that they wanted relative information about risk; however, only one third of the variance in the recommendation of placement could be attributed to the participants’ own estimates of risk of violence (Hilton et al., 2005).

Hilton, Carter, Harris, and Sharpe (2008) studied the effects of nonnumerical risk estimates (such as high risk) and numerical probability statements for forensic risk decision making by 60 forensic clinicians. Clinicians were asked to place a cut mark on a line (labeled at the endpoints with 0% and 100%) to indicate where they perceived low risk to change to moderate risk and where moderate risk changed to high risk. There was a significant difference between numerical probabilities assigned by clinicians to high/low risk categories. Furthermore, there was a larger range associated with “low risk” for some participants, while others had large ranges for “moderate” or “high” risk.
Additionally clinicians read descriptions of two groups of violent offenders: a context group and a target group. The three different groups, those having a 10%, 48%, or 82% likelihood of violent recidivism in the next 10 years, were randomly placed before the presentation of the target group, a group having 48% likelihood of violent recidivism. Clinicians were asked to indicate their conclusion regarding low/moderate/high risk for each group. Although the target group had a fixed likelihood of violent recidivism (48%), clinicians were more likely to rate the target group as high risk if the presented context group risk was 10%. Additionally the target group was rated as low risk if the presented context group risk was 82%. When both target and context were 48%, nonnumerical risk estimates were approximately equal. The authors cautioned against the use of nonnumerical descriptive terms for risk communication because there was little agreement on category boundaries (Hilton, Carter, Harris, & Sharpe, 2008).

With such a variety in forms of risk communication, Babchishin and Hanson (2009) have proposed some solutions to better the use of nominal or numerical risk communication. The authors state that in order to use nominal risk categories, it should be “linked to empirically-derived numerical estimates” (Babchishin & Hanson, 2009, p.13). Use of such numerical estimates such as percentile ranks, probabilities, and risk ratios may be helpful for clarity. Additionally the authors suggest the use of graphical displays of such numerical information may also be useful in the communication of risk.

**Perception of Risk**

Slovic and Peters (2006) discuss two fundamental ways that humans perceive risk: risk as feelings and risk as analysis. Risk as feelings refers to an instinctual and intuitive reaction to danger, whereas risk as analysis refers to logic, reason, and
deliberation of risk. Alhakami and Slovic (1994) found a strong relationship between perceived risk and positive or negative affect, where people judge risk not only by what they might think about the activity, but also how they feel about it. If an individual felt favorably toward an activity, then their rating of risk tended to be low. However, if the individual felt less favorably toward an activity, then their rating of risk tended to be high. Additionally, Finucane, Alhakami, Slovic, and Johnson (2000) found information stating benefits of technology (such as nuclear power) lead to a more positive overall affect, which reduced perceived risk. Furthermore Slovic, Finucane, Peters, and MacGregor (2002) found that college students felt more strongly about an airport-safety measure, which saved a high percentage of 150 lives than saved the entire 150 lives. One group of participants was asked to rate their support of an airport security measure which would save 150 lives. A second group was asked to rate their support of an airport security measure which would save 98% of 150 lives. The second group of participants rated their support for the safety measure higher than the first group. The authors explained this phenomenon as involving the influence of affect in risk management. Apparently participants perceived “all” to be a relatively small number (150 in this case), while translating “98%” into a very high proportion of a potentially larger number.

Link, Phelan, Bresnahan, Stueve, and Pescosolido (1999) studied nationwide survey data from a 1996 General Social Survey. Individuals were randomly assigned to one of five vignettes, four meeting criteria for psychiatric disorder, with the fifth depicting someone that was “troubled.” When asked if the individual in the vignette “would do something violent to toward other people” (p.1330), the respondent answers indicated that cocaine dependence was depicted as the most likely to be violent, followed
by alcohol dependence and schizophrenia. Fazel, Langstrom, Hjern, Grann, and Lichtenstein (2009) noted that the “public perception of the dangerousness of psychiatric patients is pervasive and is a key factor in their stigmatization” (p. 2022).

Quillian and Pager (2010) studied risk estimates of crime victimization through the respondents of the Survey of Economic Expectations, a national telephone survey conducted by the University of Wisconsin Survey Center between 1994 and 2002. The study matched these results with zip code specific local area characteristics from the census. Results of the study indicated that (1) the risk of criminal victimization was significantly overestimated relative to actual risk of criminal victimization, (2) racial composition of the neighborhood was associated with perceived risk of victimization although actual victimization risk was not, and (3) Caucasian respondents seemed to be more strongly affected by racial composition than others when estimating risk.

Slovic and Monahan (1995) conducted two studies with young adults and their decision to judge probability of a patient would harm someone, whether he/she should be categorized as “dangerous,” and whether individuals should be coerced into treatment. In the first study, case vignettes were used to investigate the impact of 8 dichotomous variables (gender, prior hospitalization, presence of delusions, prior assaultiveness, anger, impulsivity, psychopathy, and social support). Participants were asked to judge probabilities based on either a 0-100 probability scale or a more restricted probability scale. Young adults’ responses indicated a strong relationship between judgment of “dangerous” and the probability that patient will harm someone. Additionally, patients were rarely judged as “dangerous” below a certain given probability value, and above a certain value the individual was almost always designated dangerous. However, this
value varied across subjects, which ranged from .3 probability of harm to .9 probability of harm when the response options included large probabilities, and ranged from .001 to .4 when the response options were smaller probabilities. Prior assaultiveness, followed by anger, was highly predictive of probability of harm, dangerousness, and need to coerce. Finally small probabilities induced more participants to avoid labeling the individual as dangerous and coercing treatment. In a second study, Slovic and Monahan (1995) replicated the vignettes but had forensic clinicians become the judges of probability of harm, dangerousness, and necessity to coerce treatment. The results from the second study replicated the results of the first study, even with the new population.

