THE INFLUENCE OF MENTAL HEALTH STATUS, INDIVIDUAL RISK FACTORS, AND OVERALL RISK LEVEL ON PAROLE OUTCOMES

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ABSTRACT

THE INFLUENCE OF MENTAL HEALTH STATUS, INDIVIDUAL RISK FACTORS, AND OVERALL RISK LEVEL ON PAROLE OUTCOMES

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This study compares risk levels and individual risk factors between mentally ill parolees and non-mentally ill parolees and examines the degree to which the presence of a diagnosed mental health problem predicts felony arrests while on parole or parole revocation, as well as determines whether gender moderates the predicted relationship between mental health status on felony arrest while on parole or parole revocation. The findings of the multivariate logistic regression analyses indicate that the higher the risk level of a parolee the greater likelihood of experiencing a felony arrest while on parole or parole revocation. Similarly, the presence of a diagnosed mental health problem increases the likelihood of a felony arrest while on parole or parole revocation. Many of the variables predictive of felony arrest were also predictive of parole revocation. Importantly, gender was significantly related to felony arrest and parole revocation, such that males had greater likelihood of poorer outcomes compared to females. Overall, it was found that gender moderated the relationship between mental illness and parole revocation, specifically when it comes to male parolees.

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Introduction

More than half of prison and jail inmates have mental health disorders and 16% of this population have serious mental illnesses (James & Glaze, 2006). The presence of mental illness among offenders under community supervision ranges from 11 to 20% (James & Glaze, 2006; Louden & Skeem, 2011; Lurigio, Smith, & Harris, 2008). Two meta-analyses of the relationship between psychiatric diagnosis and recidivism reported either an inverse relationship (Bonta, Law, & Hanson, 1998) or no significant relationship (Bonta, Blais, & Wilson, 2014). Indeed, the meta-analyses suggest that the best predictors of recidivism are the central eight predictors (e.g., criminal history, education and employment, family and marital status, leisure and recreation, anti-social companions, alcohol and drug problems, pro-criminal attitudes and orientation, and antisocial patterns) (Andrews & Bonta, 1994; 2010). These central eight predictors are incorporated into most of the modern-day risk assessment tools. Such assessment tools are used to determine proper treatment, develop case plans, and determine the level of supervision of offenders (Andrews, Bonta & Wormith, 2004; Canales, Campbell, Wei, & Totten, 2014). While there have been risk assessments created and geared specifically for mentally ill offenders (Looman & Abracen, 2013), researchers have questioned the utility of such instruments as the factors influencing recidivism among offenders with mental illness and offenders without mental illness may not differ. The current study examines the influence of overall risk score, scores on individual risk factors, and mental illness on recidivism among a cohort of parolees. Logistic regression analyses are utilized to answer the key question of whether mental illness has an independent and significant effect on recidivism, after controlling for the effects of overall risk level and scores on individual risk factors. Further, the current study will identify what specific risk factors are significantly related to recidivism, after controlling for the presence of mental

illness. Finally, the analysis also examines if the influence of mental illness on parole outcomes is moderated by parolee's gender.

Literature Review

Extent of mental illness among correctional populations

Research has shown that more than half of all prison and jail inmates have mental health disorders (James & Glaze, 2006). According to the most recent government data, more than half of prison and jail inmates housed in state and federal facilities have a serious mental illness (James & Glaze, 2006), compared to 5% of the general population (Ditton, 1999). These statistics are around 15 years old, and newer studies have documented the rate of mental illness among incarcerated persons to be anywhere from 10 to 48 percent (Prins & Draper, 2009 Steadman, Peters, Carpenter, Mueser, Jaeger, & Gordon, 2013). Despite the variation in percentages, most scholars agree that the mentally ill are overrepresented in the criminal justice system populations (Abram, Teplin, McClelland, & Dulcan, 2003; Ditton, 1999; James & Glaze, 2006; Skeem & Louden, 2006; Steadman, Osher, & Robbins, Case, & Samuels, 2009; Steadmen et al., 2013; Teplin, Abram & McClelland, 1996; Teplin, 1990).

The presence of mental illness among offenders under community supervision is estimated to range from 11 to 20 percent, or two to four times that of the general population (James & Glaze, 2006; Louden & Skeem, 2011; Lurigio, Smith & Harris, 2008; Prins & Draper, 2009). At the end of 2018, there were an estimated 878,000 individuals on parole (e.g., offenders released from prison through discretionary or mandatory supervised release) in the United States (Maruschak & Minton, 2020). Persons reentering the community from prison report higher rates of mental health problems than the general population, and congruent with the rates reported above, there are approximately 96, 580 to 175,600 individuals exiting prison annually who have a mental illness (James & Glaze, 2006; Louden & Skeem, 2011; Lurigio, Smith & Harris, 2008; Maruschak & Minton, 2020; Prins & Draper, 2009).

According to the *Diagnostic and Statistical Manual of Mental Disorders V* (American Psychiatric Association, 2013), mental disorder is defined as a "clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with present stress or disability or with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom…" Overall, types of mental illness among offender populations range from mild to severe. According to the National Institute of Mental Health, a person is considered to have a Serious Mental Illness (SMI) if he/she has a mental, behavioral, or emotional disorder (excluding development and substance abuse disorders), diagnosed currently or within the past year, and of sufficient duration to meet diagnostic criteria specified within DSM-V. Schizophrenia, bipolar disorders, and major depressive disorders are all examples of SMI. Less serious mental health disorders may include mild cases of anxiety disorders, behavioral disorders, and mood disorders, such as obsessive-compulsive disorder, attention-deficit hyperactivity disorder, and depression.

