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Assessing Suicide Risk Scores as a Predictor of Suicidal Behaviors in a Correctional Psychiatric Facility

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ASSESSING SUICIDE RISK SCORES AS A PREDICTOR OF SUICIDAL
BEHAVIORS IN A CORRECTIONAL PSYCHIATRIC FACILITY

A Dissertation

Presented to the Faculty of
Antioch University Seattle
Seattle, WA

In Partial Fulfillment
of the Requirements of the Degree
Doctor of Psychology

By
Janice Rice
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ASSESSING SUICIDE RISK SCORES AS A PREDICTOR OF SUICIDAL
BEHAVIORS IN A CORRECTIONAL PSYCHIATRIC FACILITY

This dissertation, by Janice Rice, has
been approved by the committee members signed below
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DOCTOR OF PSYCHOLOGY

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ABSTRACT

ASSESSING SUICIDE RISK SCORES AS A PREDICTOR OF SUICIDAL
BEHAVIORS IN A CORRECTIONAL PSYCHIATRIC FACILITY

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This study evaluated suicide risk assessments in a correctional psychiatric setting. It considered whether clinicians' judgment of suicide risk predicted future suicidal behaviors in seriously mentally ill prisoners. Data analysis did not show that higher suicide risk scores predicted more suicidal behaviors, nor did it show that suicide risk scores differentiated multiple attempters, or those who went on to attempt suicide or self-harm two or more times in the three years following the assessment. Study data did, however show that suicide risk scores significantly differentiated those who went on to attempt suicide or self-harm at least once in the three years following the assessment. Low, moderate, and high suicide risk groups were characterized in terms of suicide assessments, suicidal behaviors, clinical factors, criminal factors, institutional behaviors, housing, and demographics. Multiple attempter and non-multiple attempter groups were similarly characterized. Observations about suicide risk assessment and housing were discussed. Notably, all but one infraction for suicide and self-harm took place in single-man housing. The electronic version of this dissertation is at OhioLink ETD Center, www.ohiolink.edu/etd

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Chapter I: Introduction

This study evaluated whether suicide risk assessments in a correctional facility predicts suicidal behaviors. The study analyzed suicide risk scores for seriously mentally ill prisoners in men's state prison system. It evaluated how well the risk scores predicted subsequent suicidal and self-harming behaviors over three years. The study also described clinical and behavioral risk factors often associated with increased suicidality.

As the second largest cause of death behind illness, suicide presents a significant problem in correctional populations (Mumola, 2005). Despite the disproportionately higher suicide rates in correctional settings (30% more than the general population) (McIntosh & Drapeau, 2014; Noonan & Grinder, 2013) there is little empirical study of the effectiveness of suicide risk assessments in the correctional population (Horon, McManus, Schmollinger, Barr, & Jimenez, 2013). Screening for suicide risk in correctional populations is problematic because of the low base rates of suicide and because of the lack of a gold standard measure of risk. Transferability of community population scales is not a given because correctional facilities have their own specific environmental risk factors such as solitary confinement as well as unique circumstances faced by prisoners such as separation from family and society (Perry, Marandos, Coulton, & Johnson, 2010).

Suicide theorists agree that multiple attempt status uniquely identifies heightened risk of suicide (Joiner et al., 2009; Rudd, 2006). Joiner et al. (2009) theorized that through multiple attempts and self-harming behaviors, suicidal individuals develop an *Acquired Capability* to complete suicide. According to Joiner et al., very few people are

capable of overcoming the fear and pain associated with lethal self-harm. They must first habituate to the pain and fear through repeated experiences of pain and provocation. They habituate through intentional self-harm, violence, thrill seeking, IV drug use, or in other ways. Acquired Capability gives the suicidal individual the wherewithal to complete suicide (Joiner et al., 2009). The link between multiple attempt status and suicide has been well established in the literature, so much so that researchers often use multiple attempt status as a criterion measure to assess suicidality (Horon et al., 2013; Joiner et al., 2009; Mills, Green, & Reddon, 2005). Joiner et al. (2005) evaluated the role of past suicidal behavior in future suicidality. Authors analyzed four studies that sampled diverse populations such as young adults with clinical levels of suicidality, American undergraduates, mood disordered Brazilian outpatients, and older adult psychiatric patients. They evaluated associations between past suicide attempts and current suicidal symptoms while controlling for other known correlates such as psychiatric symptoms, measures of hopelessness, family history of suicide, other historical factors, and legal factors. "Past suicidal behavior" in these studies included intentional self-destructive acts resulting in harm. It did not require suicidal intent. In these studies, a strong correlation between past suicidal behavior and current suicidal symptoms held even when controlling for the known correlates.

Horon et al. (2013) investigated this link in a correctional setting by evaluating whether several standardized risk assessment instruments successfully identified multiple attempters in a psychiatrically hospitalized correctional population. Using multiple attempt status as a criterion measure, researchers analyzed how well standardized scales classified those who had prior suicide attempts. The researchers also conducted

comprehensive clinical assessments of acute and chronic risks. They suggested follow-up studies evaluating how well the clinical assessments could predict future suicidal behaviors. This study extends Horon et al. by evaluating how well comprehensive clinical assessment of suicide risk in a correctional setting predicts future suicidal behaviors. It analyzes suicide risk factors and assessment in a residential treatment living unit for seriously mentally ill prisoners, which is a distinct setting for this type of research. Ideally, results of this analysis will lead to improved assessment and management of suicide risk.

Chapter II: Literature Review

Suicide rates are disproportionately higher in correctional facilities than in the general population (Baillargeon et al., 2009). In 2010, the prevalence of suicide in state prisons was almost 30% more than the general population. In local jails, the prevalence rate was over three times that of the general population (Noonan & Grinder, 2013; McIntosh & Drapeau, 2014). From 2001 and 2011, suicide was the second leading cause of death behind illness in state prisons and jails (Noonan & Grinder, 2013), causing over 30% of the deaths in local jails and over 6% of the deaths in state prisons.

Self-harm is also prevalent in correctional facilities. Deliberate self-harm (referred to from here forward as “self-harm”) has many synonyms in the literature such as self-mutilation, parasuicide, and repetitive self-injury, and Nonsuicidal self-injury (Knoll, 2010). The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (American Psychiatric Association, 2013) uses the definition,

Intentional self-inflicted damage to the surface of his or her body of a sort likely to induce bleeding, bruising, or pain (e.g., cutting, burning, stabbing, hitting, excessive rubbing), with the expectation that the injury will lead only to minor or moderate physical harm (i.e., there is no suicidal intent). p. 803

In their systematic literature review, Brooker, Repper, Beverley, Ferriter, and Brewer (2002) found that close to one-third of all prisoners in the UK have engaged in self-harm at some time during their incarceration. In 2008, 7.8% of prisoners in England and Wales were reported to commit self-harm, a number that increased by 37% from five years prior (Ramluggun, 2011). Washington State is no exception. Washington State’s Monroe Correctional Complex, a 2,400 bed men’s prison in Washington State, recorded over 190 instances of self-harm or suicide attempts in 2013 (Department of Corrections OMNI Database, Retrieved on 2/16/2014), many of which required costly stays at close

observation facilities. Additionally, Washington State prisons had six completed suicides in 2013.

Some researchers place suicide attempts into a distinct risk category separate from deliberate self-harm. Researchers agree, however, that people with a history of self-harming behaviors have an elevated risk of suicide (Joiner et al., 2005). Some have attempted to distinguish suicide attempts from self-harm by assessing whether self-harmers actually had suicidal intent (Fagan, Cox, Helfand, & Aufderheide, 2010), while others analyzed whether the severity of harm done by a suicidal gesture constitutes a suicide attempt or a para-suicidal behavior (Lohner & Konrad, 2006). Knoll masl(2010) states that there is definition ambiguity surrounding the concept of self-harm without intent to die and that there it is not possible to distinguish between self-harmers who will or will not go on to complete suicide. Suicidal cognitions are dynamic and ambivalent in nature. Self-harmers may simultaneously wish to self-harm and commit suicide and their wishes may change throughout incidents of self-harm. Knoll goes on to say that even if prisoners engage in self-harm as a way to cope, reduce anxiety, or self-harm to gain a sense of control, it is not possible to reliably discern those who will go on to attempt suicide from those who will not. Regardless of whether the person's behavior classifies as a suicide attempt or non-suicidal self-harm, accidents happen and people who inflict self-harm sometimes die. People in enough distress to self-harm may be ambivalent about whether or not they want to die.

Self-harm and suicide attempts in prisons are costly and stressful events. Staff burnout results from exposure to the emotional stress of dealing with chronic suicidal or self-harming prisoners (Maslach, Schaufeli, & Leiter, 2001). Significant costs are

associated with prevention measures as well as post-status care. Mental health costs in prisons continue to rise and there is continued pressure to contain costs (Kyckelhahn, 2012). Identifying at-risk prisoners, assessing, and monitoring and managing risk have their own nontrivial costs such as training, added personnel, and special housing. Prisoners identified as having an acute risk of suicide are often placed on suicide watch, requiring additional custody staff. Suicidal and self-harming behaviors disrupt facility operations and drain mental health and custody resources (Appelbaum, Savageau, Trestman, Metzner, & Baillargeon, 2011). Self-injurious behavior requires costly stays in close observation units or medical treatment outside of the facility (Appelbaum et al., 2011). Onsite mental health expenditures in Washington's Department of Corrections prisons changed by 16% from 2008 to 2012, while the overall health care expenditures per prisoner changed by -17% (Kyckelhahn, 2012).

Prisoners housed in jails and prisons have disproportionately high rates of suicide as well as a high prevalence of self-harming behaviors. High rates of suicide attempts and self-harming behaviors lead to health problems and death as well as increased stress for staff dealing with chronic self-harmers and suicidal inmates. Monitoring for self-harming prisoners often requires significant resources such as increased staff, increased medical procedures, and specialized housing. Correctional facilities are challenged to provide early detection, accurate assessment and effective management of prisoners who are at-risk for suicide and self-harm.

Theory of Suicide and Acquired Capability

Rudd's (2006) Fluid Vulnerability Theory (FVT) states that a history of multiple suicide attempts uniquely predicts suicide potential. *Baseline susceptibility* is a person's

threshold for making a suicidal gesture when faced with a crisis. People with higher baseline susceptibility will be more likely to attempt suicide when in crisis. According to Rudd, it takes less to trigger a suicidal crisis in multiple attempters, multiple attempters experience more psychopathology in crisis, have more specific suicidal thoughts, express more intent to die, and their suicidal crises tend to last longer than single or non-attempters. In addition to past suicide attempts, enduring risk factors such as personality traits, violence, and early childhood experiences increase a person's baseline susceptibility.

In addition to enduring risks that affect the baseline susceptibility, Rudd (2006) defined acute states of suicidal crises as time limited periods of extreme risk due to situational factors such as changes in symptom acuity (e.g., depression, agitation), feeling trapped, or escalating intent to die. A person with higher baseline susceptibility is more likely to attempt suicide in reaction to acute stressors.

Joiner's Interpersonal Psychological Theory of Suicide (IPT) (Joiner et al., 2005; Joiner et al., 2009) states that multiple attempters acquire the capability to kill themselves by habituating to the fear and physical pain associated with suicide. Through repeated self-harm and suicide attempts, multiple attempters develop an *acquired capability*. Acquired capability is the competence and courage to enact lethal self-harm. Joiner and colleagues identified multiple attempt status as a proxy measure of acquired capability; however, they also state that acquired capability develops from other experiences that induce fear and cause pain such as exposure to physical violence (Joiner et al., 2009). Table 1 presents a possible definition of acquired capability.

Table 1

Possible Presentation of Acquired Capability

Components of acquired capability
<ol style="list-style-type: none"> 1. Multiple attempt status 2. Non-multiple attempter with three instances of the following: <ol style="list-style-type: none"> a. Non suicidal self-harm b. Single suicide attempt / aborted suicide attempt c. Drug use (especially self-injecting) d. Violence

Note: Adapted from “The Interpersonal Theory of Suicide: Guidance for Working With Suicidal Clients” by T. E. Joiner, K. A. Van Orden, T. K. Witte, and M. D. Rudd, M. D. Copyright 2009 by the American Psychological Association (see Appendix APA Copyright and Permissions Information).