Sjoberg (1998) discussed three different realms for which the public and experts perceive risk. The first realm involves perception of well-known and common risk, such as fatality numbers due to fatalities and diseases. In this first realm, experts and the public seem to make relatively correct risk assessments. Although smaller risks were overestimated and larger risks were underestimated, such risks were typically judged relatively correctly. A second realm involves lifestyle and work place risk. With regard to this realm, experts seem to be more concerned but the public seems less concerned. Lifestyle risks such as homeowners’ perception of risk from radon or risks involved in alcohol or smoking seem to be dismissed by the public. Work environment risk seems to be similar and workers feel they have such risks under control, therefore estimating them as smaller. Finally a third realm of technology risk involves risk of such factors as nuclear waste disposal. In such cases, experts seem to believe such risk is small; however, the public believe it to be quite a large risk. The authors noted that level of
perceived risk is closely related to probable harm, and demand for risk reduction is related to the expected severity of the consequences.

Within the realm of violence risk assessment, there is relatively little focus on the perception and communication of risk. Although there is much research concerning how to produce accurate risk assessment, there is little in terms of how to communicate such risk. The little research which does exist concentrates on how professionals communicate and perceive risk. One study (Mills & Kroner, 2006) showed that clinicians, like lay people, tend to overestimate rates of violent and sexual crime, even when provided with a base rate. Furthermore, clinicians tended to consider 50% as “moderate” even when base rates were given as 30%. When this study was done with student participants, an explanation of base rates was given. The explanations resulted in participants became more accurate in accordance to the base rate. Simply asking to rate an individual’s risk based on low/moderate/high may leave consumers with little information as to the meaning of the categories and may lead to misperception and incorrect estimation for rates of violence (Mills, Kroner, & Morgan, 2010).

Hypotheses

1. Individuals with substance abuse will be perceived as presenting a significantly greater risk for future violence than individuals without substance abuse.

2. Individuals with a history of violence will be perceived as presenting a significantly greater risk for future violence than individuals without a history of violence.

3. Individuals with mental illness will be perceived as presenting a significantly greater risk for future violence than individuals without mental illness.
4. There will be a significant positive association between the number of risk factors present and the perceived risk of future violence.

5. Defining the criteria for low/moderate/high risk will increase the consistency of the stated risk category relative to vignette risk rated according to the research literature.

6. Defining the criteria for low/moderate/high risk will change the decision to divert/not divert to a problem-solving court.

7. Source of information will be positively associated with changes in perceived risk probability ratings.

8. Source of information will be positively associated with changes in perceived risk category ratings.

9. Individuals who are psychology majors will perceive mental illness as a risk for violence differently from those who are not psychology majors.

10. Individuals who have taken more psychology classes will perceive mental illness as a risk for violence differently from those who are not psychology majors.

**Method**

**Participants**

A total of 300 participants were recruited for this study. Participants were Drexel University undergraduate students who were enrolled in undergraduate psychology classes, and who participated in the study in exchange for extra credit. Participants were
recruited from classes using the SONA system as well as from flyers distributed during several psychology classes. The recruited participants consisted of 112 males and 188 females, ages 17-55 (mean = 21.32), and 73 freshman, 74 sophomores, 80 juniors, 56 seniors, 17 identified as other. Additionally, the recruited participants consisted of 205 Caucasians, 16 African Americans, 47 Asians/Pacific Islanders, 15 Hispanic/Latino, and 17 identified as other.

Measures

All questionnaires were administered using a secure website. Each contained a description of problem-solving courts, with part of the criteria for being diverted to a problem-solving court being at “low risk” for future violent offending. There were 8 versions of each vignette, representing all possible combinations of history of violence (present or absent), substance abuse (present or absent), and serious mental illness (present or absent). Questions regarding appropriateness for diversion to problem-solving court, risk for future violent offending, and sources of information on which this decision was based were asked. Risk for future violent offending was rated using both a continuous (1-10 Likert scale) and a categorical (low/moderate/high) scale. Sample definitions of low/moderate/high risk for future offending, including a numerical description (Monahan et al., 2006) were provided. After receiving this definition, participants were again asked about their decision regarding diversion to a problem-solving court and ratings of risk for future violent offending using both numerical and categorical methods. This was done to clarify the definitions of low/moderate/high, as previous research in risk communication indicated that there may be a need to clarify the definition of such categories.
Procedure

Participants were randomly assigned to receive one of eight vignettes. Participants completed the entire questionnaire without providing any information which could be identifying, ensuring privacy and anonymity.

Results

Descriptive statistics for the sample (N = 300) are shown in Table 2. There were no significant differences between participants in the 8 conditions with regard to time taken to finish the questionnaire, gender, school year, major, age, race, or number of psychology classes taken. For hypotheses 1, 2 and 3, an ANOVA and a chi-square test were performed to test both the risk rating as well as risk category dependent variables. Assumptions of normality, independence, and homoscedasticity were not violated when conducting the ANOVA for each of the hypotheses. Assumptions of independence and random sample were not violated when conducting chi-square tests for all hypotheses. For the ANOVA effect sizes, $\eta^2$ above .001 is considered small, $\eta^2$ above .06 as medium, and $\eta^2$ above .15 as large. Additionally, for the chi-squared effect sizes, $\phi$ or $V$ above .1 is considered small, $\phi$ or $V$ above .3 as medium, and $\phi$ or $V$ above .5 as large. Finally a Cohen’s $d$ above .2 is considered small, $d$ above .5 as medium, and $d$ above .8 as large (Cohen, 1988).