Several reasons have been advanced for why there are higher rates of mental illness among inmates than exist in the general population. One reason is deinstitutionalization, a public policy decision which avoided mass institutionalization of the mentally ill and advanced the discharge of persons with mental illnesses housed in large psychiatric institutions back into the community starting in the 1950s (Lurigio & Swartz, 2000). This policy was advanced based on the belief that persons with mental illness, who did not pose a risk to self or others and who could be effectively treated in the community, should not be institutionalized. The development of psychopharmacological agents that proved effective at treating several major mental illnesses is attributed with helping launch this revolution in treatment. By 1970, the overall net effect resulted in more mentally ill individuals being present in the community (Shadish, 1989; Torrey,

Kennard, Enslinger, Lamb & Pavle, 2011). However, treatment of the mentally ill in the community was not effective due to inadequate funding. This factor, coupled with closure of inpatient psychiatric facilities, has resulted in the largest U.S. jails and prisons holding more people with mental illnesses and co-occurring substance disorders than many inpatient psychiatric facilities (McCuan, Prins & Wasarhaley, 2007).

A second reason why so many persons with mental illness end up among correctional populations is because individuals with untreated mental illness often behave in ways that bring them to the attention of law enforcement (Prins & Draper, 2009). For example, an individual with a mental illness may commit a nuisance offense, such as public intoxication or public disturbance, and be arrested for this behavior. A significant number of those with mental illness often experience periods of homelessness, making them subject to greater police surveillance (Rosenheck, Bassuk & Salomon, 1998). Furthermore, if arrested, detained, and/or incarcerated, conditions of confinement in prisons and jails can exacerbate pre-existing mental health conditions (Angelotti & Wycoff, 2010).

A third reason why the mentally ill are over-represented among correctional populations is that those with mental disorders are four to five times more likely to have an addictive disorder (drug/alcohol) compared to those who do not have a mental disorder (Regier, Farmer, Rae, Locke, Keith, Judd, Goodwin, 1990). Arrests for drug offenses have risen since the 1980s making it more prevalent for those who use illicit drugs to be arrested for possession (Dorsey & Middleton, 2006). In 1987, drug arrests accounted for 7.4% of the total of all arrests, and in 2007, this number rose to 13% (Dorsey & Middleton, 2006). These numbers are likely influenced by the War on Drugs that started in 1971 during the presidency of Richard Nixon, and the push that has been created to target drug possession and distribution (Dorsey & Middleton,

2006). Based on results from a national study that determined mental health problems of prison and jail inmates, it was found that about 74% of state prisoners and 76% of local jail inmates who had a mental health problem also reported substance dependence or abuse (James & Glaze, 2006). Furthermore, 63% of state prisoners with mental health problems reported they had used drugs in the month before their arrest compared to 49% of those without a mental health problem (James & Glaze, 2006). Another study that assessed the prevalence of offenders with a mental and substance use disorder (n=701) found that 62% of the sample had dual diagnoses (Hartwell, 2004). According to a survey performed on state prisoners who had a mental health problem, 51% abused drugs and/or alcohol (Dorsey & Middleton, 2006). Thus, it is typical for mentally ill persons who are involved with the justice system to abuse alcohol and/or narcotic substances.

Parole Supervision and Mentally Ill Offenders

Eventually, most mentally ill persons arrested and incarcerated in prison for felony offenses will enter back into the community. In fact, 95% of all state inmates will return to the community at some point in time (Hughes & Wilson, 2002), and many will discharge onto parole supervision. In 2018, there were 878,000 offenders on parole supervision (Kaeble & Bonczar, 2017). This amount equates to about 20 percent of the offender population on community supervision.

Resuming life in the community after incarceration is often a difficult transition, and for an inmate who has a mental illness, this transition can be even more challenging. The individual must overcome the obstacles of reentry, which include finding a place to live, obtaining and maintaining employment, living a substance free lifestyle along with managing their mental illness. For many, the obstacles prove insurmountable, and results in them returning to prison. In the state of Texas, researchers found that former inmates with serious mental illness were 2.4

times more likely to have repeat incarcerations compared to those without major mental disorders (Baillargeon, Binswanger, Penn & Williams, & Murray, 2009). Furthermore, in the State of Utah, offenders with serious mental illnesses return to prison nearly one year sooner than offenders without diagnosed mental illness, and 77 percent of offenders with serious mental illness were back in prison within 36 months compared to 63 percent of offenders without mental illness (Cloyes, Wong, Latimer & Abarca, 2010). These statistics provide information to support the conclusion that those with mental illness have a more difficult time assimilating back into the community after incarceration.

A recent study assessed the association of mental illness and recidivism for a group of inmates with and without mental health disorders who were either unconditionally released or released to parole supervision (Ostermann & Matejkowksi, 2014). The authors found that parolees with mental health disorders had a higher rate of re-arrest and parole revocation compared to parolees without mental health disorders. They also found that parolees with mental health disorders were 36% more likely to have their parole revoked because of a technical violation rather than due to commission of a new crime. Furthermore, parolees with mental health disorders were 29% less likely to experience a re-arrest or reconviction compared to unconditionally released inmates with mental health disorders. Overall, being released on parole supervision rather than unconditional discharge made a beneficial difference in recidivism for all offenders, but the recidivism rates for parolees without mental health disorders was significantly lower than the rates for those who had mental health disorders across both release types. In summary, the authors found that those with mental illnesses had higher rates of recidivism compared to their non-mentally ill counterparts (Ostermann & Matejkowski, 2014). However, this study did not explain why mental health status may be having this effect.