Beyond acquired capability, Joiner and colleagues (2005) theorized that an *opponent-process* occurs for multiple attempters. In an opponent process, repetition of a negatively provocative activity not only results in diminished negative affective responses, but it also results in strengthened positive affective responses (Solomon, 1980). For example, Epstein, 1967, as cited in Solomon (1980) showed that for the first several jumps, military parachutists experienced anxiety prior to each jump, terror during each jump and relief after each jump. After many jumps, these parachutists began to feel eagerness before each jump, thrill during each jump and exhilaration after each jump. Through repetition, parachutists experienced diminished fear and increased exhilaration. Similarly, Joiner, Ribeiro, and Silva (2012) theorized that through repetition, self-harmers experience increased reinforcement from self-harming behaviors. According to Joiner et al.’s interpersonal psychological theory of suicide, repeated exposure to painful and provocative stimuli results in decreased negative responses (e.g., fear and pain) and increased positive responses (e.g., relief and analgesia).

According to the interpersonal-psychological theory of suicide, acquired capability along with a sense of *failed belonging* and *perceived burdensomeness* are the three ingredients that lead to lethal suicide. Perceived burdensomeness goes beyond low self-esteem in that it includes the belief that one's existence burdens or damages family, friends, and society. It includes the belief that one's death would be more valuable to family, friends, and/or society than one's life. Failed belongingness is the experience of feeling alienated and the perception that one is not an integral part of family, friends or other valued groups. Failed belongingness includes the belief that one is inconsequential and not cared for. Failed belongingness and perceived burdensomeness are generally intense and short-lived. If a person with acquired capability experiences a crisis of failed belongingness and perceived burdensomeness, that person is more likely to complete suicide.

Situational stressors related to the constructs of failed belongingness and perceived burdensomeness faced by many prisoners include things like estrangement from loved ones and job loss. These stressors can result in a suicidal crisis, or a state of experiencing intense thoughts of suicide, dysphoria, and a belief that the person cannot cope. Figure 1 presents a model of suicide compatible with both Joiner et al.'s (2012) and Rudd's (2006) theories.

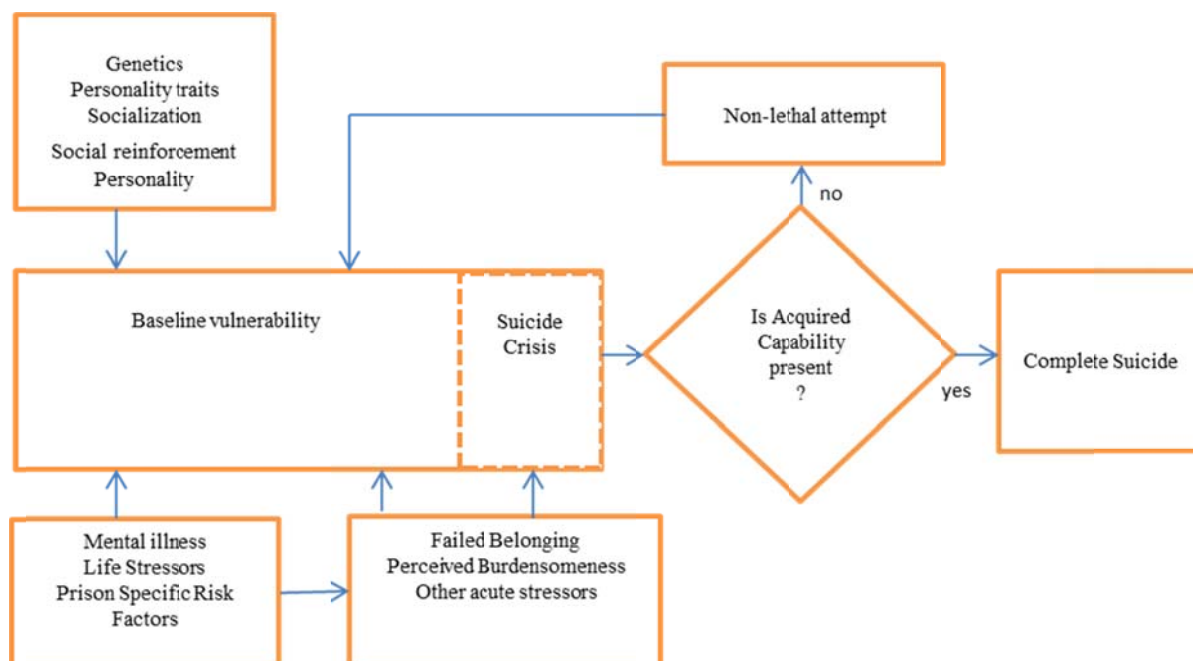


Figure 1. A model of acquired capability.

Risk Factors

This literature review defines baseline risk factors as enduring, empirically derived constructs that have been shown to increase the long-term risk of suicide. Baseline risk factors contrast with acute situational risk factors in that the latter are dynamic in nature, short-lived, and indicate a heightened risk for an acute suicidal crisis.

Risk factors in correctional facilities. Correctional facilities house vulnerable groups that have known risks for suicide. For example, young males, socially marginalized and socially isolated individuals, people with a history of violence, people with a history of self-harm, and substance abusers are common in correctional populations. These risks are often exacerbated by stressors such as interactions with the legal system, substance withdrawal, long sentences, and stress of daily prison life. Risk factors in correctional facilities differ from those in the community. Fazel, Cartwright,

Norman-Nott, and Hawton, (2008), who conducted a meta-analysis on suicide rates in corrections in 12 countries from 2003–2007 found that correctional suicide rates did not reflect general population rates. They also found that suicide rates were not associated with incarceration rates. These authors wrote that the differences suggest that prison suicide rates reflect specific criminal justice factors different from those in community populations.

Hayes (2012) studied 696 suicides occurring in US jails between 2005 and 2006. Of these suicides, 67% were White, 93% were male, and 42% were single. The majority of those who completed suicide (91%) were on remand status and 38% were in isolated housing. Only 23% of the suicides occurred within the first 24 hours of incarceration and only 20% were intoxicated. This contrasts with a similar study 20 years earlier by Hayes (1989), who found that more than half of the suicides occurred within the first 24 hours and 60% were intoxicated.

Fazel et al. (2008) conducted a meta-analysis of 34 studies from 12 countries comprising 4780 cases of prison suicides. Authors analyzed demographic, situational, and clinical factors and reported odds ratios with a 95% confidence interval based on a software package called Review Manager (RevMan, The Cochrane Collaboration: Oxford, United Kingdom, 2000, as cited in Fazel et al.. 2008). An odds ratio is a measure of association between exposure to a risk factor and a completed suicide. It represents the odds of completed suicide given exposure to a particular risk factor, compared to the odds of a completed suicide in the absence of that exposure.

In the Fazel et al. (2008) study, risk factors strongly associated with completed suicides were single cell housing, a history of suicide attempts, psychiatric diagnoses,

psychotropic medications, detainee/remand status, violence, and alcohol use problems. Demographic factors positively associated with suicide included male gender (1:9), being married (1:5), and White race/ethnicity (1:9). Black race/ethnicity was inversely associated with suicide with an odds ratio of 0:4. Single cell housing (9:1) and remand status (4:1) were two situational factors strongly associated with suicide. Violent offenses were also positively associated. Murder and manslaughter had an odds ratio of 3:6, and other violent offenses not including murder or manslaughter showed an odds ratio of 3:5. However, the analysis also showed some heterogeneity in data on violence. Sex offenses were not strongly associated with suicide (1:2). Of the clinical factors, suicidal ideation (15:2), past attempts (8:4), having a psychiatric diagnosis (5:9), and being on psychotropic medications (4:2) had the highest association with suicide.

Single-cell and remand housing. Inmates are more likely to complete suicide while in single-cell housing or on remand status (Fazel et al., 2008; Hayes, 2012; Shaw, Baker, Hunt, Moloney, & Appleby, 2004). However, empirical studies reviewed in this literature review did not generally evaluate the long-term suicidal risk from single-cell and remand status. Based on the IVF theory, these factors would be considered acute situational risk factors instead of baseline risk factors.

Studies such as Fazel et al. (2008), which found that suicides were 9.1 times more likely to occur in single-occupancy housing, did not specify the circumstances of the single-occupancy housing. Some single-occupancy cells exist in general prison population where there are many opportunities to socialize and attend activities. Single-occupancy cells are also likely to be found in correctional psychiatric facilities, in which case psychiatric diagnoses could influence the numbers. These types of single-celled

environments offer unsupervised time for a suicidal prisoner to act, but they do not create other stressors associated with single-cells in segregated disciplinary housing or maximum-security facilities.

Segregated housing and maximum-security housing allow only one or two hours outside of the cell and very little social contact. Segregated housing has been consistently identified as having significant association with suicidal or self-harming behavior (Appelbaum et al., 2011; Duthé, Hazard, Kensey, & Pan Ke Shon, 2013; Dye, 2010; Patterson & Hughes, 2008; Roma, Pompili, Lester, Girardi, & Ferracuti, 2013). Poor coping skills or poor behavioral controls may lead to placement in disciplinary segregation. Unfortunately, prisoners lacking such skills and controls are also more susceptible to the stressful conditions of isolated housing.

Patterson and Hughes (2008) reported that of the 154 California prison suicides analyzed between 1999 and 2004, 73% took place in single-cell housing while 46% were completed in administrative segregation or secure housing. Roma et al. (2013) analyzed suicides in three types of custody conditions in Italian prisons from 2004–2008. Researchers found that suicide rates in short-term isolation more than two times higher than general prison population. Maximum-security isolation suicides were four times higher than general prison population. Appelbaum et al. (2011) surveyed 51 state and federal prisons and found that 76% of the responding prisons reported that their highest rates of self-harm occurred in segregated and maximum-security units. Bonner (2006) examined suicidality of 134 medium security prisoners housed in both general population and segregation. Prisoners housed in segregation had significantly higher levels of depression and suicidal ideation than those in general population. These segregated

prisoners did not differ in history of mental health problem or history of suicide attempts when compared with the general population, suggesting that segregation had a significant effect on depression and suicidal ideation.

Psychiatric diagnosis. In community settings, associations between psychiatric diagnoses and suicide attempts/self-harm are well documented. Associated diagnoses include affective disorders (especially major depressive disorder), psychotic disorders, substance disorders, and cluster B personality disorders such as borderline personality disorder (Joiner et al., 2009; Rudd, 2006; White, 1999). Joiner's interpersonal-psychological theory of suicide views psychiatric disorders in terms of acquired capability, failed belongingness, and perceived burdensomeness. The theory suggests that depressed people are more likely to avoid interpersonal interactions and are less assertive. They tend to engage in behaviors that increase their stress levels (e.g., complaining, isolation) and they engage in interpersonally aversive behavior (e.g., seeking negative feedback, or excessive reassurance seeking). People suffering from depression are more likely to have work-related skills problems, and they feel that they place a burden on loved ones. All of these problems can lead to a lack of social connections and an increased feeling of burdensomeness (Joiner et al., 2009).

Individuals with psychotic disorders experience social isolation and are likely to place burdens on caregivers, justifiably increasing their perceived sense of burdensomeness and failed belongingness. With regard to developing acquired capability, psychotic episodes often include command auditory hallucinations instructing the individuals to self-harm. Positive symptoms of schizophrenia have also been linked to suicidal and violent behavior (Joiner et al., 2009).

Individuals with borderline personality disorder increase their habituation to the fear and pain of self-harm through repeated impulsive self-harm. The frantic efforts to avoid abandonment and unstable interpersonal relationships increase the sense of thwarted belongingness. Millon's evolutionary model of personality disorders states that people with borderline personality experience ambivalent pleasure-pain drives (Millon, Grossman, Meagher, & Ramnath, 2004). The opponent process suggests that repeated exposure to painful self-harm may result in positive affective responses. Chronic self-harmers may develop trait-like tendencies to repeat painful experiences in order to gain pleasure. Millon et al.'s evolutionary theory on antisocial personality disorder states that antisocial individuals are action oriented (as opposed to passive) and self-centered in nature. They take what they want when they want it regardless of the effect on themselves or others. These individuals tend to pay little attention to the pain resulting from their chosen activity, which suggests a high tolerance for pain (Millon et al., 2004).