Hypothesis 1

For part 1 of the survey, there was a significant difference between the vignettes which contained an individual with substance abuse and vignettes which contained individuals without substance abuse, $F(1, 292) = 20.69 \ p < .001, \eta^2 = .033$, with vignettes
which contained substance abuse receiving a higher risk rating (substance abuse Mean = 5.75, SD = 1.65; no substance abuse Mean = 4.89, SD = 1.64). Similarly, a chi-square test showed a significant difference between an individual with substance abuse and individuals without substance abuse, $\chi^2 (2, N = 300) = 16.77, p < .001$, $V = .24$, with vignettes which contained substance abuse being placed in higher risk categories.

However, the chi-square test indicated no significant differences for diversion decisions between the 2 groups, $\chi^2 (1, N = 300) = 1.29, p = .26 \phi = -.07$. For part 2 of the survey, the ANOVA showed that there was a significant difference between the vignettes which contained an individual with substance abuse and vignettes which contained individuals without substance abuse, $F(1, 292) = 14.49 p < .001 \eta^2 = .026$, with vignettes which contained substance abuse showing a higher risk rating (substance abuse Mean = 5.52, SD = 1.74; no substance abuse Mean = 5.82, SD = 1.77). Similarly, a chi-square test showed a significant difference between an individual with substance abuse and individuals without substance abuse, $\chi^2 (2, N = 300) = 10.62, p = .005$, $V = .19$, with vignettes which contained substance abuse being placed in higher risk categories.

Similar to the results from part 1 of the survey, the chi-square test again displayed no significant difference for diversion decisions between the 2 groups, $\chi^2 (1, N = 300) = .1, p = .75 \phi = .02$.

**Hypothesis 2**

For part 1 of the survey, there was a significant difference between vignettes which contained an individual with a history of violence and vignettes which contained individuals without a history of violence $F(1, 292) = 299.479, p < .001 \eta^2 = .487$, with
vignettes containing a history of violence receiving a higher risk rating (violence history Mean = 6.95, SD = 1.64; no violence history Mean = 3.68, SD = 1.64). Similarly, a chi-square test showed a significant difference between an individual with a history of violence and individuals without a history of violence, $\chi^2(2, N = 300) = 138.03, p < .001, \varphi = .68$, with vignettes which contained a history of violence being placed in higher risk categories. However, the chi-square test displayed no significant difference for diversion decisions between the 2 groups $\chi^2(1, N = 300) = 2.58, p = .11 \varphi = .09$.

For part 2 of the survey, there was a significant difference between vignettes which contained an individual with a history of violence and vignettes which contained individuals without a history of violence $F(1, 292) = 226.81 p < .001, \eta^2 = .41$, with vignettes containing a history of violence showing a higher risk rating (violence history Mean = 7.20, SD = 1.76; no violence history Mean = 4.14, SD = 1.76). There was also a significant interaction effect between violence history and substance abuse, $F(1, 292) = 4.534, p = .03, \eta^2 = .01$ with vignettes which contained both violence and substance abuse history showing a higher risk rating (violence history and substance abuse Mean = 7.29, SD = 1.78; no violence history and no substance abuse Mean = 3.53, SD = 1.76). Furthermore there was a significant interaction effect between violence history and mental health history, $F(1, 292) = 5.823, p = .02, \eta^2 = .01$, with vignettes which contained both violence and mental health history showing a higher risk rating (violence history and mental health history Mean = 7.1, SD = 1.74; no violence history and no mental health history Mean = 3.74, SD = 1.74). Similarly, a chi-square test showed a significant difference between an individual with a history of violence and individuals without a history of violence, $\chi^2(2, N = 300) = 91.31, p < .001, \varphi = .55$, with vignettes which...
contained a history of violence being placed in higher risk categories. Similar to the results in part 1 of the survey, the chi-square test once again displayed no significant differences for diversion decisions between the 2 groups under this condition, $\chi^2 (1, N = 300) = .15, p = .70, \phi = .02$

**Hypothesis 3**

For part 1 of the survey, there was no significant difference between vignettes which contained a history of mental illness and vignettes which contained individuals without a history of mental illness, $F(1, 292) = 5.892, p = .816, \eta^2 = .003$ (history of severe mental illness Mean = 5.46, SD = 1.64; Mean = 5.17, SD = 1.64). Similarly, there was no significant difference between vignettes which contained a history of mental illness and vignettes which contained individuals without a history of mental illness, $\chi^2 (2, N = 300) = .08, p = .96, V = .02$. The chi-square test displayed no significant difference for diversion decisions between the 2 groups $\chi^2 (1, N = 300) = 4.03, p = .05, \phi = -.12$. For part 2 of the survey, there was again no significant difference between vignettes which contained a history of mental illness and vignettes which contained individuals without a history of mental illness, $F(1, 292) = 2.157, p = .707, \eta^2 = .004$ (history of mental illness Mean = 5.52, SD = 1.75; no history of mental illness Mean = 5.81, SD = 1.76). However, there was a significant difference between vignettes which contained a history of mental illness and vignettes which contained individuals without a history of mental illness, $\chi^2 (2, N = 300) = 9.59, p = .01, V = .18$, with vignettes containing individuals with a history of mental illness being placed in higher risk categories. Although the risk category placements were significantly different, the chi-square test reflected no significant
differences for diversion decisions between the 2 groups under this condition, $\chi^2 (1, N = 300) = 1.7$, $p = .19$, $\phi = -.08$.