In a later study Matejkowski and Ostermann (2015) examined how risk level and parole supervision influenced recidivism among offenders with and without mental health disorders. To conduct this analysis, a sample of 368 offenders on parole supervision was collected from the State of New Jersey in the year 2007. Half of the parolees had diagnoses of serious mental illnesses and half did not. Serious mental illness was defined as the presence of a clinical diagnosis by a trained mental health clinician prior to release on parole and included illnesses such as psychotic and personality disorders. Risk level based on the LSI-R assessment was also obtained from the state parole board and department of corrections data management system. Parolees with mental health illnesses tended to score higher on the LSI-R risk assessment compared to their non-mentally ill counterparts. The presence of a serious mental illness was related to having an increased risk level, and risk level was related to recidivism. However, it is unclear whether this increased risk was the result of having more criminogenic needs/risks or simply scoring higher on items in the domains of the assessment related to past and present mental health treatment, a domain measured on the LSI-R.

While findings of Matejkowski and Ostermann (2015) suggest that risk level mediates the effect of mental illness on recidivism, limitations in research design suggest that this finding is preliminary. First, selection of the sample was not done randomly, and thus may not be representative of the population. The sample of parolees was selected from a single state jurisdiction, and it may not be generalizable to parole populations in other states. Second, the analyses examined the effect of overall risk score, but not the effect of individual risk items. Thus, the researchers were unable to determine what, if any, specific risk factors were driving higher rates of failure for mentally ill offenders. Third, this data only focused on the seriously

mentally ill, and did not contain less serious cases of mental illness, such as anxiety, depression, and obsessive-compulsive disorders (OCD).

Overall, what we know so far is that former inmates with mental health disorders are more likely to be arrested or have their parole revoked compared to their non-mentally ill counterparts, but it is not exactly clear why this is happening. Do mentally ill parolees engage in a greater number of parole violations and/or a greater number of criminal activities that culminate in higher revocations? Or do mentally ill parolees display higher scores on risk factors that result in a greater number of parole violations and/or a greater number of criminal activities that culminates in higher revocations? Increased levels of monitoring in probationers and parolees has been found to increase the number of revocations that occur (Petersilia & Turner, 1993). If the presence of mental illness results in higher risk scores and overall higher risk levels for offenders, and this translates into closer monitoring by parole officials, increased monitoring could lead to risk level having a mediating effect on the relationship between mental illness and parole failure.

Predicting Future Criminal Behavior: Assessment of Risk

Being able to accurately predict whether an offender is likely to continue to engage in criminal activity is important to enhance public safety. Since the 1920's researchers have created tools to predict recidivism. Burgess (1928) created one of the first prediction-based tools for use with parolee populations, and American criminologists Sheldon and Eleanor Glueck developed prediction tools for juvenile delinquents (Miller & Maloney, 2013). Actuarial risk assessment tools are an integral part of nearly all criminal justice decision making, from pre-sentencing to parole (Rhine, Petersilia, & Reitz, 2016). One survey found that 88% of paroling authorities use an actuarial risk assessment instrument to help them in the decision-making process (Kinnevy &

Caplan, 2008). These risk assessment tools allow the proper authorities to make decisions based on statistically sound instruments.

Today, there are over 60 risk assessment instruments in use, of which 19 have been implemented and validated in the U.S., and are used in multiple jurisdictions (Desmarais, Johnson & Singh, 2016). Contemporary risk/needs assessment tools are built largely through use of actuarial models that yield statistical, research-based estimates informed by empirical research findings and criminological theory (Desmarais et al., 2016; Miller & Maloney, 2013; Rhine, Petersilia, & Reitz, 2016). Most risk assessment instruments are made up of risk and protective factors that are either static or dynamic in nature. Risk factors are characteristics associated with increases in the likelihood of recidivism, whereas protective factors are characteristics associated with decreases in the likelihood of recidivism (de Ruiter & Nicholls, 2011). Static factors are ones that cannot be changed, such as an offender's criminal history. Criminal history is a common element in almost all risk assessments used for offender populations (Desmarais, Johnson & Singh, 2016). Dynamic factors can change over time and can be used to determine case planning/case management treatment (Bonta et al., 2014). Most risk assessment instruments account for dynamic risk factors through the domains of education and employment, family and marital status, leisure and recreation, anti-social companions, alcohol and drug problems, pro-criminal attitudes and orientation, and antisocial patterns. These factors are commonly referred to as the Central Eight (Andrews & Bonta, 2010).

There has been extensive research as to why these dynamic factors are included in assessments. For example, roughly 30-60% of offenders have substance use problems that elicit the need for specific treatment (Belenko & Peugh, 2005; Bronson, Stroop, Zimmer & Berzofsky, 2017). These numbers are significantly higher than in the general population

(17%). Familial/marital status is also an important factor to be addressed because family environments are where individuals learn certain behaviors. If a family is dysfunctional, this can play out in an individual's actions, causing crimes to be committed. Also, having responsibility to care for a family member can be very stressful and lead to criminal behaviors (Taxman & Thanner, 2006).

On the opposite end of the spectrum, marriage can have a positive effect on an offender because there is added emotional support which can increase the likelihood of desistance from crime (Sampson & Laub, 1993; Visher, Knight, Chalfin & Roman, 2009), and having children has shown lower rates of recidivism for offenders on probation (Petersilia, Turner, Kahan & Peterson, 1985). Furthermore, association with negative influences and peers can reinforce criminal behavior and recidivism can increase (Taxman & Thanner, 2006).