In prisons, a large body of research shows that a history of receiving mental health services predicts suicide and self-harm (Dye, 2010; Humber, Webb, Piper, Appleby, & Shaw, 2013; Kovasznay, Miraglia, Beer, & Way, 2004). Between 1993 and 1999, 84% of the 76 New York inmates who completed suicide received mental health services during their current incarceration (Kovasznay et al., 2004). Humber et al. (2012), who analyzed prison suicides in England and Wales between 2005 and 2008, found that previous psychiatric treatment independently predicted suicide with an odds ratio of 2:38. In their meta-analysis of 34 studies on prison suicides, Fazel et al. found that having a current psychiatric diagnosis and receiving psychotropic medications predicted suicide with an odds ratio of 5:9 and 4:2 respectively.

Research on diagnostic categories associated with suicide attempts and self-harm in prisons were not always consistent with correlates found in civilian populations (Young, Justice, & Erdberg, 2006). Young et al. assessed associations between self-harm and psychiatric diagnoses in 242 male prisoners. Authors found that prisoners who self-harmed did not have higher rates of depression, psychosis, narcissistic personality disorder, or antisocial personality disorder. They did find, however, that borderline personality disorder and “psychopathy factor 2 scores” (antisocial lifestyle) significantly identified self-harmers. Interestingly, the absence of an Axis I disorder along with borderline personality disorder further characterized self-harmers prisoners. Baillargeon et al. (2009) gathered data from 234,031 Texas inmates between 2006 and 2007 and found elevated associations between suicide and major depressive disorder (odds ratio of 5:1), bipolar disorder (odds ratio of 4:6), and schizophrenia (odds ratio of 7:3). Verona, Patrick, and Joiner (2001) found a link between psychopathy and suicidal behavior in their study of 313 male prison inmates. Shaw et al. (2004), in their national survey of completed prison suicides from 1999 to 2000 in England and Wales, reported that 7% of the suicide completers had schizophrenia, 18% had affective disorders, and only 7% had a personality disorders. Thirty percent had contact with mental health services, and 14% were previously psychiatrically hospitalized. Appelbaum et al. (2011) surveyed 39 prisons across the US in 2010 about self-harming prisoners. Respondents reported diagnoses including cluster B personality disorder (52%), mood disorder (16%), and psychotic disorders (8%).

History of substance abuse. The interpersonal-psychological theory of suicide suggests that substance abusers habituate to the pain of self-harm by intravenous

substance use. Additionally, the analgesic effects of many substances of abuse increase pain threshold and thus contribute to the development of acquired capability. Substance abuse often leads to social isolation. Comorbidity with other mental disorders likely has an additive effect, for example, a person with comorbid depression and substance abuse might have high levels of thwarted belongingness and burdensomeness resulting from the depressed symptoms, along with increased tolerance to pain from substance use.

Between 1993 and 1999, 53% of the 76 New York inmates who completed suicide had a history of substance abuse (Kovaszny et al., 2004). In their meta-analysis of 34 studies on prison suicides, Fazel et al. (2008) found that a history of alcohol abuse predicted suicide with an odds ratio of 3:0. Shaw et al. (2004), who studied prison suicides in England and Wales between 1999 and 2000 found that 27% of suicide completers were drug dependent and that drug dependence was their primary psychiatric diagnosis.

History of violence. According to Joiner's interpersonal-psychological theory of suicide, violence increases acquired capability by habituating individuals (both victims and aggressors) to fear and physical pain as well as impulsive and dangerous behaviors.

Research consistently shows that violent offenders have an elevated risk of suicide and self-harm (Duthe et al., 2013; Hayes, 2012; Mumola, 2005; Rabe, 2012; Shaw et al., 2004). Mumola (2005), who analyzed the Bureau of Justice Statistics between 2000 and 2002, reported that suicide rates for violent offenders were more than twice as high when compared with nonviolent offenders. Kidnappers had the highest rates of suicide at 275 per 100,000 in local jails and 36 per 100,000 in state prisons. Sex offenders and murderers were also among the top violent offender groups to complete

suicide. Among the nonviolent groups, drug offenders had the smallest prevalence of completed suicides with 18 per 100,000 in jails and six per 100,000 in state prisons. Studies in France, England and Wales also found significantly higher rates of suicide for violent offenders (Duthe et al., 2013; Humber et al., 2012; Shaw et al., 2004). Shaw et al. reviewed prison suicides in England and Wales from 1999–2000 and found that 26% were charged with a violent offense. Humber et al., who examined 220 completed prison suicides in England and Wales between 2005 and 2008, found that a history of violence strongly predicted suicide with an odds ratio of 3.00. Duthe and colleagues analyzed 353 completed suicides by adult male prisoners in France between 2006 and 2009. The authors found the highest suicide rates in prisoners convicted of murder, followed by rape, other sexual assault, other violent offenses, and then other offenses. Although some data (e.g., Mumola, 2005) suggests that sexual offenders have a high prevalence of suicide, this is not well supported in the literature (Felthous, 2011).

Multiple attempters. Empirical literature has well established that multiple attempters have a greater risk of future suicide when compared with single attempters and non-attempters (Forman, Berk, Henriques, Brown, & Beck, 2004; Joiner et al., 2005). Several studies from community populations showed higher suicidality in multiple attempters even when controlling for variables such as borderline personality disorder, hopelessness, and other variables—or as Joiner stated, “when everything but the kitchen sink” is co-varied (Joiner et al., 2005, p.1). Similar results were found in prison populations. According to Fazel et al. (2008), those who completed suicide were more likely to have attempted in the past with an odds ratio of 8:1. Humber et al. (2012) reported that a history of self-harm independently predicted completed suicide in prisons

in England and Wales. Shaw et al. (2004), in their national clinical survey of completed prison suicides from 1999 to 2000 in England and Wales reported that 53% of those who completed suicide had a history of self-harm.

Literature presented here suggests that the risk of suicide in correctional facilities increases with certain factors such as isolated housing, past suicide attempts, a history of violence, mental illness, and a history of substance abuse. This literature supports suicide risk theorists (e.g., Joiner et al., 2009; Rudd, 2006) who claim that not only do these types of factors increase the individuals' capability to complete suicide, but they also lower the threshold for making suicidal gestures in times of crisis. This study concerns itself with how well clinicians measure suicide risk in light of these baseline risk factors.

Problems With Assessing Suicide Potential in Correctional Facilities

“Most individuals who display or endorse documented risk factors will not attempt suicide, and fewer still will die by suicide. The same applies to the list of warning signs” (Joiner et al., 2009, pp. 55–56). Clinicians can use theoretically and empirically based assessment frameworks as well as standardized screening instruments along with current available knowledge on suicide, but realistically, they cannot always predict suicide with certainty. That said, ethical clinicians must continue to strive for improved assessment, early detection and careful management of suicidal prisoners.

Patterson and Hughes (2008) judged that 60% of suicides in California prisons were foreseeable and or preventable. Foreseeable in these cases, means that information was reasonably available that indicated a high risk of suicide and that would require intervention by policy. Preventable means that the suicide could have been prevented by reasonable effort in gathering information or intervening. This suggests that the

information was available, but for whatever reason, the information was not effectively used to prevent suicides.

Using standardized instruments to establish valid risk assessments in prisons is problematic in part because of the low prevalence of completed suicides, the lack of a “gold standard” scale and limited transferability of existing scales from general population to correctional settings. Data on using existing assessment tools in correctional facilities is limited (Perry et al., 2010). The problem with transferability of research from community to prison populations is that criminal justice systems create distinct suicide risk factors, such as conditions of confinement (e.g., restricted liberties, housing conditions, loss of status). In their ecological study of 12 countries, Fazel, Grann, Kling, and Hawton (2011) found no correlation between suicide rates in prisons and general population. Nor did they find correlations between prison suicide rates and incarceration rates. According to Fazel and colleagues, trends in correctional suicides were more likely to be reflective of factors in the criminal justice system than of those in the general population. Few U.S. prison systems collect and analyze data on suicidal behaviors or on the effectiveness of interventions. Training programs focused on teaching professionals how to intervene are limited (Appelbaum et al., 2001).

Developing and validating risk assessment procedures specific to correctional populations presents a difficult and costly task. There are costs associated with developing and validating tools corrections-specific, training clinicians, and developing policies. Washington State University recently published a study evaluating training effects on how professionals assess, treat and manage suicidal patients. Authors found that most professional programs for providers offer little or no suicide prevention training

(Walsh, Hooven, Watson, & Eichhorn, 2013). Since then, licensing boards for clinicians have incorporated mandatory suicide training in the State of Washington.

With these challenges, accuracy and comprehensiveness of risk assessment in prisons is not a given, and inaccurate risk assessments have their own costs.

Overestimating risk incurs costs such as unnecessary specialized watch, specialized housing, and/or hospitalizations. Underestimating risk, on the other hand, leads to increased post-status medical costs, increased injury and death.

Standardized Risk Assessment Instruments in Corrections

Several research studies assessed standardized suicide risk assessments in correctional populations using past suicide attempts as an outcome criterion. Perry et al. (2010) conducted a systematic review of literature to evaluate suicide instruments on correctional populations. The review investigated studies from 1980 through 2004, which sampled both male and female prisoners in the UK and Canada. Researchers used the Standards for Reporting Diagnostic Accuracy (STARD) to evaluate the accuracy and completeness of the studies. Perry et al. (2010) evaluated three screening instruments including the Suicide Checklist (SCL), the Suicide Probability Scale (SPS), and the Suicide Concerns for Offenders in Prison Environments (SCOPE). The SCL identifies acute risk of suicide. It measures symptoms of current depression, suicidal ideation, and relevant historical factors. The assessment is meant to be administered by nursing or custody staff with minimal training. The SPS is a self-report paper and pencil screening instrument meant to supplement clinical assessment. It assesses hopelessness, suicidal ideation, negative self-evaluation and hostility. The SCOPE is another paper and pencil screen assessing suicidal ideation, depressive symptoms, hopelessness, suicide attempts,

social support networks, coping strategies, and problem-solving strategies. According to Perry et al., all three of these screening instruments were intended to identify potentially at-risk prisoners who should then be referred for clinical risk assessments. None of the studies in Perry et al. used predictive validity of future suicidal or self-harm behaviors, but all scales were evaluated against a history of self-harming and/or past suicide attempts as an outcome measure. Authors found that two of the screening tools, the SCOPE and Suicide Potential Scale, demonstrated reasonable sensitivity and specificity when predicting outcomes, but based on information from the STARD analysis, reports lacked information about test cut-off scores and test administration. Perry and colleagues recommended more research on predictive validity of future suicide attempts in prisoner populations as opposed to past suicide attempts as an outcome measure.

In a similar study, Mills et al. (2005), examined whether a self-report measure, the Psychache Scale (Holden, Mehta, Cunningham, & McLeod, 2001) could be generalized to prison populations and whether psychache predicted prior of suicide attempts. Subjects included 136 male inmates in a medium security prison. Psychache is “the chronic, free-floating, non-situational specific, psychological pain caused by the frustration of vital psychological needs” (Mills et al., 2005, p. 573). Mills and colleagues hypothesized that psychache would be more strongly associated with past suicide attempts than measures of depression or hopelessness. Data did not indicate a significant correlation, so the hypothesis was not supported. The authors suggested that Psychache in this study captured current emotional functioning, not long-term vulnerability, so it would be more likely to identify acute situational risk factors than more stable long-term factors such as depression.

Horon et al. (2013) evaluated how well five suicide risk assessments predicted a history of multiple suicide attempts. Subjects were 342 adult male prisoners housed in a psychiatric in-patient facility in California. Multiple attempters were identified based on self-report in clinical interviews and records. Past suicide attempts only counted if the subject: (a) named the place and time of the attempt, (b) reported a method that could be deadly, (c) indicated an intent to die, (d) described the degree of preparation, and (e) indicated that the attempt required medical attention beyond first aid. The study also gathered descriptive information on other risk factors such as historical information, cognitive functioning, psychiatric diagnoses, and substance abuse, and history of violence.