**Hypothesis 4**

Correlations were conducted, both before and after the presentation of the definitions of risk categories. There was a significant correlation between the number of risk factors and risk rating, both before $r(300) = .54$, $p < .001$ and after $r(300) = .50$, $p < .001$ the presentation of the definitions of risk categories. However, the strength of this association did not increase following the presentation of relevant information regarding risk.

**Hypothesis 5**

A chi-square goodness of fit test was conducted to determine if the risk category ratings were consistent with relevant research. Assumptions of independence and random sample were not violated when conducting this test. The chi-square goodness of fit test conducted for the risk categories after the definition presentation was significant, $\chi^2 (1, N = 300) = 9.35$, $p=.001$ $V = .18$, reflecting a significant differences between the ratings given by the participants and risk category according to relevant research.

**Hypothesis 6**

A descriptive comparison was used to determine if participants changed their diversion decisions after the presentation of the risk definitions. Out of the 300 participants, 261 did not change their diversion decision, 15 decided to change from diverting an individual to not diverting, and 24 decided to change from not diverting an
individual to diverting. The vast majority of the participants did not change their decisions even after the presentation of relevant risk information.

**Hypothesis 7**

A t-test was conducted to test whether changes in risk ratings were significantly different between those who indicated that they did or did not use their life experiences to make risk rating decisions. The test did not reveal any significant differences between those who did not indicate they used life experiences and those who indicated that they used life experiences to make risk rating decisions, $t(298) = 1.65, p = .10, d = .19$ (used life experience Mean = .41, SD = 1.06; did not use life experience Mean = .15, SD = 1.26). A t-test was also conducted to test whether changes in risk rating were significantly different between those who indicated that they did or did not use undergraduate coursework to make risk rating decisions. The test also did not reveal any significant differences between those who did not indicate they used undergraduate coursework and those who indicated that they used undergraduate coursework to make risk rating decisions, $t(298) = -.162, p = .87, d = -.02$ (used coursework Mean = .37, SD = 1.00; did not use coursework Mean = .35, SD = 1.22). A t-test was also conducted to test whether changes in risk rating were significantly different between those who indicated that they did or did not use scholarly publications to make their risk rating decisions. For this t-test, Levene’s test for equality of variances was significant, therefore equal variances were not assumed. The test also did not reveal any significant differences between those who did not indicate they used scholarly publications and those who did use scholarly publications, $t(298) = .73, p = .47, d = .08$ (used scholarly publications Mean = .43, SD = .71; did not use scholarly publications Mean = .34, SD = 1.19).
Finally a t-test was conducted to test whether changes in risk rating were significantly different between those who indicated that they did or did not use the media to make their risk rating decisions. The test also did not reveal any significant differences between those who did not indicate they used media and those who did use media, $t(298) = 1.04$, $p = .30$, $d = .12$ (used media Mean = .43, SD = 1.08; did not use media Mean = .30, SD = 1.13).

**Hypothesis 8**

A t-test was conducted to test whether changes in risk ratings were significantly different between those who indicated that they did or did not use their life experiences to make risk category decisions. The test did not reveal any significant differences between those who did not indicate they used life experiences and those who indicated that they used life experiences to make risk category decisions, $t(298) = 1.56$, $p = .12$, $d = .18$ (used life experience Mean = .24, SD = .57; did not use life experience Mean = .10, SD = .75). A t-test was also conducted to test whether changes in risk rating were significantly different between those who indicated that they did or did not use undergraduate coursework to make risk category decisions. The test also did not reveal any significant differences between those who did not indicate they used undergraduate coursework and those who indicated that they used undergraduate coursework to make risk category decisions, $t(298) = 1.26$, $p = .21$, $d = .16$ (used undergraduate coursework Mean = .25, SD = .61; did not use undergraduate coursework Mean = .16, SD = .61). A t-test was also conducted to test whether changes in risk category were significantly different between those who indicated that they did or did not use scholarly publications to make their risk category decisions. The test also did not reveal any significant
differences between those who did not indicate they used scholarly publications and those who did use scholarly publications, $t(298) = -.64, p = .52, d = -.07$ (used scholarly publications Mean = .25, SD = .47; did not use scholarly publications Mean = .20, SD = .64). Finally a t-test was conducted to test whether changes in risk category were significantly different between those who indicated that they did or did not use the media to make their risk rating decisions. The test also did not reveal any significant differences between those who did not indicate they used media and those who did use media, $t(298) = .34, p = .73, d = .04$ (used media Mean = .22, SD = .61; did not use media Mean = .20, SD = .61).

**Hypothesis 9**

A t-test was conducted to compare participants who were psychology majors and participants whom identified themselves as having another major, with regard to risk ratings for those with mental illness. A chi-square test was conducted to compare participants with regard to their risk category rating. For part 1 of the survey, there was no significant difference between psychology and non-psychology majors with regard to risk ratings for those with mental illness, $t(150) = -1.24, p = .22, d = -.2$ (psychology major Mean = 4.92, SD = 2.35; non-psychology major Mean = 5.41, SD = 2.32). The chi-square test showed no significant differences between psychology and non-psychology majors with regard to risk categories, $\chi^2 (2, N = 143) = 3.06, p = .22, \varphi = .14$. For part 2 of the survey, there was also no significant difference between psychology and non-psychology majors with regard to risk ratings for those with mental illness, $t(150) = -1.02, p = .31, d = -.17$ (psychology major Mean = 5.38, SD = 2.25; non-psychology major Mean = 5.77, SD = 2.27). Additionally, the chi-square test showed no significant
differences between psychology and non-psychology majors with regard to risk categories for those with mental illness, $\chi^2 (2, N = 150) = 2.3$, $p=.32 \varphi = .12$.