Although many risk assessment instruments are developed from the Central Eight risk/needs domains, those developed for the mentally ill offender population specifically include items to determine intellectual functioning, treatment history, and types of psychological illnesses (e.g., psychosis, schizophrenia, mood disorder, personality disorders, and antisocial personality) (Bonta et al., 2014). However, the utility for a specific risk assessment instrument for mentally disordered offenders has been called into question (Bonta et al., 1998; Bonta et al., 2014) given that the presence of a mental disorder was found to be inversely related to recidivism (Bonta et al., 1998) in one meta-analysis of sixty-four unique samples. Further research indicates that as mental health symptoms decreased over time, recidivism rates stayed the same for mentally ill offenders (Bonta et al., 2014; Morgan, Flora, Kroner, Mills, Varghese & Steffan, 2012). Therefore, more recent research suggests that mental illness may not be a major predictor of general and violent recidivism, as originally thought.

Overall, research has found that the factors referred to as the Central Eight are significant predictors of recidivism, and their effect sizes range from small to moderate. However, the effects of risk factors of recidivism might be different for mentally ill offenders compared to the general population of offenders. To better understand this relationship, Andrews and Bonta (1994) developed a behavioral model called the General Personality and Cognitive Social Learning (GPCSL) model. In this model, there are many different roads that lead to crime, but certain life experiences have more of an influence compared to others. Factors with larger effects on recidivism include antisocial personality patterns, pro-criminal attitudes, pro-criminal behavior, and criminal history. Except for criminal history, all these factors are part of the Central Eight (Andrews & Bonta, 1994; Bonta et al., 2014). Moreover, the effect sizes of these predictors on general and violent recidivism were found to be the same for the mentally ill population and for the general offending population (Bonta et al., 2014).

Risk Assessment Instruments Commonly Used with Parolee Populations

The Level of Service (LS) family of risk tools is among the most extensively tested and validated RNR-based risk assessment instruments designed to help probation, parole, and correctional officials identify areas of risk and needs among the offender population in an effort to inform programming to reduce risk level (Casey, Elek, Warren, Cheesman, Kleiman & Ostrom, 2014). These are assessor-scored tools typically completed after an interview with an offender and a review of the offender's case file (Canales, et al., 2014). There is one main section that is common to all LS versions, the General Risk/Need section, that consists of subscales to assess the Central Eight risk/need factors (e.g., history of antisocial behavior, education and employment, family and marital status, leisure and recreation, anti-social companions, substance abuse, pro-criminal attitudes and orientation, and antisocial patterns (Andrews, Bonta & Wormith, 2004; Canales, et al, 2014).

Two of the most widely used LS assessments include the LSI-R (Level of Service Inventory-Revised) created in 1995 (Barnoski & Drake, 2007) and the LS/CMI (Level of Service/Case Management) which is a revised version of the LSI-R. The LSI-R consists of 54 items across 10 subcomponents and the LS/CMI consists of 43 items across 8 subcomponents. Both of these assessments contain static and dynamic factors stemming from the Central Eight risk factors and provide a level of risk based on the total overall score of the offender (Andrews & Bonta, 2001; Andrews, Bonta & Wormith, 2004; Gendreau, Little & Goggin, 1996).

There have been many meta-analytic studies that have established the predictive validity of the General Risk/Need section of the LSI risk tool across various offender types, including young offenders and adult offenders (Campbell, French, & Gendreau, 2009; Gendreau, Goggin, & Smith, 2002; Olver, Stockdale, & Wormith, 2009; Rettinger & Andrews, 2010; Smith, Cullen, & Latessa, 2009). However, there have been few studies regarding the use of this tool among the mentally disordered offender population. In 1992, Rice and Harris found that the scores obtained from LS could predict general and violent recidivism among schizophrenic individuals who were acquitted by reason of insanity. However, this finding is based on a small subgroup of offenders with this diagnosis and may not generalize to all mentally ill offenders. A more recent study found that one version of the LS assessment, the LSI-R:SV (Level of Service - Revised; Screening Version; Andrews & Bonta, 1995) had good predictive validity for general, violent, and non-violent recidivism among mentally disorders offenders (MDO's) without substance abuse problems. However, it did not have good predictive validity among MDO's with substance abuse problems (Chu, Thomas, Ogloff, & Daffern, 2013; Daffern, Ogloff, Ferguson & Thomson, 2005). It is important to note that the LSI-R: SV is designed to be a screening instrument used when a complete version of the LSI-R cannot be completed. As a result, some items within the

longer version are eliminated, as there are only eight items included in this specific assessment. However, these eight items do stem from the Central Eight risk/needs factors. While this screening tool has been tested to predict violent recidivism among probation and halfway house samples, it has not been specifically tested on the parole population (Kelly, 2009).

Another common risk assessment instrument that is currently used with the parole population is the Community Supervision Tool, a 35 item instrument (with the potential scores ranging from 0 to 49) designed to assist in case planning for offenders residing in the community (Latessa, Lemke, Makarios, Smith, & Lowenkamp, 2010). This supervision tool is primarily focused on dynamic factors and assesses the seven domains of criminal history, education, employment, and finances, family and social support, neighborhood problems, substance abuse, antisocial associations, and antisocial attitudes and behavioral problems. This tool has been validated and the results revealed that the CST had a larger correlation between risk level and recidivism, compared to the LSI correlation between risk level and recidivism (r=.156 versus r=.362, respectively) (Casey et al., 2014).