The Horon et al. (2013) study evaluated the Adult Suicidal Ideation Questionnaire (ASIQ) (Reynolds, 1991), The Beck Hopelessness Scale (BHS), and the Beck Scale for Suicidal Ideation (BSS), the Reasons for Attempting Suicide Questionnaire (RASQ), and the Suicide Risk Assessment Checklist (SRAC). The ASIQ assesses suicide preparations and plans over the past month which are likely to reflect acute risk. The BHS measures hopelessness about the future, loss of motivation, and negative expectations. Although the BHS does not ask questions specifically about suicide, it has been shown to correlate with past suicidal behavior and endorsement of suicide in correctional populations (Holden & Kroner, 2003, as cited in Horon et al., 2013). The BSS inquires about specific plans for suicide, deterrents to suicide, and willingness to share information, as well as number of prior attempts and the desire to die. The RASQ does not directly inquire about suicidal ideation, but it measures two scales: (a) Internal perturbation-based reasons, and (b) Extrapunitive/manipulative

motivations (Holden & DeLisle, 2006). Internal perturbation motivations were defined as self-punishing motivations related to thwarted needs of “achievement, affiliation, autonomy, counteraction, order, shame avoidance, and succorance” (p. 6). Extra-punitive/manipulative motivations were about punishing others, “make them sorry for the way they treated me” (p. 1). The latter factor was found to be associated with less suicidal intent than the former (Holden & DeLisle, 2006). SRAC is a checklist used by the California Department of Corrections and Rehabilitation to guide clinicians in assessing suicide risk factors and protective factors. The SRAC is not a validated instrument.

The Horon study found a strong association between the a history of multiple attempts and the ASIC, BSS, and RASQ. Authors indicated that they planned follow-up studies to evaluate how well these instruments predict which subjects go on to make future suicide attempts.

Holden and Delisle (2006) also assessed the RASQ as a predictor of prior suicide attempts in a correctional out-patient setting. Authors found that the Internal Perturbation scale more strongly predicted a history of suicide attempts than did the BHS.

A large body of literature found that multiple attempters pose a comparatively high risk of suicide and several correctional studies evaluated how well suicide risk assessments identify prior suicide attempters and self-harmers; However, I found no studies that measure suicide risk as a predictor of future suicidal behaviors in correctional populations. This study extends current research by evaluating how well clinicians’ assessment of suicide risk in a correctional facility predicts future suicidal and self-harming behaviors.

This Study

This empirical study aims to (a) evaluate whether clinician derived suicide risk scores predict multiple instances of suicidal and self-harming behaviors in a correctional population, and (b) report descriptive statistics on demographic data, clinical and criminal factors, and housing situation (e.g., maximum security, general prison population). The study hypothesizes that clinicians' estimate of suicide risk found in Mental Health Appraisals will predict suicide attempts and self-harming behaviors over three years. This study asks if higher suicide risk scores will predict higher rates of infractions for suicide attempts and self-harm. It also assesses whether suicide risk scores differentiate the multiple attempters from non-multiple attempters. Two null hypotheses are proposed. First, higher suicide risk scores do not predict higher numbers of infractions for suicide attempts and self-harming behaviors over the three years following the assessment. Second, the suicide risk scores do not differentiate those who go on to receive multiple infractions for self-harm and suicide attempts from those who go on to receive one or less infraction for self-harm and suicide attempts over three years following the assessment.

Chapter III: Method

Subjects

Ninety-six subjects were selected from a pool of 417 seriously mentally ill male prisoners housed in a state prison residential psychiatric treatment unit. This study used existing medical records and prisoner management data. Inclusion criteria for the study sample: (a) Subjects received a comprehensive Mental Health Appraisals by a Master's or doctoral level clinician in 2010 or earlier, and (b) Subjects were incarcerated for at least three years following the Mental Health Appraisal.

Measures

Mental Health Appraisal. Correctional clinicians routinely document psychosocial, psychological, risk assessment (including suicide risk), and referral information as part of comprehensive Mental Health Appraisal. In addition to detailed clinical interviews, clinicians have access to a great deal of information such as criminal histories, past psychiatric records, police narratives, and prison infraction histories. Clinicians supervised by licensed psychologists use clinical judgment to assign risk of suicide. Mental Health Appraisals are developed statewide for prisoners referred to psychiatric treatment providers.

Data Collection

Prior to beginning the project, the prison's research review committee approved my Application to for the research project. The application covered the research proposal, human subjects, and Institutional Review Board approval. This study analyzed data from medical records and criminal databases. A cross-reference table by prison ID number was maintained. Medical and criminal data was coded to protect identifiable information.

Clinical data was collected from a restricted-access “shared drive” containing Mental Health Appraisal reports. Criminal and demographic data were provided in spreadsheet form from the department’s research group. Data was coded to protect identifiable information.

Statistical difference analysis was used to evaluate each null hypothesis. First, ANOVA was used to assess a difference in the number of suicide/self-harm incidents based on suicide risk scores. Second, a contingency table was analyzed to evaluate whether suicide risk scores differentiated multiple attempters from non-multiple attempters. Narrative data from suicide assessments were described. Demographic information, clinical factors and criminal factors were also described. Data analysis was performed using Microsoft Excel. For the difference analysis, a sample size of at least 87 is needed to detect a medium effect with an alpha of 0.05, power of 0.08 (Cohen, 1992), so the 96 subject sample was sufficient.

Table 2

Variables

<i>Variable Name</i>	<i>Description of Variable</i>
Study Variables	
Suicide risk score (independent variable)	Suicide risk score is a measure of baseline suicide risk. This discrete ordinal variable takes on values of low, moderate, and high. The rating is made by Master's level clinicians under the supervision of licensed psychologists. suicide risk scores are found in the Mental Health Appraisal reports
Suicide risk narrative	Narrative data describing suicide risk factors. This data is found in each Mental Health Appraisal
Suicide/self-harm Infraction (dependent variable)	Institutional infractions for self-harm or suicide attempts as defined by the Washington Administrative Codes (WAC 712/713)
Infraction narrative	Narrative data describing behaviors for each suicidal/self-harm infraction
Attempt status (dependent variable)	Attempt status is a discrete categorical variable that takes on two values. Multiple attempters include those who have two or more suicide/self-harm infractions in the specified time. Non-multiple attempters are those who have received one or less suicide/self-harm infraction.
Descriptive Variables	
MHA variables	Clinical information from the Mental Health Appraisals: Mental Status, Daily Functioning, Harm to Self /Other, History of Services, Current or Past Psychotropic Medications, Brain Injury / Seizure History, Mental Health Treatment History, Prior Diagnoses, Chemical Dependency, History of Substance Abuse Treatment, Dynamic Risk Assessment. suicide risk scores and narrative data
Demographic data	Age, race/ethnicity
DSM-IV categories	Based on MHA diagnostic data Categories include Psychotic Disorder, Affective Disorder, Anxiety Disorder, Substance Disorder, Cluster B Personality Disorder, Cognitive/Intellectual Disability Disorder, and Other Axis II.
Housing status at the time of each suicide/self-harm infraction	This variable is measured for each of the infractions for suicide attempts or self-harming behaviors. It identifies whether the attempt/self-harm took place while the prisoner housed in residential psychiatric unit or general population, cell occupancy (single or non-single), administrative segregation, custody level.
Number of violent infractions in prison	The number of serious infractions categorized as violent by Washington State Department of Corrections policy
Number of Sex Offense Convictions.	The number of convictions for <i>sex offenses</i> (RCW 9.94)
Number of violent convictions	The number of convictions for <i>violent offenses</i> and <i>serious violent offenses</i> (RCW 9.94)

Chapter IV: Results

Distribution Analysis

Histograms recording the frequency of suicide/self-harm incidents for various suicide risk scores were generated using Microsoft Excel. Analysis of the entire sample revealed positively skewed data, which was expected because of the low prevalence rate of suicide and self-harm. Very few, 14% of the entire sample, were infracted for suicide/self-harm subsequent to their Mental Health Appraisal. Of the low, moderate, and high suicide risk groups, 82%, 57%, and 75% respectively received no subsequent suicide/self-harm infractions. Of the low suicide risk group, 7% received one subsequent infraction for suicide attempts or self-harm and 11.2% received two or more suicide/self-harm infractions. The low score distribution was much wider when compared with the moderate and high groups, with an average of 1.4 attempts and a standard deviation of 8.5 and a range of 32. The moderate distribution was somewhat narrower, ranging from zero to seven suicide/self-harm infractions. This group averaged one infraction and had a standard deviation of 1.7 along with a range of seven. The high scoring group was the smallest group with only four members. Only one of the four high suicide risk group received subsequent suicide/self-harm infractions. The high group had an average of 0.8 suicide/self-harm infractions with a standard deviation of 1.5 and a range of three. Table 4 summarizes the scores for each group and charts one through five show distribution histograms for various groupings.

Table 3

Number of Infractions for Suicide Attempts and Self-Harming Behaviors by Suicide Risk Score Subsequent to Mental Health Appraisal

Number of infractions for suicide/self-harm in the three years following the Mental Health Appraisal	entire sample N = 96		low risk Scorers N = 71		mod risk Scorers N = 21		high risk Scorers N = 4	
0	73	76.0%	58	82.0%	12	57.1%	3**	75.0%
1	9	9.5%	5	7.0%	4	19.0%	0	0%
2	4	4.2%	2	2.7%	2	9.5%	0	0%
3	3	3.1%	0	0%	2	9.5%	1	25.0%
4	0	0%	0	0%	0	0%	0	0%
5	0	0%	0	0%	0	0%	0	0%
6	1	1.0%	1	1.4%	0	0%	0	0%
7	2	2.1%	1	1.4%	1	4.9%	0	0%
8	0	0%	0	0%	0	0%	0	0%
9	0	0%	0	0%	0	0%	0	0%
10	1	1.0%	1	1.4%	0	0%	0	0%
> Than 10*	3	3.1%	3	4.1%	0	0%	0	0%
descriptive statistics								
Average	1.3		1.4		1.0		0.8	
Standard Deviation	4.5		8.5		1.7		1.5	
Range	0-32		0-32		0-7		0-3	

* Three prisoners fell into this category (>10 suicide/self-harm infractions) with 15, 23, and 32 attempts. Each initially received a risk score of low.

** Two of these subjects were initially assigned a high risk score, but within one year were reassessed as moderate and low.

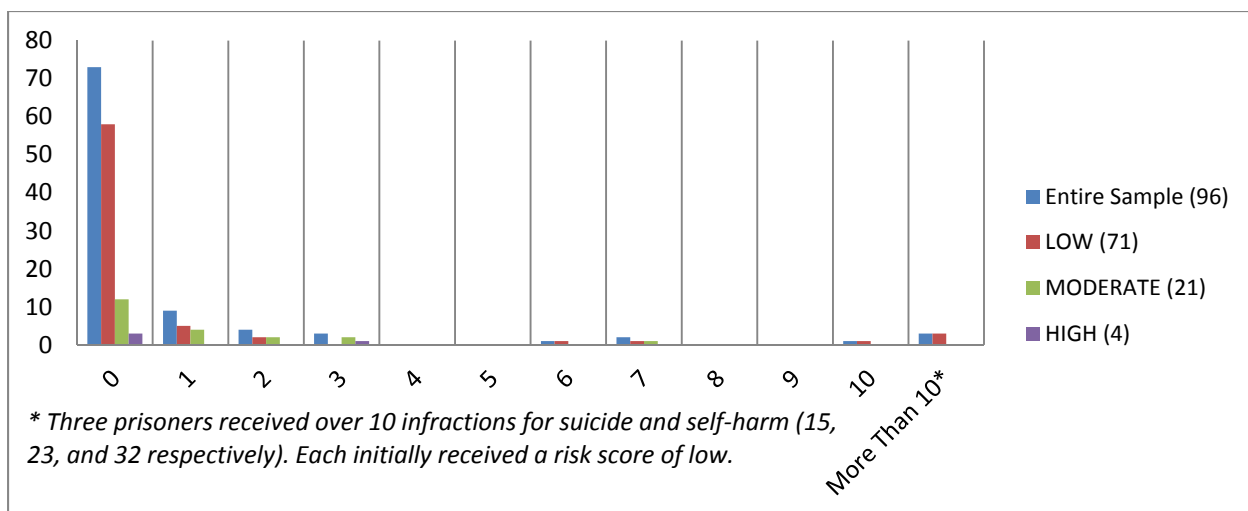


Figure 2. A histogram of infractions for suicide/self-harm by suicide risk score in the three years following the mental health appraisal.