**Hypothesis 10**

To divide the groups between those with more psychology classes and those with fewer psychology classes, the median number of classes, 2, was used as the cut-off. A t-test was used to compare individuals who had 2 classes or fewer versus 3 classes or more with respect to participants’ risk ratings for part 1 of the survey, which yielded no significance $t(298) = -.22$, $p=.82 \, d = -.03 \, (\geq 3 \, \text{classes} \, \text{Mean} = 5.29, \, \text{SD} = 2.45; \leq 2 \, \text{classes} \, \text{Mean} = 5.35, \, \text{SD} = 2.28)$. A t-test was also used to compare the same categories of individuals for only those with vignettes which involved a history of mental health. For part 1 of the survey, the risk rating comparisons yielded no significant differences, $t(150) = -.97 \, p = .33 \, d = -.16 \, (\geq 3 \, \text{classes} \, \text{Mean} = 5.03, \, \text{SD} = 2.42; \leq 2 \, \text{classes} \, \text{Mean} = 5.40, \, \text{SD} = 2.27)$. In an additional analysis, participants were divided into three groups, as equally divided as possible (41% for one class, 29% for 2-5 classes, and 30% for more than 5 classes). An ANOVA was use to compare the three groups participants’ risk ratings for part 1 of the survey, which yielded no significant differences $F(2, 297) = .30$, $p = .74$, $\eta^2 = .003$. An ANOVA was also used to compare the same categories of individuals for only those with vignettes which involved a history of mental health, this also yielded no significant differences $F(2,297) = 1.08$, $p = .34$, $\eta^2 = .002$.

**Discussion**

Research in general and violent recidivism has established a set of risk factors for general and violent recidivism for which there is some consensus among researchers.
Risk Perception 33

(Andrews & Bonta, 1998; Rice & Harris, 1995; Stone, 2002; Walters, 2003). Although much of the early research produced more factors for general criminal recidivism, several others noted factors for violence risk (Quinsey, Harris, Rice, & Cormier, 2006). Such research indicated history of violence and substance abuse as strong risk factors for future violence (Cale, Plecas, Cohen & Fortier, 2010; Klassen & O’Connor, 1998; Lipsey & Derzon, 1998; Monahan et al., 2001). Additionally, although early research seemed to indicate a relationship between severe mental illness and violence (Ashford, 1998; Hodgins, Mednick, Brennan, Schulsinger, & Engberg, 1996), others found no relationship (Beck & Wencel, 1998; Monahan & Steadman, 1994) or even found that they may lower the risk of committing a violent act (Monahan, et al., 2001). However, little was known how the general public viewed such factors related to future violence or how to communicate this information to the public.

One of the aims of the current study was to determine if individuals would be able to correctly identify substance abuse and history of violence as a factor in violence risk as well as disregard mental illness as a risk factor for violence. Participants were accurately able to rate individuals with substance abuse and history of violence as having a higher risk rating and place them in higher risk categories. For the most part, participants were also able to correctly indicate that mental illness as not a factor for violence risk, as demonstrated by the lack of differences when viewing risk ratings. However, there was a difference between the risk category placements for those with mental illness and those without mental illness after the presentation of the definitions of the risk categories. This was not due to a difference between the number of individuals in the high risk category, but rather reflected the number of people placed in the moderate risk category. Although
public perceptions of mental illness as a risk factor for violence may have decreased, participants may have been reluctant to rate individuals with mental illness as “low risk” after being presented with a concrete definition of the term. These results are contrary to some past research, which seems to indicate that although we have increased our understanding of mental illness as a society, we may have also increased our association between mental illness and dangerousness. Markowitz (2010) has indicated that public perception of mental illness has changed from being strictly associated with stereotypical conceptions of psychotic disorders and are being seen as something less extreme, however, it has also led to an increase in the association between mental illness and dangerousness. Compared to the 7% who associated mental illness and violence in 1950, 12% associated the two in 1996 (Pescosolido, Monahan, Link, Stueve, & Kikuzawa, 1999). Crisp and Gelder (2000) found that in a survey of over 1700 adults in the UK, 71.3% associated schizophrenia and violence, 73.9% associated drug addiction and violence, and even 22.9% of participants associated depression and violence. Arboleda-Flórez (2003) found that the most prevalent misconception of mental illness (88% of the sample) was that they are violent. However, a comparison of participants in 1996 and those in 2006 done by Silton, Flannelly, Milstein, and Vaaler (2011) found that the 2006 survey participants did not show any differences in perceiving dangerousness than the 1996 survey participants, indicating that there may not have been an increase in the association for violence and mental illness between 1996 and 2006. As past research has illustrated, mental illness has historically been perceived as a risk factor for violence and the results from this study seem to indicate a change from such perceptions—although individuals with mental illness are still seen as having greater than low risk for violence.
Additionally, this study found no differences in risk ratings between those who were or were not psychology majors and those who have or have not taken more than 2 psychology courses for vignettes containing mental illness, which may be additional confirmatory evidence of the fact that knowledge in severe mental illnesses may not necessarily lead to an accurate portrayal of their risk for violence. However, it is important to note that this result may also have been a result of low risk ratings received by vignettes containing mental illness.