In conclusion, research has purported that mentally ill offenders need to have psychological treatment incorporated into their treatment plans, and that risk assessment instruments should have factors included that help identify the appropriate type of treatment. However, the risk factors for predicting recidivism among mentally ill offenders do not differ from non-mentally ill offenders, and when clinical items are added into assessments to improve predictions, those clinical items are not predictive of recidivism. Mental illness in and of itself is not an accurate predictor of general or violent recidivism (Bonta et al., 1998; Bonta et al., 2014). Furthermore, studies have shown that many of the common risk factors associated with recidivism among the general offending population are the same for the mentally disordered

offenders, implying that more in depth risk assessments instruments may not be necessary. Therefore, mentally ill offenders may not need different risk assessment instruments.

Studies have found that parolees with mental illnesses are more likely to have their parole revoked compared to parolees without mental illnesses and return to prison at faster rates compared to those without mental illness (Baillargeon, Binswanger, Penn, Williams & Murray, 2009; Cloyes, Wong, Latimer & Abarca, 2010; Ostermann & Matejkowksi, 2014). While there might not be the need for a different risk assessment instrument to measure mentally ill offenders, there is something that is different about these offenders or their experiences on supervision that has not successfully been identified. There are still unanswered questions when it comes to the risk factors among mentally disordered offenders, specifically parolees. One study of parolees purported that recidivism is mediated through risk level, in that risk factors may not differ among the mentally ill and non-mentally ill offenders, but mentally ill offenders might be scoring higher on risk factors that lead to increased risk levels for mentally ill offenders (Matejkowksi & Ostermann, 2015). Still, Matejkowksi and Ostermann (2015) failed to examine the influence of individual risk factors in their study. Further studies have avoided looking at certain dynamic factors related to success on parole supervision, such as how many programs a parolee is involved in, what kind of programs a parolee is enrolled in, and the number of violations a parolee has while on parole. The most common risk assessment instruments utilized in the field of probation and parole are the Level of Service based tools, which include LSI-R, LSI-R (SV), LS/CMI, and CST. These are all tools that include a variation of the Central Eight variables, but it is important to note that the Central Eight variables do not necessarily account for performance while on community supervision. Currently, risk assessment tools that are specifically capturing dynamic factors related to parole performance are few and far between.

However, the state of Georgia is capturing these dynamic factors specific to parole supervision performance with the use of the Georgia Parolee Automated Risk Assessment – Generation 2 (G-PARA-2). The G-PARA-2 assessment tool calculates the risk of arrest for a new crime in parolees through a set of static and dynamic factors. Risk level is determined upon entering parole and is assessed daily while on supervision and updated automatically into the case management system (Meredith & Prevost, 2010). What is unique about this assessment tool is that the dynamic factors are directly related to parole supervision and are influenced by the supervision plan (Meredith & Provost, 2010). The dynamic factors in the G-PARA-2 include: number of days of employment while on parole; amount of positive/all drug tests; number of violations while on parole for the following: moving without permission, not attending program, not following instructions, and not reporting; receiving any administrative hearing sanction; enrollment in programs, such as substance abuse, education, or cognitive behavioral therapies; and number of unexcused absences for cognitive programs (Meredith & Provost, 2010).

The Post-Conviction Risk Assessment (PCRA) was developed for federal probation and helps identify dynamic criminogenic needs to be addressed while on community supervision (AOUSC, 2011; Cohen & VanBenschoten, 2014). This tool includes dynamic characteristics regarding education and employment, drugs and alcohol, social networks and cognitions, and places offenders into categories of high, moderate, low/moderate, and low based on assessment of these items. These dynamic characteristics are used to assist officers with treatment plans during supervision (Cohen & VanBenschoten, 2014) and has been shown to be predictive of recidivism (Cohen, Lowenkamp, & Robinson, 2018). One study analyzed a sample of federal parolees with multiple PCRA assessments and found that 38% of high-risk level offenders moved to a lower-risk level by their next assessment and 27% of moderate-risk offenders were

reclassified into a lower-risk group at their second assessment (Cohen, Lowenkamp, & VanBenschoten, 2016). Offenders that lowered their overall risk score by several points were less likely to be re-arrested within the next year. Inversely, offenders that increased their overall risk score while on supervision had higher arrest rates. Furthermore, offenders in the high and moderate risk categories had lower rearrest rates if improvements were made in the domains of substance abuse, social networks, and education/employment. Focusing on dynamic factors in risk assessment has benefits when it comes to lowering recidivism rates for high and moderate risk offenders (Cohen, Lowenkamp, & VanBenschoten, 2016). The positive effects of incorporating dynamic factors into risk assessment tools is becoming more evident.

The current study attempts to address gaps in the literature by focusing on parolees; their scores on individual risk factors (static and dynamic) in order to better understand if mental health and individual risk factors influence parole outcomes as well as to ascertain the association mental health and recidivism. More specifically, this study is unique in that it captures aspects of parole supervision that are not typically included in risk assessments, such as parolees' receipt of violations, and enrollment in programs while on parole. Risk scores are based on the G-PARA-2, which as described previously, is designed to measure changes in risk scores over the course of parolee supervision. However, the data provided to the researcher for analysis included measures on risk factors and overall risk score for individual parolees at discharge only. Despite this limitation, there is value in assessing how aspects of supervision (e.g., violations and program enrollments) are affecting parole outcomes for mentally ill offenders. Therefore, this study attempts to fill this gap in the literature by utilizing a risk assessment tool that accounts for factors that are related to performance while on parole.