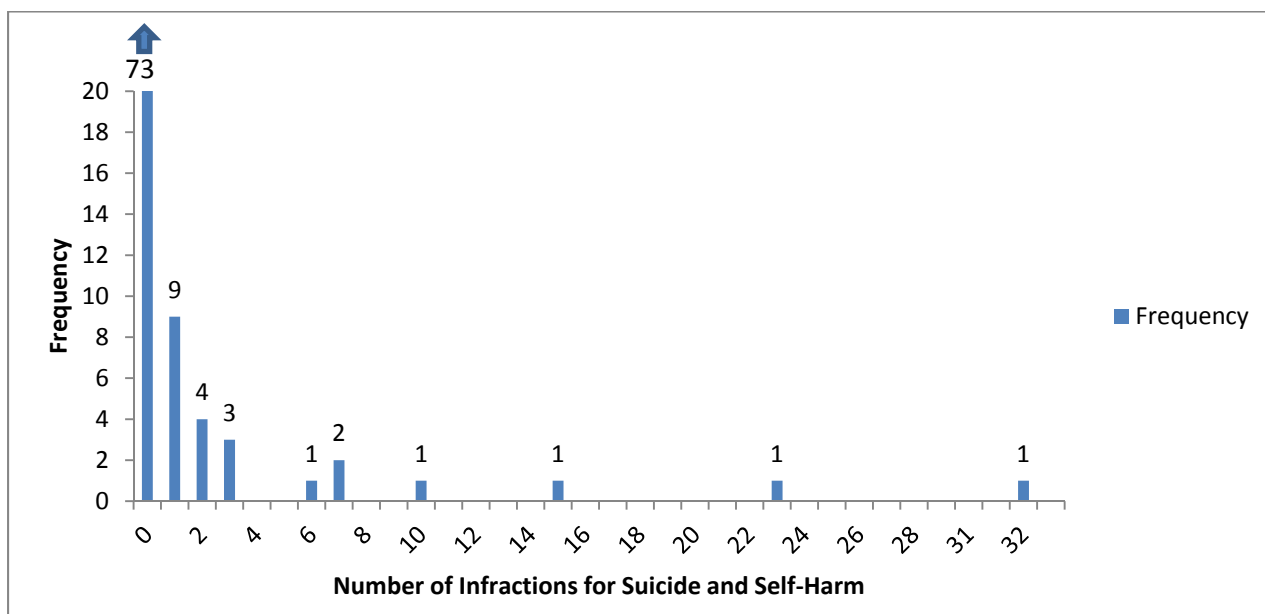


Figure 3. A histogram of suicide and self-harm in the three years following the mental health appraisal, years entire sample (N = 96).

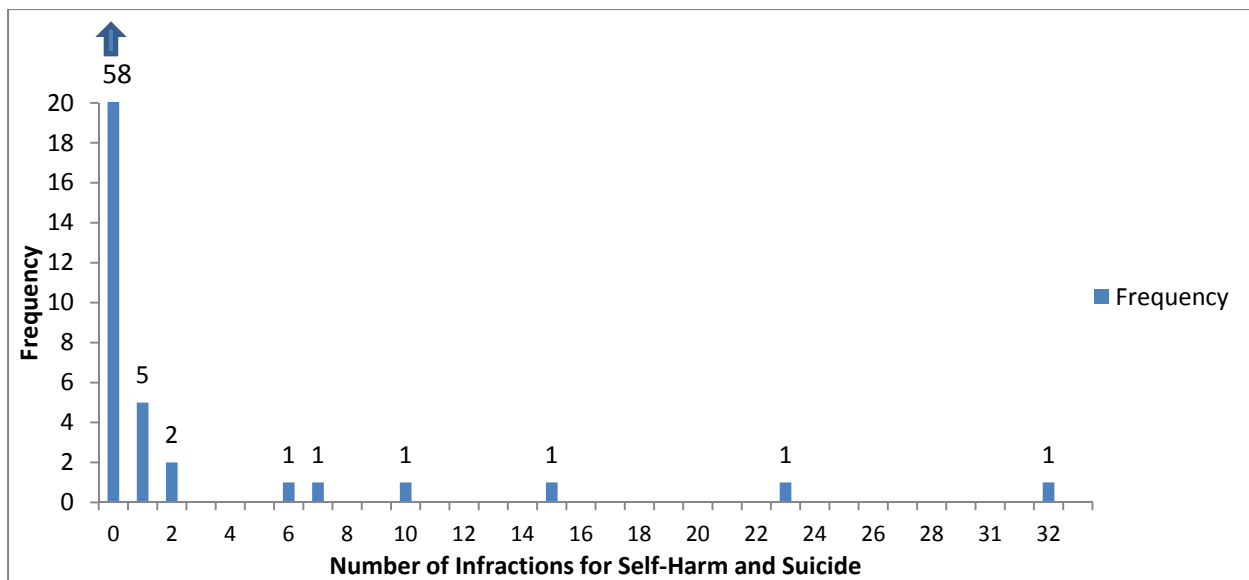


Figure 4. Histogram of low risk scorers (N = 71) suicide and self-harm in the three years following the mental health appraisal.

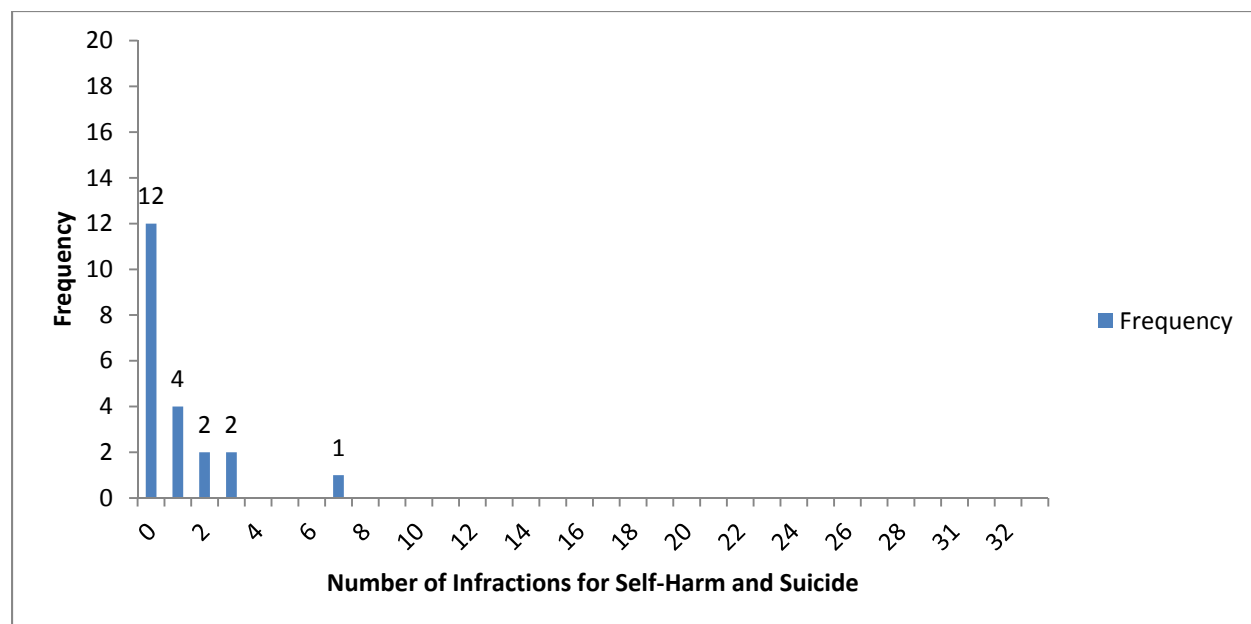


Figure 5. A Histogram of moderate risk scorers (N = 21): Suicide and self-harm in the three years following the mental health appraisal risk score.

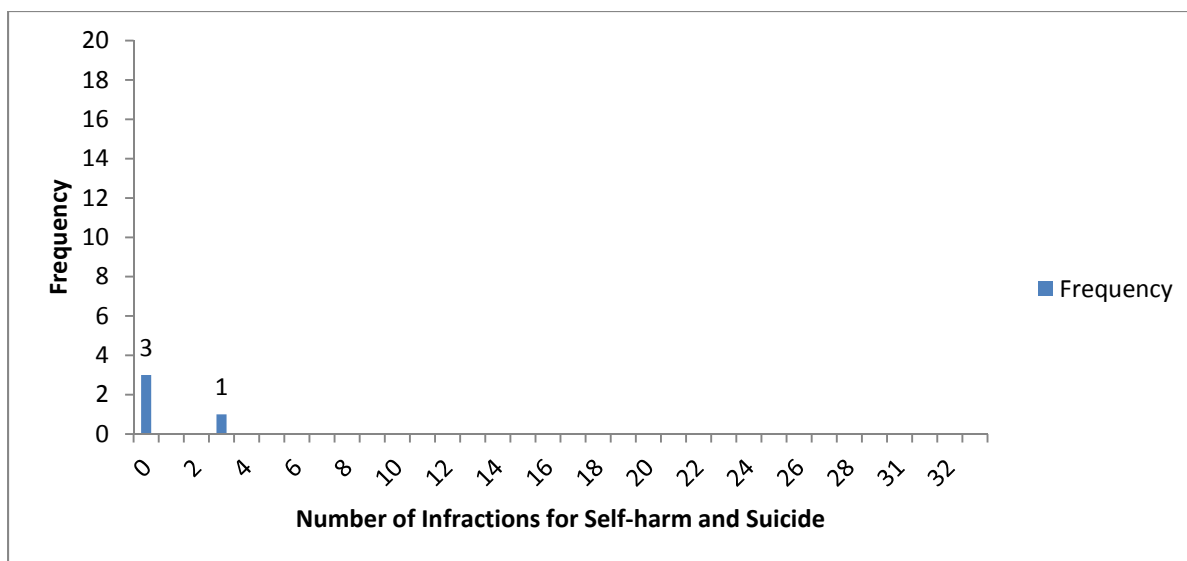


Figure 6. A histogram of high risk scorers ($N = 4$): Suicide and self-harm in the three years following the mental health appraisal.

Suicide Risk Assessments

Of the 96 subjects, 71 received suicide risk scores of low, 21 received moderate scores and only 4 were assessed as high risk. Notably, two of the four high risk scorers, reassessed as moderate or low within one year and neither of these subjects went on to receive suicide/self-harm infractions. It is uncommon for clinicians to develop a second Mental Health Appraisal for one subject within a single year. Surprisingly, several in the low scoring group had the highest numbers of suicide/self-harm incidents with four receiving between 10 and 32 subsequent infractions. Eighteen percent of the low suicide risk group went on to self-harm or attempt suicide and about 42% of the moderate suicide risk group went on to attempt suicide or self-harm subsequent to their Mental Health Appraisal.

High suicide risk group. One subject from the high suicide risk group had a history of eight infractions for suicide attempts or self-harming behaviors before the assessment and three suicide/self-harm infractions after the assessment. The other three high scorers received no suicide/self-harm infractions at all. Subjects 308 and 313, who received no suicide/self-harm infractions, were each assessed two times within a year, scoring high in the first assessment and then moderate and low respectively in the second assessment. Subject 308, who had a history of involuntary commitment in the community, was initially assessed as a high risk after presenting with delusions about ending the universe and making vague statements about suicide without a specific plan. Then, two months later, another clinician reduced this subject's score to moderate stating that the subject "had not recently attempted suicide or reported suicidal ideation." Similarly, Subject 118 was initially assessed as high risk while on suicide watch. The narrative assessment stated that the subject endorsed auditory hallucinations, refused to engage with the clinician, paced, and spoke incoherently. The Mental Health Appraisal noted that Subject 118 self-reported a history of "punching his own head." The second Mental Health Appraisal reduced the risk score to low, stating that the subject had no history of documented attempts and that he "made suicide threats in order to avoid paying back debts he owed to other offenders and for protective custody." Another high scorer, Subject 315 received eight prior, and three subsequent, suicide/self-harm infractions. This subject was assessed as a high risk after he cut his throat and received nine sutures. Subject 315 was charged with violent crimes such as Assault 1, Burglary 1 and Unlawful imprisonment. His prison discipline record indicates about 20 serious infractions dating back to 1994, several of which were violent in nature. Finally, Subject 207, who did not

receive any suicide/self-harm infractions prior to, or subsequent to, his Mental Health Appraisal, self-reported a history of many suicide attempts by tasing, drinking gasoline, cutting his wrists and hanging. Psychiatric instability was also noted in Subject 207's narrative description as follows.