These results may indicate that people may be becoming more accurate in their perception of violence risk. However, the results concerning diversion decisions did not yield the same conclusions. It looked as though they did not use information about risk factors to make an appropriately-informed decision about diversion to problem-solving courts. Several influences may have contributed to these findings. One factor may have been the perception of problem-solving courts. The description stated that problem-solving courts were appropriate for those with lower risks of reoffending and also those who would benefit from treatment. Participants might have weighed the “treatment” portion of the definition more heavily than the “risk” portion, resulting in decisions which involved individuals of higher risk being appropriate for problem-solving courts because participants felt such individuals would need more treatment. Additionally the name “problem-solving court” may have implied to participants that such courts have the ability to “solve” problematic behaviors in individuals, enhancing the perception that those at greater risk may obtain more benefit. It appears that participants did not necessarily link an individual’s risk level with that individual’s appropriateness for problem-solving court. Therefore, although the results did indicate that individuals were
able to correctly identify history of violence and substance abuse while disregarding mental illness as a violence risk factor, they did not seem to be able to integrate this information when making diversion decisions. All of these findings suggest that participants were limited in their capacity to accurately identify the degree to which some risk factors affect the risk for future violence. Participants were able to recognize that history of violence and history of substance abuse were risk factors for violence—however, they apparently were not able to determine how severe these risk factors might be.

Additionally, although participants were able to accurately perceive history of violence and substance abuse as a risk factor for violence and minimize the perception of mental illness as a risk factor for violence, there was still a significant difference between research-driven expectations for violence risk in vignettes, and how these vignettes were actually rated. This result is harder to understand, as most of the other findings point to participants’ inclination to give ratings which are consistent with empirical support. The expected risk categories based on research assumed that those who read the vignettes with history of violence, history of substance abuse, and mental illness as well as vignettes with history of violence and history of substance abuse would be categorized as “high,” vignettes with only severe mental illness or no factors would be categorized as “low,” and all others as “moderate.” However, the results indicate that many more people were categorized as high risk (99 vs 78) and fewer rated as moderate (123 vs 134) or low risk (64 vs 74) after the presentation of the risk definitions. Even with the presentation of risk definitions, the categorical risk ratings did not match what would have been the number in each category based on empirical supported risk factors.
Another aim of the study was to determine the effect of defining the risk categories of low/moderate/high and how this may change individual’s risk rating as well as their diversion decisions. Despite the presentation of risk-relevant information following their initial diversion decisions, a significant proportion of participants did not change their diversion decisions. Providing an explanation for the low, moderate, and high risk categories did not seem to be a factor when considering decisions regarding diversion. The results are consistent with those found by Hilton, Carter, Harris, and Sharpe (2008), where non-numerical risk terms were not helpful for risk communication. Although Hilton et al. (2008) study was based on forensic clinicians; it seems to translate to the general public. Interestingly, a number of individuals changed their risk category ratings after the presentation of the risk rating definitions. Before the presentation of the definition, 69 were categorized as “high,” followed by 119 as “moderate,” and finally 98 as “low.” After the presentation, 99 were categorized as “high,” 123 as “moderate,” and finally 64 as “low.” These changes included shifting perceived risk classifications from low to moderate, moderate to high, or even low to high. It may be that individuals were able to use the risk definitions to change their risk ratings; however, they were unable to integrate such information when making diversion decisions. As the popularity and number of problem solving courts increase, this may become an issue. Although much of the decision to divert is currently in the hands of those familiar with the legal system, there is a possibility that the general public, as part of their responsibilities as jurors, may make diversion-relevant decisions which would have to take risk information into account in some jurisdictions. This study suggests that if such information were presented to the general public, it must be accompanied by an explicit linkage between
risk level and diversion eligibility determination. Specific language integrating and linking both sets of decisions may help individuals integrate violence risk relevant information to diversion decisions.

An additional aim of this study was to find if there would be differences between sources of information used by individuals and the risk ratings. Results indicated that there was a significant positive correlation between number of sources of information and risk ratings. However, the sources of information used did not affect change scores in ratings or changes in risk rating categories between the first and second parts of the survey. The first finding is interesting, as one might assume that there would be no correlation between the number of sources of information used and risk rating. The finding may indicate a heuristic used for risk rating decision making when individuals are considering different sources of information. It may be that initially, individuals will rate those within the legal system as higher risk. This initial rating is then tested, as individuals try to verify their initial thoughts about risk rating. The more sources of information they use, the more they may feel that their decisions are valid, therefore keeping the higher risk rating. If they do not have as many sources of information to “verify” and increase their confidence, they may feel more inclined to drop the risk rating. Conversely, it may be that people will start such ratings lower and with more sources of information gain the confidence to increase the risk rating. Source of information was not related to changes in perceived risk categories or risk ratings. Past research has pointed to the misrepresentation of individuals with mental illness and an overemphasis of violence with such individuals in the media, the link between media portrayal of violence and public perception of mental illness has not been fully explored (Markowitz,
This result seems to indicate that although there is much overemphasis of violence for those with a severe mental illness in the media, it does not seem to influence perceived risk ratings or risk categorical decisions.