Research Design and Methods

The following study examines the relationship between parolee's mental health status, overall risk level, and individual risk factors to determine their independent effects on parole outcomes (i.e. felony re-arrest and parole revocation). The following research questions were examined.

Research Questions:

1. Do risk levels and individual risk factors significantly differ based on a parolee's mental health status?
2. Are mental health status and individual risk factors related to whether or not a parolee will be re-arrested for a felony offense?
3. Are mental health status and individual risk factors related to whether or not a parolee with have their parole revoked?

Dataset

The current dataset contains all parolees (n=28,264) from the State of Georgia who completed supervision (were discharged positively or negatively) between January 1, 2011 and December 31, 2013. This is a supervision discharge population; prison inmates released to discretionary parole who ended community supervision for any reason including: sentence ended, revocation for technical violations or a new crime, or sentence commuted by the parole board during calendar years 2011, 2012, or 2013. Where an offender had two parole episodes that ended within the three-year period, only the most recent parole episode was included. Parolees released to an out-of-state address were excluded.

If the parolee was positively discharged, they completed their parole sentence without experiencing a felony arrest or having their parole revoked. If they negatively completed supervision, they experienced a felony arrest or their parole supervision was revoked, and the parolee returned to prison. The data were obtained from Georgia State Board of Parole Case Management System (CMS), Georgia Crime Information System computerized criminal history (CCH) records, and Georgia Department of Corrections (DOC) inmate history data. This is an exit cohort that includes all the parolees within the designated state between the designated years. In many ways use of a cohort is a strength, as described below, the cohort resembles the characteristics of the entire parole population in the United States making findings more applicable or generalizable than previous studies that have used non-representative samples for similar analyses. This cohort is comprised of 88% men and 62% nonwhite (e.g., Black, Hispanic and Other). The crimes of conviction included: property=35%; drug=30%, violent=22%, and other = 13%[1]. Nationally, the parole population is 87% male, 65% nonwhite, and crimes of conviction were: violent=32%, drug=31%, and property=21% (Kaeble & Bonzcar, 2017). As can be seen, the characteristics of the cohort are like those of the national parolee population, with the exception that violent offenders are under-represented and property offenders are over-represented.

The risk assessment instrument used is the Parolee Automated Risk Assessment Instrument – Generation 2 (G-PARA-2). It is composed of both dynamic and static factors (Meredith & Provost, 2010). The dynamic factors in the G-PARA-2 include: number of days of employment while on parole; amount of positive/all drug tests; number of violations while on parole for the following: moving without permission, not attending program, not following

[1] There are 359 missing cases for the variable measuring offense type.

instructions, and not reporting; receiving any administrative hearing sanction; enrollment in programs, such as substance abuse, education, or cognitive behavioral therapies; and number of unexcused absences for cognitive programs. The static risk factors include age at beginning of parole, whether or not the offender was in prison due to prior parole or probation violation, the current offense type of drug possession, theft or forgery, the number of prior incarcerations, prior admission to probation diversion programs, past family alcohol problems[2], receipt of mental health treatment[3] and history of chronic illness. Risk level is determined upon entering parole and is assessed daily while on supervision and updated automatically into the case management system (Meredith & Prevost, 2010). Parole officials have access to this information and can monitor changes in risk level for all parolees under supervision. The risk of committing a new crime is assessed on a scale of 1 – 10, with 1 being the lowest risk score and 10 being the highest. Risk scores obtained on the assessment permits parolees to be categorized into a standard and high-risk group for supervision. If a parolee receives a score of 7 or above, then he or she is high risk and will be placed on a high level of supervision as a result. If a parolee receives a score below 7, then he or she is standard risk, and theoretically, the level of supervision is not as intense compared to those who have a higher risk level (Meredith & Provost, 2010).

In this analysis, not all variables of the G-PARA-2 are included and represented in the manner they are in the assessment. For example, risk level is defined as the risk level when the offender was discharged from parole. The dynamic factors from the G-PARA-2 that are included

[2] Past family alcohol problems is not a variable that was available in this dataset, and therefore is not in this analysis. However, the presence of alcohol problems among parolees was included because it is common for mentally ill persons who are in involved in the justice system to abuse alcohol and/or narcotic substances (Dorsey & Middleton, 2006). The overall risk level was calculated independent of this variable.

[3] Mental health treatment was not a variable that was included in this analysis as this variable is highly correlated with the main predictor variable – diagnosed mental health problem. This variable indicates if a parolee has a diagnosed mental health problem.

in the analysis are: whether the parolee was employed, failed a drug test in the first 60 days of supervision, received a violation for any of the following - residence change without permission, instructions not followed, not reporting, not attending a program, and having an administrative hearing. The static risk factors included are age-at beginning of parole, whether the offender was in prison due to prior parole or probation violation, current offense type, the number of prior incarcerations, and presence of chronic illness. Many of these variables were also recoded due to their positive or negative skew. The presence of chronic illness, the presence of mental illness, and current offense type are not included in the G-PARA-2 but were available from official records and are included.

The focus of this analysis is to determine if individual risk factors, and specifically risk factors related to parole supervision differ between the mentally ill parolees and non-mentally ill parolees, and also to see if these individual risk factors are predictors of parole failure and felony arrest. Table 1 provides a definition and coding scheme of the variables as they appeared in the database.