Mr. 207 is a high risk individual. He has reported that he has made 18 serious suicide attempts in his life. He said he has one voice that tries to tell him about the good things, but that the other voice is too loud and strong (the voice that tells him to kill himself/hang himself) . . . In my opinion, this pattern of instability is likely to continue. . . He needs closer observation due to the chronic instability with medications, auditory hallucinations and risk for suicide. We are requesting 207 to be evaluated for placement at a higher level of care . . . He appears to go from being OK to self-destructing quickly and then has suicidal and homicidal ideation.

The narrative descriptions for subject 308 and 118 suggest that high scores reflected acute situational risk factors instead of baseline risk factors. However, the other two high scorers, subject 207 and 315, appeared to have plenty of baseline risk to warrant a high score. The surprisingly few number high risk scorers along with the fact that risk scores were reduced after the acuity lessened suggests that the high category may typically be reserved for acute cases and thus would not reflect meaningful measures of baseline susceptibility.

Moderate suicide risk group. Over half of the 21 moderate scorers had no history of suicide/self-harm infractions prior to, or subsequent to, the assessment. Of these, all 12 self-reported a history of suicide attempts. Three of the assessments mentioned current suicidal ideation and two indicated the absence of current suicidal ideation. Three of the narratives identified psychotic symptoms such as command hallucinations and impulsivity as risk factors. These twelve assessments appear to be primarily based on self-reported history of suicide attempts, sometimes taking into

account current suicidal ideation or lack thereof, and some considering psychiatric stability.

A second group including four moderate scorers each had a history of five or more infractions for suicide attempts or self-harming behaviors prior to the assessment (5, 8, 8, and 16). All of these subjects received at least one subsequent suicide/self-harm infraction (7, 2, 3, and 1). Two of the narrative assessments suggested that the subjects engaged in self-harming behaviors to manipulate their environment or to express anger towards the penal system. Subject 170, who reportedly had a history head banging, hanging, cutting with razors and other sharp objects, and smashing property to use as weapons for self-harm, was noted to attempt suicide as an expression of “frustrations (projections & rationalizations) towards the penal system.” This subject had two subsequent attempts by swallowing a razor blade and overdose. This subject had a history of violent crimes including assault, rape of a child, rape with force, and robbery as well as many violent infractions. He reported a history of abuse and he carried several psychiatric diagnoses including a psychotic disorder, an affective disorder, chemical dependency and a cluster-B personality disorder. Subject 170 likely presented a high risk for suicide. It is possible that the risk score was moderated by a lack of acute factors and by the perceived lack of intent.

The most surprising finding of this group was Subject 160, who reported compulsions to self-harm and carried objects used to self-harm under his skin. Subject 160 received five suicide/self-harm infractions prior to his assessment, and seven subsequent infractions. Most of the infractions were for head-banging and inserting objects. According to his 2010 Mental Health Appraisal, this man compulsively inserted

objects such as paperclips and other objects into his abdomen and legs and urethra, sometimes requiring hospitalization and surgery. There is record of attempts by overdose and damaging organs in order to cause infections or bleed out. This subject has a history of extreme violence including murder, assault, and many dangerous and violent prison infractions dating back to the 1990s. The subject reported a history of sexual, physical and emotional abuse as well as chemical dependency. He was diagnosed with Cluster B personality disorders. The narrative portion of his suicide risk assessment read,

at baseline [Subject 160] has thoughts of self-harm, although he does not always have intent and a plan to harm himself. He has several paperclips and staples in his abdomen and leg, some of which he states he could pull out if he wanted to and reuse them to harm himself. . . . He has tried to overdose on medications, conduct 'exploratory surgeries' on himself with sharp objects, and has tried to place items such as paperclips and staples into organs in order to cause infections or try to cause himself to bleed out. He has also inserted objects such as pencils into his urethra.

Although this subject reported ambivalent intentions, he was chronically engaging in potentially lethal self-harm. At least four attempts required transport to community hospitals. The narrative goes on to state,

He has several coping skills and items that he uses in order to distract himself from self-harm. He is constantly looking for items that he could use to harm himself with, in order to hold on to them and use later when he feels he wants to harm himself (we call these "aces in the hole"), which serve as his backup plan. He has been getting better about letting staff know if he feels like he is going to harm himself, but has a long history of telling people after he has self-harmed.

When assessed, the subject was housed in a residential psychiatric unit. It appears that the clinician worked closely with the subject to manage suicidal impulses. It is possible that the moderate risk reflected an environment that closely monitors for safety and a strong therapeutic relationship.

For the most part, moderate scores appear to reflect elevated baseline susceptibility based on a history of suicidal behaviors and to a lesser extent, psychotic symptoms, personality disorder traits such as impulsivity, low distress tolerance, and perceived manipulation. A handful of the narratives mentioned current suicidal ideation or the lack thereof. It is possible that scores of chronic self-harmers were moderated by the perception of manipulation and secondary gain as well as a perceived lack of intent.

Low suicide risk group. Forty-eight of 71 in the low suicide risk group had no record of prior or subsequent suicide/self-harm infractions. The 13 of the low scorers received from one to 32 suicide/self-harm infractions subsequent to their Mental Health Appraisal. Notably, several of the low scorers had the highest prevalence of subsequent self-harm. Four from this group received 10 or more infractions. All subjects in the other groups received less than 10 infractions.

Narrative assessments for multiple self-harmers in this groups used terms such as “parasuicidal,” “superficial self-harm,” or “self-harm’s in an attempt to get needs met.” For example, Mr. 106, who received 66 suicide/self-harm infractions prior to his Mental Health Appraisal and 32 subsequent infractions, was assessed with a low risk score. His narrative assessment read,

Mr. 106 has a history of persistent mental health issues. He was hospitalized several times throughout his childhood. . . . He has an extensive history of self-harming behaviors to include banging his head, inserting objects into his urethra, cutting himself, and tying off. He can become extremely agitated quickly with little provocation and acts out impulsively. He is very sensitive to sound or touch and can be set off by tapping noises or having to wear required clothing, as the cloth on his skin can become too much for him . . . Although Mr. 106 has an extensive history of self-harm, his motivation or intention is not to kill himself. He becomes angry or upset and acts out via self-harm. This is not to say that his self-harming behaviors could not cause him to accidentally kill himself.

The infraction for reports for 106 described head-banging, cutting his wrists, “tying off,” or tying things around his neck in an attempt to strangle, and one instance of trying to swallow a plastic garbage bag. Several infractions mentioned the restraint bed, so it is likely that this subject was frequently placed in restraints to protect him from self-harm. Subject 106 had a history of one violent crime in the community, robbery 1 and several custodial assaults. He reported a history of physical, sexual and emotional abuse. He was diagnosed with an affective disorder and a cluster B personality disorder. Although the clinician assessing subject 106 identified a serious risk for accidental death, he/she chose to maintain that the risk score of low perhaps because of the lack of intent.

Subject 172, another frequent self-harmer, received 6 suicide/self-harm infractions prior to the Mental Health Appraisal and 10 afterwards. According to the Mental Health Appraisal, Subject 172 denied any history of suicide attempts and he denied a history of abuse. He was diagnosed with an affective disorder, chemical dependency and a cluster B personality disorder. Subject 172 was convicted of one violent crime, rape with force. He had no violent infractions. Subject 172 reportedly denied that he any desire to die. He said that the he cut or “scratched” his skin when anxious and he denied receiving stitches or medical care for the cuts. Infraction reports indicated head-banging, tying off, cutting, and one instance of tying torn blanket pieces around his penis. Most infraction reports described superficial self-harming behaviors for example one tying off incident read,

[H]aving a torn strip of his blanket tied securely around his neck. IM complied with orders to remove the item from his neck and passed his blankets through the wicket. When asked why he was committing self-harm, IM replied, "I wanted your attention so I could go to the hospital.

At least one of the incidents was more than superficial. Subject 172 reportedly cut his arm with a razor and the officer described it as a “deep cut to his wrist. Blood was flowing profusely from the cut; so much that it ran down his arm and puddled on the floor in front of him.”

Subject 172 was apparently a chronic self-harmer with the self-reported intent to “get attention.” It is possible that intent was weighted more heavily than the self-harming behaviors and other baseline risk factors in this case.

Subject 196, received 24 suicide/self-harm infractions prior to the Mental Health Appraisal and then proceeded to receive 16 suicide/self-harm infractions after the Mental Health Appraisal. According to his Mental Health Appraisal, Subject 195 denied any history of abuse. He was diagnosed with a psychotic disorder, a substance use disorder, and a cluster B personality disorder. He had one violent conviction for assault with sexual motivation. He received 11 violent infractions for staff assault, inmate assault, weapons, and fighting. His narrative assessment read,

[In a] recent self-mutilation episode, Offender sliced his arms with a razor. His injuries required medical attention and sutures...[He has a] history of self-harming behavior as well as staff assaults...[He] denied current SA/SI... [He] denied a plan, means, and intent.

It is possible that this clinician simply took the subject at his word when he denied suicidal intent in the face of recent evidence to the contrary.

Several infraction reports for subjects in this group suggested some level of adversarial back-and-forth between subjects and custody staff and clinical staff. For example, Subject 267 was infractions 17 times prior to his assessment and then 5 times subsequent to his assessment. His suicide assessment narrative states that,

After a thorough review of 267's chart, it is noted that Mr. 267 has engaged in numerous parasuicidal actions, and threatens significant harm to others or himself when he does not get what he wants."

One of 267's self-harm infraction reports reads,

I observed Offender 267 urinating on his cell door. The urine leaked out of the cell on to the tier. When I asked Subject 267 why he was doing this he stated, "So I can get that nurse to come here and look at my dick. I know it isn't big, but I still want her to look at it." He then began to scratch his arm with his fingers and re-opened a wound on his left forearm. Medical staff assessed the offender's wounds.

Several from the low suicide risk group had a history of chronic suicidal and self-harming behaviors. In some cases, it appears that the absence of current suicidal intent mediated the risk score regardless of the history of self-harm. It is also possible that clinicians underestimated the risk of chronic self-harmers who were described as manipulative or those with a low tolerance for stress who "acted out" by self-harming without any intent to die.

In the prison's residential treatment unit, prisoners often receive immediate access to clinicians whenever they threaten or attempt self-harm, which creates an environment that provides pay-off in some cases for suicidal behaviors. It affords prisoners social interaction, possibly nurturing in nature, and some control over staff in a place where these things are often lacking. Clinicians who are frequently called on to assess chronic self-harmers who boast that they use self-harm to get their demands met, may become weary and cynical about actual risk.

Difference Analysis

Analysis of variance analysis (ANOVA): Suicide risk score on number of attempts. To consider whether higher risk scores predicted higher numbers of suicide attempts and self-harming behaviors, I conducted an ANOVA analysis using Microsoft

Excel's one-way analysis of variance tool. The analysis did not reveal a significant difference between the high, moderate and low suicide risk groups (see Table 5). A single factor ANOVA resulted in F ratio of 0.11 with a significance of $P = 0.90$ and a critical value of 3.09. A Kruskal-Wallis difference test, which is a nonparametric analysis comparing the central tendency, also resulted in no significant difference ($H_{96} = 2.45$, $p = 0.29$). The Kruskal-Wallis difference test was calculated in Microsoft Excel using an algorithm from Real Statistics (Zaiontz, 2015).