Although not an aim for the initial study, it was found that there were only 23 participants who changed their diversion decision in the correct direction. Comparatively, there were 261 individuals who did not change their decisions. A post-hoc analysis was conducted to determine if there was a difference between the two sets of participants. Descriptive comparisons revealed no significant differences. When looking at what they used to make risk rating decisions, use of life experiences was the only significant difference, \( \chi^2 (1, N = 284) = 6.577, p=.01 \varphi = .15 \) with a higher proportion of those who made a correct change in their diversion decisions indicating that they did not use life experiences. Post-hoc t-tests were also conducted to determine if there was a difference between the two groups with regard to risk ratings, however, both before and after the presentation of the risk category descriptions there was no significant difference (before: \( t(282) = -1.259, p = .21, d = -.15 \), after: \( t(282) = -1.91, p = .06, d = -.22 \)). Although not significant, they both showed a small effect size, which may indicate that there was a difference in how risk ratings were interpreted between the two sets of participants, however, due to the relatively small number of participants who changed their diversion decisions in the correct direction, the current study can only surmise that this may be the case.

One of the most intriguing results in this study is that “severe mental illness” was not conflated with “violence risk” for undergraduate students. It seems as if there may
have been a shift in the stigmatization of mental illness as a risk factor for violence. However, as stated above, although individuals were able to determine that mental illness was not, for the most part, they were unable to fully de-stigmatize mental illness, still indicating they were at least a moderate risk for violence. Compared to past research, it seems that society is trending in the correct direction, considering severe mental illness as less of a factor than it used to, however, still somewhat of a factor for future violence. Another intriguing finding was that these mostly accurate perceptions of risk factors were not applied to risk-relevant decisions. This might have been a function of “need for treatment” being considered and even outweighing risk for some individuals.

There are several limitations to the study. First, it was conducted using college students. Although recent research (Bornstein, 1999; Druckman & Kam, 2009) has shown that there may not be an issue with external validity or that undergraduates many not be much different from other mock jurors, this still must be considered. However, there were several demographic data of note. First, there were more females than males in the sample and the mean participant age was 21, which may have affected the results. Furthermore, the proportions of race do not match a national sample of individuals who could be eligible for jury duty, with a larger proportion of Caucasians being represented in the present study. Finally, participants were all recruited from introductory psychology classes for extra credit, which may have biased the sample further. Therefore, this study’s results may not generalize to the public, but would need further consideration using a sample more closely representative of the demographics of a jury. Another potentially important consideration in this study is the limited specificity with regard to mental illness. Past research has shown an increased perception of violence risk for
specific disorders such as schizophrenia (Langstrom, et al. 2009; Monahan, et al., 2001). For the current study, the vignette did not specify what severe mental illness the individual may have possessed. Although the language did use the phrase “severe mental illness,” the phrase was not further defined. It is possible that undergraduate participants understood this phrase to include forms of anxiety or depression that are often experienced by college students. If such disorders were included in participants’ perception of mental illness, then its definition might have been considerably diluted and widely perceived as not being a risk factor for violence. Furthermore, individual’s life experiences, which some participants used to determine risk ratings of those with a severe mental illness, may have had an effect on a person’s perception of “severe mental illness.” If, for example, a participant has had close contact with a family member with “severe mental illness,” they most likely have a different concept of the term from someone who may have only seen such language used in a psychology textbook or in the media. Such differences may have affected how people determined risk if given vignettes of those with a severe mental illness. This may be a topic of further study; as such statements could be made by forensic psychologists during a jury trial. If this finding were to be replicated, then the use of clarifying or different language to describe level of risk may be particularly important. There were also additional undefined phrases which may have affected the study. The study did not specify which problem-solving court the vignette individual would be going to. Also problem-solving courts have been demonstrated by several studies to be strongly supported by the public, especially among African-American and Latino respondents (Rottman & Hansen, 2001), different problem-solving courts may come with different perceptions. Drug courts and mental health
courts may have a different public perception than Veteran’s court, where one might assume that the general public may be in more favor of Veterans’ courts than either drug or mental health court, due to a general patriotism displayed by most Americans. In addition, substance abuse was also not defined specifically. Many people have different perception of certain substances, with college students in particular being exposed to alcohol and marijuana more than any other substances. Some substance abuse, such as heroin, cocaine, methamphetamines, or PCP abuse will most likely be seen differently than alcohol or marijuana abuse. As substance abuse is also a multi-dimensional concept, the non-specificity of the actual substance may be a limitation to the current study. One final limitation to the study was the different time participants took to finish the survey. Although most people were able to finish the entire survey between 5 and 15 minutes, there were several people who, according to the survey data, took approximately an hour and a half to finish the survey. This, however, may have been a product of how college students took the survey, interjecting multiple other tasks (e.g., web browsing, e-mailing) during the time they were taking the survey. A related issue also arose, in which some participants took significantly less time than would have been expected. Either may have interfered with attention to the survey, resulting in less meaningful participation.

Future research should expand and test the knowledge of violence risk factors for different types of individuals such as lawyers, judges, those involved in the legal system, as well as to the general public. This may increase our knowledge as to the perception of violence risk factors, which would help forensic psychologists communicate this knowledge better to different populations. Furthermore, future research may be necessary in how the general public makes such decisions regarding violence risk factors
and their interaction in risk relevant decisions such as diversion. Additionally, although decisions related to diversion to problem solving courts are mostly made by those involved in the legal system, as the popularity of these courts increase, there may be more involvement from the general public. Even if such decisions are still left to legal experts, in the age of new technology and social media, it would be important to find a way to be able to communicate such risk accurately so that the general public may be able to understand decisions made by the legal system. Finally, even outside of the legal context, there are other professional settings such as state and federal corrections facilities as well as state and federal forensic hospitals which use violence risk factors to make decisions. Being able to determine policies for such settings which would specify how this information is communicated may provide a fair account of one’s actual violence risk, which would effect not only the patients and inmates at these facilities, but also the amount of time and money spent treating and housing such individuals.
References