Table 1: Measures

		Operationalization
Outcomes		
	Felony Arrest	1 = one or more felony arrests while on parole supervision, 0 = no arrests
	Parole Revocation	1 = parole revoked, 0 = parole not revoked
Predictors		
	Diagnosed Mental Health Problem	1 = documented diagnosis, treatment, or medication for any psychological issue, 0 = no mental health problems
	Risk Level at Parole Discharge	Range = 1 to 10
	Individual Risk Factors:	
	Age at Parole Discharge	Range = 16 to 68 years
	Presence of Chronic Illness*	1 = presence of chronic illness; 0 = no presence
	Presence of Alcohol Problems*	1 = alcohol problems, 0 = no alcohol problems
	Prior Incarcerations*	Range = 0 to 4
	Prior Prison Admission Due to Parole/Probation Violation	1 = Yes; 0 = No
	Current Offense type	1 = Violent/personal; 2 = property; 3 = Drug sales and possession; 5 = Alcohol/Habitual DUI; 6 = Sex offense; 7 = Other
	Parole Employment	1 = parolee had at least 1 job while on parole, 0 = no job while on parole
	Drug Test Failure	1 = failed at least 1 drug test, 0 = no failed drug tests
	Violation: Residence change without Permission	Range = 0 to 9
	Violation: Instructions not Followed	Range = 0 to 45
	Violation: Not reporting	Range = 0 to 9
	Violation: Not attending program	Range = 0 to 1
	Administrative Hearing	1 = yes, 0 = no
	Enrollment in Programs	Range = 0 to 29
Control Variables	Nonwhite	1 = nonwhite, 0 = white
	Male	1 = male, 0 = female
	Unmarried	1 = single, widowed or divorced, 0 = married
	Days at Risk	Days from start of supervision to the end of supervision Range = 0 to 8220

*Variables not included in the G-PARA-2

Methods

Variables

Table 2 provides a frequency distribution of each variable included in the analyses.

Mental health status is a dichotomous variable, with the value of 0 for no presence of mental illness, and the value of 1 for the presence of mental illness. Mental illness is present if the offender had a history of a diagnosed mental illness by a mental health professional, and any type of mental illness ranging from mild to severe is included. Due to how this variable was recorded in the database, there is no way to discern the level or seriousness of the mental illness diagnosed for any offender. Over one quarter (27%) reported the presence of mental illness.

Several specific control variables were included as they have been identified in prior research as being associated with recidivism. *Gender* is an especially important control variable as male and female offenders often differ on background characteristics that influence criminal offending. Female offenders are more likely to have been diagnosed with psychological and medical problems compared to males (Bronson & Berzofsky, 2017). Women are more likely than men to report using illicit substances at the time of their arrest (Larson & Garrett, 1996; Teplin, 1994; Teplin, et al., 1996; Veysey, 1998), and women have higher rates of childhood and adult abuse compared to men (Salisbury & Van Voorhis, 2009). *Race*, or being African American/black specifically, is also an important control variable because their likelihood of recidivism is higher compared to Caucasian/white offenders (Steen & Opsal, 2007; Langan & Levin, 2002). However, this higher rate of recidivism could reflect other factors that negatively impact the treatment of blacks compared to other racial groups, such as implicit racial bias (Stahler, Mennis, Belenko, Welsh, Hiller, & Zajac, 2013). *Marital status* is another important control variable, as research has found that marriage offers an additional support system that can

assist with successful re-entry into society (Visher, Knight, Chalfin & Roman, 2009). Therefore, marital status is accounted for in this study. The last control variable entered in the model is *days at risk* (i.e., the number of days on parole supervision). The longer an individual is out in the community, the more time and opportunities are present for them to reoffend.

Table 2: Description of Variables

		% or Average (SD)	Range	N	Missing
Outcomes					
	Felony Arrest	48%	0 - 1	28,284	0
	Parole Revocation	13%	0 - 1	28,284	0
Independent Variables					
	Diagnosed Mental Health Problem	27%	0 - 1	28, 284	0
	Risk Level at End of Parole	4.1 (2.5)	1 - 10	28, 284	0
	Age	34.7(10.1)	16 - 68	28,173	111
	Presence of chronic illness*	78%	0 - 1	28,284	0
	Presence of alcohol problems*	15.7%	0 - 1	28,284	0
	Prior incarcerations	12.6%	0 - 1	28,284	0
	Prior Prison admission due to parole violation	13.3%	0 - 1	28, 284	0
	Current Offense type*			27,925	359
	Violent Personal	22.2%			
	Property	35.2%			
	Drug Sales and Possession	29.7%			
	Sex Offense	2.5%			
	Other	8.4%			
	Parole Employment	60.6%	0-1	28,284	0
	Positive Drug Test*	35.1%	0-1	28,284	0
	Violation: Residence change without Permission	14.3%	0-1	28,284	0
	Violation: Instructions not Followed	27.5%	0-1	28,284	0
	Violation: Not reporting	6.1%	0-1	28,284	0
	Violation: Not attending program	0.1%	0-1	28,284	0
	Administrative Hearing	5%	0-1	28,284	0
	Enrollment in Programs	63%	0-1	28,284	0
Control Variables					
	Nonwhite*	62%	0 - 1	28,284	0
	Male*	88%	0 -1	28, 284	0
	Unmarried*	85%	0 -1	28, 284	0
	Days at Risk on Parole Supervision*	642.5 (641)	0 - 8,220	28,280	4