Table 4

ANOVA Suicide/Self-harm Infractions on Suicide Risk Scores

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
Low	71	102	1.44	26.14		
Moderate	21	21	1	2.9		
High	4	3	0.75	2.25		
ANOVA						
<i>Source of variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between groups	4.41	2	2.21	0.11	0.90	3.09
Within groups	1894.21	93	20.37			
Total	1898.63	95				

Table 5

Kruskal-Wallis One-Way Analysis of Variance Suicide/Self-Harm Infractions on Suicide Risk Groups

Kruskal-Wallis						
	Low	Mod	High	Sum	Variation	
Rank sums r	3264.5	1192.5	199		H	2.45
Group Size n	71	21	4	96	df	2
R ² /n	150098	67716.96	9900.25	227715.25	p	0.29
					α	0.05
					sig	No
					R ² /n	

Difference analysis: Suicide risk scores on attempt status (multiple attempters, non-multiple attempters). To consider whether suicide risk scores correctly classified subjects into categories of those who go on to receive two or more suicide/self-harm infractions (multiple attempters) and those who receive one or less (non-multiple attempters) in the three years following the Mental Health Appraisal. I performed a 2 x 2 contingency table analysis (Howell, 2004) on low and moderate/high suicide risk scores using the Chi-Square Test function from the Real Statistics Resource Pack (Zaiontz, 2015). Results are shown in Table 7. I combined the high and moderate scores in this analysis because of the very low number of high scorers. The sample size of 96 was sufficient to detect a medium effect with a power of 0.8 (Cohen, 1992). The analysis did not show a significant difference between the low and moderate/high suicide risk groups. It resulted in difference $X = 1.2$ with a p-value of 0.27 and Critical X of 3.84.

Table 6

Chi-Square Analysis Suicide Risk Scores on Attempt Status Groups

Chi-Square test						
Risk Score	Two or more subsequent suicide/self-harm Infractions	One or less subsequent suicide/self-harm Infractions	Total			
Observed values						
Low	63	8	71			
Moderate/high	20	5	25			
Total	83	13				
Expected values						
Low	61.39	9.61	71			
Moderate/high	21.61	3.39	25			
Total	83	13				
Chi-Square variables						
Summary	alpha 0.05	power 0.8	med ES			
<i>Count</i>	<i>Rows</i>	<i>Cols</i>	<i>df</i>			
96	2	2	1			
CHI-SQUARE						
	<i>chi-sq</i>	<i>p-value</i>	<i>x-crit</i>	<i>sig</i>	<i>Cramer V</i>	<i>odds ratio</i>
Pearson's	1.20	0.27	3.84	No	0.11	1.97
Max likelihood	1.12	0.29	3.84	no	0.11	1.97

Descriptive Variables

I collected descriptive information on clinical, criminal, and demographic variables in two ways. I split the data by suicide risk scores and then by attempt status over the entire incarceration. In this section, attempt status reflects suicide/self-harm infractions over the subject's entire incarceration, whereas attempt status in other sections indicated the number of infractions received after the Mental Health Appraisal. Since the high suicide risk group is so small ($N = 4$), this analysis focuses on low and moderate groups. Attempt Status takes on two states: Multiple attempters, who received two or more suicide/self-harm infractions over their entire incarceration and non-multiple attempters, who received one or less infraction. Clinical variables include self-reported history of suicide attempts and self-harm, self-reported history of brain injury, abuse, and mental health treatment. It also includes information about mental health diagnoses. Criminal and demographic variables were obtained from the prison's information system. They include information on violence and sex offenses, as well as age and ethnicity.

Data by suicide risk score (see Tables 8 and 9). Data showed that subjects from the moderate suicide risk group reported a history of suicide and self-harm at a higher prevalence than the those in the low scoring group. All 21 subjects from the moderate suicide risk group reported past suicide attempts compared with only 38% of those in the low suicide risk group. Similarly, 81% of moderate group reported a history of self-harm compared with only 41% of the low suicide risk group. Moderate scorers reported a history of outpatient and inpatient mental health care at higher rates, 71% and 81% respectively than the low suicide risk group at 61% and 72% respectively. Interestingly, a lower prevalence of historical suicide/self-harm infractions (prior to the Mental Health

Appraisal) were present in the moderate group when compared with the low suicide risk group. Only 19% of the subjects in the moderate group had received any suicide/self-harm infractions prior to the Mental Health Appraisal whereas 31% in the low group received prior infractions. Expectedly, the prevalence of suicide attempts and self-harm after the Mental Health Appraisal in the moderate was higher than in the low group. Forty-three percent of the subjects in the moderate group received subsequent suicide/self-harm infractions compared with only 18% in the low group. These differences prompted me to consider a difference analysis of these variables.

Moderate scorers reported a history of emotional, physical and sexual abuse (48%, 57%, and 43%) at a higher rate when compared with low scorers (37%, 46%, and 24%). Psychiatric Disorders were a mixed bag. The low suicide risk group had a slightly higher prevalence of psychosis (75%) when compared with moderates (62%) and the moderate group had more subjects with affective and anxiety disorders (57%) when compared with the low suicide risk group at (37%). Subjects in the moderate suicide risk group were diagnosed with cluster-B personality disorders at a slightly higher prevalence than those in the low suicide risk group (57% vs. 46%).

The demographic breakdown was telling. Ethnic categories included Asian/Pacific Islander (6), Black (28), North American Indian (2), and White (60). The moderate group was predominantly White. Ninety percent of the moderate group was identified as White whereas only 63% of the low suicide risk group fell into that category. Only ten percent of the moderate groups were categorized as Black, when compared with 35% of the low suicide risk group. All six of the Asian/Pacific Islanders and both of the North American Indian were rated with low suicide risks. Of the 28 Black

subjects, a large percentage received a low risk score, which is consistent prevalence of Black subjects who did not self-harm. Eighty-nine percent of the Black subjects received a low risk score and 92 percent of the Black subjects did not receive any suicide/self-harm infractions.

Table 7

Clinical Variables by Risk Score

Factor	Entire Sample N = 96		Low suicide risk group N = 71		Moderate suicide risk group N = 21		High suicide risk group N = 4	
	N	%	N	%	N	%	N	%
History of suicide attempts								
Number of subjects who received suicide/self-harm infractions before assessment	27	28%	22	31%	4	19%	1	25%
Number of subjects who received suicide/self-harm Infractions after assessment	23	24%	13	18%	9	43%	1	25%
Average number of suicide/self-harm Infractions before assessment	2.2	$\sigma=7.6$	2.4	$\sigma=8.5$	1.8	$\sigma=4.1$	2.0	$\sigma=4$
Average number of suicide/self-harm infractions after assessment	1.3	$\sigma=4.5$	1.5	$\sigma=8.5$	1.0	$\sigma=1.7$	0.8	$\sigma=1.5$
Self-Reported history of suicide attempts	51	53%	27	38%	21	100%	3	75%
Self-reported history of self-harm	53	55%	33	46%	17	81%	3	75%
Self-Reported history of abuse and brain injury								
History of emotional abuse	37	39%	26	37%	10	48%	1	25%
History of physical abuse	44	46%	31	44%	12	57%	1	25%
History of sexual abuse	26	27%	17	24%	9	43%	0	0%
History of brain injury	40	42%	29	41%	9	43%	2	50%
Mental health history								
Outpatient mental health (self-report)	59	61%	41	58%	15	71%	3	75%
Inpatient mental health (self-report)	69	72%	48	68%	17	81%	4	100%
Psychotropic medications	91	95%	66	93%	21	100%	4	100%
Chemical dependency (self-report)	82	85%	59	83%	19	90%	4	100%
CD treatment (self-report)	35	36%	25	35%	10	48%	0	0%
Mental health diagnosis								
Psychotic disorder (diagnosed)	70	73%	53	75%	13	62%	4	100%
Affective disorder/anxiety disorder	40	42%	26	37%	12	57%	2	50%
Substance use disorder	53	55%	39	55%	10	48%	4	100%
Cluster B personality disorder	47	49%	33	46%	12	57%	2	50%

Factor	Entire Sample N = 96		Low suicide risk group N = 71		Moderate suicide risk group N = 21		High suicide risk group N = 4	
Cognitive/intellectual disability	13	14%	10	14%	3	14%	0	0%
Sexual disorder	11	11%	9	13%	2	10%	0	0%

Table 8

Criminal and Demographic Variables by Risk Score

Factor	Entire sample N = 96		Low suicide risk Group N = 71		Moderate suicide risk group N = 21		High suicide risk Group N = 4	
Criminality/Violence								
History of violent convictions	87	91%	64	90%	20	95%	3	75%
History of sex offense convictions	38	40%	25	35%	11	52%	2	50%
History of violent infractions	69	72%	53	75%	13	62%	3	14%
Avg number of violent crimes	1.69		1.8		1.3		1.8	
Avg number of sex offenses	0.6		0.6		0.7		0.5	
Avg number of violent Infractions	5.7		6.3		3.6		6.3	
Avg length of incarceration (months)	155		161		148		82	
Other								
Age	44		43		46		40	
Ethnicity							0	
Asian/Pacific Islander	6	6%	6	8%	0	0%	0	0%
Black	28	29%	25	35%	2	10%	1	25%
North American Indian	2	2%	2	3%	0	0%	0	0%
White	60	63%	38	54%	19	90%	3	75%

Difference analysis: Suicide risk score as a predictor of one or more suicide/self-harm infraction subsequent to the Mental Health Appraisal. After reviewing data describing the number of subjects receiving suicide/self-harm infractions,

I decided to consider whether suicide risk scores correctly classified subjects into categories of those who go on to attempt suicide or commit self-harm and those who do not. As mentioned earlier, a much higher percentage of the moderate suicide risk group (43%) went on to self-harm at least one time when compared with only 18% of the low group. I wanted to consider whether the difference was significantly different. I analyzed a 2 x 2 contingency table of low and moderate suicide risk scores, observing the presence or absence of subsequent suicide/self-harm infractions. I did not consider high scores because my earlier analysis suggested that the high scores were likely to reflect acute risk factors rather than baseline risk. I used the Chi-Square test function from the Real Statistics Resource Pack (Zaiontz, 2015, <http://www.real-statistics.com>) to analyze the 2 x 2 contingency table as shown in Table 10. The sample size of 92 was sufficient to detect a medium effect with a power of 0.8 (Cohen, 1992). Although this test does not reject the null hypothesis as defined in this study, it does suggest an association between the risk scores and an outcome of one or more suicide/self-harm infractions.

Table 9

Chi-Square Analysis Suicide Risk Scores on Attempt Status Groups

Chi Square analysis						
	Subsequent suicide/self-harm infraction(s)	No Subsequent suicide/self-harm infractions	Total			
Risk score						
Observed values						
Low	13	58	71			
Moderate	9	12	21			
Total	22	70	92			
Expected values						
Low	16.98	54.02	71			
Moderate	5.02	15.98	21			
Total	22	70	92			
Summary						
	Alpha 0.05	Power 0.8	Med ES			
<i>Count</i>	<i>Rows</i>	<i>Cols</i>	<i>df</i>			
92	2	2	1			
CHI-SQUARE						
	<i>chi-sq</i>	<i>p-value</i>	<i>x-crit</i>	<i>sig</i>	<i>Cramer V</i>	<i>Odds Ratio</i>
Pearson's	5.37	0.02	3.84	yes	0.24	0.30
Max likelihood	4.93	0.03	3.84	yes	0.23	0.30

Data by attempt status over subjects' entire incarcerations. Much of the literature on suicide risk suggests that multiple attempters (two or more attempts) have a much higher risk for suicide completion when compared with non-multiple attempters. That being true, multiple attempters would expectedly differentiate from non-multiple attempters on risk factors. I collected descriptive data by Attempt Status over subjects' entire incarcerations with the following results. Seventy-two subjects (75% of the entire sample) fell into the category of non-multiple attempters, receiving one or less suicide/self-harm infractions throughout their entire incarceration. Twenty-four subjects

(25%) fell into the multiple attempter group with two or more suicide/self-harm infractions.

Suicide risk scores did not appear to differentiate attempt status groups. Of the non-multiple attempters, 75% were classified as low risk, 21% were classified as moderate risk, and 4.2% were classified as high risk. The multiple attempters were similarly split with 71% low, 25% moderate, and 4% high (one subject). Table 11 summarizes this breakdown.