Table 1: *Vignettes Describing High, Moderate, and Low Risk of Future Violence*

<table>
<thead>
<tr>
<th>High Risk</th>
<th>Moderate Risk</th>
<th>Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vignette 1: Individual has a history of violent behavior, a history of substance abuse, and a severe mental illness.</td>
<td>Vignette 2: Individual has a history of violent behavior, a history of substance abuse, and no severe mental illness.</td>
<td>Vignette 3: Individual has a history of violent behavior, no history of substance abuse, and a severe mental illness.</td>
</tr>
<tr>
<td>Vignette 4: Individual has a history of violent behavior, no history of substance abuse, and no severe mental illness.</td>
<td>Vignette 5: Individual has no history of violent behavior, has a history of substance abuse, and a severe mental illness.</td>
<td>Vignette 6: Individual has no history of violent behavior, has a history of substance abuse, and no history of severe mental illness.</td>
</tr>
<tr>
<td>Vignette 7: Individual has no history of violent behavior, has a history of substance abuse, and a severe mental illness.</td>
<td>Vignette 8: Individual has no history of violent behavior, no history of substance abuse, and no severe mental illness.</td>
<td>Vignette 8: Individual has no history of violent behavior, no history of substance abuse, and no severe mental illness.</td>
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Table 2: Participants’ (N = 300) Gender, Year in School, Race, Major, and Age

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<th>Range</th>
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</table>
Appendix A: Questionnaire

Demographic Information

What is your age?

What is your gender?
__Male
__Female

What is your race?
__White
__African American
__Native American
__Asian / Pacific Islander
__Hispanic/Latino

What year are you in school?
__Freshman
__Sophomore
__Junior
__Senior
__Other (please specify) ________________

What is your major?
__Psychology
__Other (please specify) ________________

How many psychology classes have you taken?
____

Part 1
Below is a description of an individual who is eligible for diversion into a problem-solving court. A problem-solving court is a specialized type of court (such as drug court or mental health court) that has been developed within the last 20 years in the U.S. It seeks to integrate particular kinds of treatment for specific offenders into the justice system. The premise of these courts is that the legal system should provide treatment to certain individuals in order to promote public safety (make it less likely that they will reoffend), save tax dollars (treatment and monitoring in the community is less expensive than prison), and help the individual resume a responsible life through treating symptoms that interfere with responsible living. It offers an alternative for those who may be at a lower risk for reoffending and would benefit from treatment rather than incarceration.

Mr. Smith is a 35 year old Caucasian male who has been charged with a misdemeanor and is therefore eligible for diversion.

- Mr. Smith (has/does not have) a history of violent behavior
- Mr. Smith (has/does not have) a history of substance abuse
- Mr. Smith (has/does not have) a severe mental illness

1. Based on your knowledge of problem-solving courts and Mr. Smith, would you divert Mr. Smith to an appropriate problem-solving court?
   - Yes
   - No

2. Based on the description given of Mr. Smith, and comparing him with other criminal defendants, would you consider him to be:
   - Low Risk for Violence
   - Moderate Risk for Violence
   - High Risk for Violence

3. Based on the description given of Mr. Smith, on a scale from 1-10, how much of a risk for violence is Mr. Smith? (1 = lowest risk, 10 = highest risk)
   
   1  2  3  4  5  6  7  8  9  10

4. What source of information did you use to make this decision? (Check all that apply)
• Life experiences
• Undergraduate coursework
• Scholarly publications (e.g., books, journals)
• Media (TV/Internet)

Part 2

Below are definitions that are sometimes used for Low, Moderate, and High risk for violence.

Low risk – Relative to others of similar age and legal status, the likelihood that Mr. X will commit a violent act toward another person in the next several months is estimated to be lower than that of these others.

Moderate risk – Relative to others of similar age and legal status, the likelihood that Mr. X will commit a violent act toward another person in the next several months is estimated to be about the same as that of these others.

High risk – Relative to others of similar age and legal status, the likelihood that Mr. X will commit a violent act towards another person in the next several months is estimated to be higher than that of these others.

5. Based on these definitions, would you consider Mr. Smith to be:
   • Low Risk for Violence
   • Moderate Risk for Violence
   • High Risk for Violence

6. Based on your violence risk rating using these definitions, would you divert Mr. Smith to an appropriate problem-solving court?
   • Yes
   • No

7. Based on this new information, on a scale from 1-10, how much of a risk for violence is Mr. Smith? (1 = lowest risk, 10 = highest risk)
   1  2  3  4  5  6  7  8  9  10
Vita

Kento Yasuhara
Tokyo, Japan
March 16, 1982

Education
Drexel University: Ph.D Candidate: Forensic Concentration, M.S. Clinical Psychology
Honors: Drexel University International Travel Award, 2008
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Publications
• The application of risk-need-responsivity to risk assessment and intervention-planning: Opportunities, limitations, and relevant research needs. *American Psychology-Law Society News*, 31, 4-5.
• Risk-needs assessment: Bridging disciplinary and regional boundaries. *Criminal Behaviour and Mental Health*, 21, 1-7
• Empirically supported reentry: Review and prospects. *Corrections Compendium*.
• How “specific” are gender-specific rehabilitation needs? *Criminal Justice and Behavior*, 35, 1367-1381.

Professional Experience
• Clinical Psychology Intern, Patton State Hospital
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