Table 10

Attempt Status Over the Subjects' Entire Incarceration by Suicide Risk Scores

Suicide risk score	Entire sample n = 96		Non-multiple attempters (entire incarceration) n = 72		Multiple attempters (entire incarceration) n = 24	
	N	%	N	%	N	%
Low	71	74%	54	75%	17	71%
Moderate	21	22%	15	21%	6	25%
High	4	4%	3	4%	1	4%

Clinical, criminal and demographic data were gathered for non-multiple attempter and multiple attempter groups (Tables 12 and 13). Multiple attempters self-reported a history of suicide at a slightly higher rate (63%) than did non-multiple attempters (50%). The difference in self-reported self-harm was greater with 92% of the multiple attempters endorsing a history of self-harm compared with only 43% of the non-multiple attempters. Those in the non-multiple attempter group were slightly less likely to report a history of sexual abuse (25%) when compared with the multiple attempters (33%). There was very little difference in the prevalence of self-reported history of emotional and physical abuse as well as the self-reported history of mental health services between the groups. Non-

multiple attempters were slightly more likely to be diagnosed with a psychotic disorder (76%) than multiple attempters (63%) and multiple attempters reported a slightly higher prevalence of cluster B personality disorders (63%) versus non-multiple attempters (44%). A higher prevalence of non-multiple attempters had a history of violent crimes and sex offenses (94% and 43% respectively) when compared with the multiple attempter group (79% and 29% respectively). However, the multiple attempters were more likely to receive violent institutional infractions (83%) compared with 68% of the non-multiple attempters.

Demographically, most in the multiple attempter group were White (88%) whereas about half in the non-multiple attempters group were White. All but two of the Black subjects fell into the non-multiple attempters group. All six of the Asian/Pacific Islander fell into the non-multiple attempter group and the North American Indian subjects were evenly split with one in the Non-Multiple Attempter group and one in the Multiple Attempter group.

Table 11

Clinical Variables by Attempt Status Over the Entire Incarceration

Factor	Non-multiple attempters (entire incarceration) N = 72		Multiple attempters (entire incarceration) N = 24	
	N	%	N	%
Self-reported history of suicide and self-harm				
Self-reported history of suicide attempts	36	50%	15	63%
Self-reported history of self-harm	31	43%	22	92%
Self-reported history of abuse and brain injury				
History of emotional abuse	29	40%	8	33%
History of physical abuse	33	46%	11	46%
History of sexual Abuse	18	25%	8	33%
History of brain injury	29	40%	11	46%
Mental health history				
Outpatient mental health (self-report)	46	64%	13	54%
Inpatient mental health (self-report)	52	72%	17	71%
Psychotropic medications	69	96%	22	92%
Chemical dependency (self-report)	60	83%	22	92%
CD treatment (self-report)	26	36%	9	38%
Mental health diagnosis				
Psychotic disorder (diagnosed)	55	76%	15	63%
Affective disorder/anxiety disorder	29	40%	11	46%
Substance use disorder	41	57%	12	50%
Cluster B personality disorder	32	44%	15	63%
Cognitive/intellectual disability	7	10%	6	25%
Sexual disorder	7	10%	4	17%

Table 12

Criminal and Demographic Variables by Attempt Status Over the Entire Incarceration

Factor	non-multiple attempters (Entire Incarceration) N = 72		Multiple Attempters (Entire Incarceration) N = 24	
	N	%	N	%
Criminality/violence				
History of violent convictions	68	94%	19	79%
History of sex offense convictions	31	43%	7	29%
History of violent infractions	49	68%	20	83%
Average number of violent crimes	1.8		1.3	
Average number of sex offenses	0.7		0.3	
Average number of violent infractions	4.0		10.9	
Average length of incarceration (months)	150		168	
Other				
Average age	45		41	
Ethnicity				
Asian/Pacific Islander	6	8%	0	0%
Black	26	36%	2	8%
North American Indian	1	1%	1	4%
White	39	54%	21	88%

Housing

I gathered housing information for each suicide/self-harm infraction since 2010. All but one of the 157 infractions took place in single-man housing, which is higher than expected compared with Fazel et al. (2008) who found that suicides were 9.1 times more likely to occur in single-occupancy housing than in other housing.

About half of the incidents (53%) took place in maximum security or segregation units. About 15% of the incidents occurred in close custody single-man housing. Close custody is slightly less restrictive than maximum-security housing, but is more restrictive than medium and minimum security housing. Data in this report are consistent with much

of the literature associating maximum security housing with suicidal or self-harming behaviors (Appelbaum et al., 2011; Duthe, et al., 2013; Dye, 2010; Patterson & Hughes, 2008; Roma, Pompili, Lester, Girardi, & Ferracuti, 2013).

Thirty-seven (22%) of the suicide attempts/self-harm incidents took place in close observation or hospital settings. These settings are also highly restrictive. Many of the patients in close observation are admitted for suicide watch, so it is not surprising that self-harm incidents occurred there.

About 10% (14) of the suicide attempts or self-harm incidents took place in minimum or medium security residential units, which are much less restrictive than maximum and close security units are. Prisoners are allowed to spend time outside of the cells in day rooms, in the yard and at numerous offender change programs. About two-thirds of those housed on medium and minimum residential units have two-man cells, so it is surprising that only one self-harm incident took place in a two-man cell.

Table 13

Housing at the Time of Suicide/Self-Harm Infractions

Housing status	N	%
Intensive Management / Segregation	82	53%
Single-Man Cell Close Custody (C-Unit, D-Unit)	24	15%
Close Observation / Hospital	37	22%
Single-Man Cell Medium/Minimum Security (E-Unit)	13	9%
Two-Man Cell Medium Security (F-Unit)	1	1%

Chapter V: Discussion

This study evaluated how well suicide risk scores predicted multiple suicide attempts in a correctional psychiatric setting. Specifically, it evaluated whether clinical judgment of suicide risk (a) predicted a greater number of suicidal and self-harming behaviors, and (b) differentiated multiple attempters, or those who went on to attempt suicide or self-harm two or more times in the three years following the assessment. Results of the data analysis did not support the either hypothesis. However, the analysis did show that suicide risk scores significantly identified those who went on to attempt suicide or self-harm at least once in the three years following the assessment. This finding fell short of rejecting the null hypothesis, but nonetheless showed some limited association. Analysis of suicide assessment narratives highlighted some possible explanations of these results.

Suicide Risk Assessments

Analysis of suicide risk assessments resulted in several interesting observations and suggestions. High risk scores appeared to be reserved for acute suicidality and did not appear to reflect a measure of longer-term baseline risk. Only four subjects received high risk scores. Within a year, half in the high risk group were reclassified as moderate and low risk. The initial assessments described suicidal crisis states and the subsequent assessments, occurring after the crises passed, described the lack of acuity and intent. It is uncommon to rewrite Mental Health Appraisals multiple times in a year, so it appeared that these subjects were reclassified with a lower risk score to document the reduction of acute stressors. If this is the case then baseline risk information could be lost, which is not unlike other suicide assessment tools. However, in a prison environment this could mean

a loss of important information. For example, when a prisoner transfers from one facility to another, the receiving clinician generally reviews the Mental Health Appraisal to determine the best course of treatment. A chronic self-harmer who was not acute at the time of the transfer, might arrive with a low risk score. Prison systems often manage prisoners' individual mental health needs for many years, across multiple institutions, multiple levels of custody and different levels clinical supervision. Different facilities may produce different types of stressors such as proximity to family, social norms specific to a facility, and access to mental health care. Adjusting to a new facility is often a time of distress. It is important to identify and monitor vulnerable prisoners to ensure safe transitions and adjustment periods. A suicide assessment that draws attention to both chronic and acute risk factors would provide clinicians with valuable information for longer-term care of prisoners as they move around within the prison system.

The moderate suicide risk scores appeared to measure baseline risk, with attention given to multiple risk factors such as psychiatric diagnosis and history of suicide attempts. However, several in the moderate suicide risk group were chronic self-harmers who would be better classified into the high suicide risk group. Narrative reports described several of the chronic self-harmers as manipulative or as lacking intent to die. The perception of manipulation and lack of intent likely moderated the assigned level of risk, which resulted in misclassification of high-risk subjects into the moderate group.

The low suicide risk group had the widest distribution with the largest number of chronic self-harmers, several in the group went on to receive 10 or more suicide/self-harm infractions. Narrative reports described these chronic self-harmers as manipulative self-harmers who did not intend to die, and therefore presented a low risk for suicide.

Like with the moderate group, clinicians' attitudes about the motives of chronic self-harmers likely led to underestimating the risk. Researchers such as Knoll (2010) emphasize that it is not possible to distinguish between offenders who engage in chronic self-harm from those who will ultimately commit suicide, that the desire to self-harm may progress to a desire to commit suicide, and that suicidal intent may fluctuate from one moment to the next. Narratives reviewed in this study suggest that clinicians often assign the lowest risk scores if they perceive a lack of intent, despite clear evidence of higher risk. Clinical training on risk assessment of chronic self-harmers is recommended along with raising awareness of potential bias when assessing prisoners perceived as manipulative.

Based on my analysis, I made the following recommendations for the Mental Health Appraisal process.

- The clinical training curriculum could include specific guidelines for assessing prisoners perceived as non-suicidal self-harmers those seen as “manipulative.” Training could emphasize the heightened risk of mortality in repeated attempts and self-harm as well as the ambivalence and mixed motives often experienced by frequent self-harmers. It could also address the potential for bias with prisoners who blatantly use self-harm in a manipulative way.
- The suicide assessment portion of the Mental Health Appraisal could draw attention to trait/chronic and state/acute risk levels. The rationale for chronic and baseline risk scores should identify specific risk factors. Prison systems often manage prisoners' individual mental health needs for multiple years,

across multiple institutions, with differing levels of custody and with differing levels clinical care. These various environments present any number of situational stressors. Clear understanding of trait-like suicide risk as well as the acute risk could provide valuable information among sending and receiving clinicians as prisoners bounce around the prison system.

- Suicide risk may change over time. Such changes could be documented in subsequent updates to the Mental Health Appraisals as long as the changes are accompanied by a clearly documented rationale.

Housing

All but one of the 157 instances of self-harm took place in single-occupancy housing, most of which occurred in the most restrictive, isolative environments. All but one of the 14 suicide/self-harm infractions occurring in medium or minimum security units occurred in single-occupancy housing, which was somewhat surprising since only about one-third of the medium and minimum residential housing is comprised of single-occupancy cells.

These findings are not out of line with the literature, which identifies maximum security housing and other single-occupancy housing as risk factors. Researchers attribute the increased risk to the stress of isolation, the lack of supervision in a single-man cell, and the fact that prisoners with limited behavioral control are often placed in more restrictive settings (Appelbaum et al., 2011; Duthe et al., 2013; Dye, 2010; Patterson & Hughes, 2008; Roma et al., 2013). Although housing data in this study were consistent with the literature, many factors go into making housing assignments. Research to tease out specific factors in single-occupancy, double-occupancy, and levels of security could clarify housing related risks.

Limitations

Outcome measure. This study used institutional infractions for self-harm and suicide attempts as an outcome measure of suicidal behaviors. This measure does not consider lethality or intent. Measuring suicidal intent is problematic in that it is nearly impossible to reliably discern non-suicidal acts of non-suicidal self-harm from suicidal behaviors. Self-harmers are often ambivalent about wanting to live. Prisoners may have multiple motives for self-harming. In some cases, suicidal prisoners may hide their intent because they want to avoid the uncomfortable environment of the suicide watch area, or worse of the restraint beds. Moreover, counting institutional infractions means that instances of self-harm that did not come to the attention of prison staff were not counted. The ideal outcome measure, completed suicides, was clearly not practical because of the extremely low prevalence rate. Other studies measured suicide attempts by prisoners' self-report, which has its own threats to validity and which would have been logistically prohibitive for this study.

Assessing suicide risk. There was no validity or reliability data for the clinical judgment suicide risk assessment used in this study. Since no generally accepted gold standard exists for suicide risk assessments, clinical judgment is typically used in prison environments (Joiner et al., 2009; Knoll, 2010). To minimize this limitation, I chose only assessments made by Master's or Doctoral level clinicians. A future study may consider a more structured suicide risk assessment.

Based on my review of the narrative data, assessments for the most part focused on past attempts, intent, motivation, and sometimes mental illness. Perceived motivations and secondary gain appeared to moderate risk scores. I also noted that the high risk scores

reflected a measure of acute risk, whereas the moderate category seemed more likely to capture baseline risk. A more structured analysis of this data could inform clinical training programs.

Sample. This study evaluated risk assessment for seriously mentally ill prisoners currently residing in a residential unit. These prisoners have daily access to mental health clinicians. They are on individual treatment plans and are carefully monitored for stability. The risk levels and prevalence of self-harm in this environment are likely different from in general prison populations where treatment and monitoring are limited and there is less immediate access to mental health clinicians.

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