*Variables not included in the G-PARA-2

Results

Relationship between Risk Factors and Mental Health Status

While some researchers claim that specialized risk assessment tools are needed for mentally ill offenders to better identify their risks and needs because their illness presents itself in distinct ways, other researchers refute this claim. The most common predictors of recidivism known as the Central Eight risk factors, have not been shown to differ across mentally ill offenders and general population offenders in studies to date (Bonta et al., 1998; Bonta et al., 2014). For example, mentally ill offenders tend to have increased risk levels compared to non-mentally ill offenders, but studies have not yet clearly identified which (if any) factors might be better predictors of failure for the mentally ill parolee population. In fact, risk assessment tools developed for the mentally ill offender population that include items to determine intellectual functioning, capture treatment history, and the symptoms of psychological illnesses have not been shown to be stronger predictors of recidivism. Indeed, in one meta-analysis the presence of mental illness was found to be inversely related to recidivism (Bonta et al., 2014; Morgan, Flora, Kroner, Mills, Varghese & Steffan, 2012). Therefore, the following analysis seeks to answer the question, do risk levels and individual risk factors significantly differ based on a parolee's mental health status?

The results of the independent t-test that examines risk level by parolee's mental health status show that parolees with a diagnosed mental health problem had significantly higher risk levels when ending parole ($M=4.66$, $SD=2.64$) than parolees without a diagnosed mental health problem ($M=3.87$, $SD=2.48$), $t(28,282)= -23.263$, $p<.01$. This finding concurs with results from previous literature which reported that parolees with mental illness tend to have higher overall risk levels compared to their non-mentally ill counterparts (Baillargeon et al., 2009; Matejkowski

& Ostermann, 2015; Cloyes et al., 2010). However, research has not determined which specific factors, if any, might be contributing to this overall higher risk score for those with mental illness. Past studies have shown that many of the common risk factors associated with recidivism are the same for the general offending population and for mentally disordered offenders. This finding suggests that it may be fruitful to examine the scores on individual items that comprise risk instruments to see if there are significant differences based on parolee's mental health status.

The risk assessment tool utilized here, the G-PARA-2, was specifically designed for parolees, which makes it a unique assessment tool compared to more generic assessment tools. Recall the G-PARA-2 identifies dynamic factors pertaining specifically to parole supervision. For mentally ill parolees, it is expected that there might be significant differences among the factors related to parole supervision, and no difference among the other factors contained in the G-PARA-2. Relying on Chi-Square analysis of the association between parole supervision factors and parolee's mental health status, analysis shows a significant association between having a diagnosed mental health problem and enrollment in programs while on parole, X^2 (1, N=28,284) =50.183, p<.01. Specifically, 66.1% of parolees with a diagnosed mental health problem were enrolled in at least one program while on parole, while only 61.5% of parolees without a diagnosed mental health problem were enrolled in at least one program while on supervision. A significant association was found between having a diagnosed mental health problem and receiving a violation for a residence change without permission, X^2 (1, N=28284) = 22.256, p<.01. While 15.9% of parolees with a diagnosed mental health problem received a parole violation for changing residences without permission, only 13.7% of parolees without a mental health problem received a parole violation for changing residences without permission. Here, we are seeing parolees with a mental health problem enrolled in more programs compared

to non-mentally ill parolees and receiving a higher number of violations for changing their residence without first gaining permission from their parole officer. This could indicate that parolees with a mental health problem are being watched more closely compared to their non-mentally ill counterparts. However, no significant associations were found between having a diagnosed mental health problem and other indications of stricter surveillance, such as receiving parole violations for not following instructions, not attending programs, not reporting to appointments, and not attending programs. Also, no significant association was found between having a diagnosed mental health problem and receiving an administrative hearing.

The G-PARA-2 also contains several static risk factors, common to other risk instruments. Based on prior research, it was expected there would be no relationship between parolee's mental health status and these static risk factors. However, a significant association was found between a having a diagnosed mental health problem and having a prior prison incarceration, X^2 (1, N=28,284) =7.767, p<.05. While 11.7% of parolees with a diagnosed mental health problem had one or more prior incarcerations, 12.9% of parolees without a diagnosed mental health problem had one or more prior incarcerations. This is unexpected, as prior studies have indicated that mentally ill offenders often experience more incarcerations as they behave in ways that bring them to the attention of law enforcement (Prins & Draper, 2009), and are more likely to be arrested and have repeat incarcerations (Baillargeon et al., 2009).

A significant association also was found between parolees with a mental health problem and certain offense types. Overall, 24.6% of parolees with a diagnosed mental health problem were incarcerated for a violent personal offense, whereas 21.7% of parolees without a diagnosed mental health problem were incarcerated for a violent personal offense, X^2 (1, N=27925) = 26.387, p<.01. While 42.4% of parolees with a diagnosed mental health problem were

incarcerated for a property crime, only 33.1% of parolees without a diagnosed mental health problem were incarcerated for a property crime, X^2 (1, N=27925) = 204.490, p<.01. Furthermore, 22.2% of parolees with a diagnosed mental health problem were incarcerated for a drug offense, compared to 33% of parolees without a diagnosed mental health problem, X^2 (1, N=27925) =300.515, p<.01. A slightly larger percentage (3%) of parolees with a diagnosed mental health problem were incarcerated for a sex offense, whereas only 2.5% of parolees without a diagnosed mental health problem were incarcerated for a sex offense, X^2 (1, N=27925) =5.529, p<.05. Lastly, 7.2% of parolees with a diagnosed mental health problem were incarcerated for any other offense, while 9% of parolees without a diagnosed mental health problem were incarcerated for any other offense, X^2 (1, N=27925). The finding that a larger percentage of mentally ill parolees were incarcerated for a violent offense aligns with prior research and makes intuitive sense as individuals with mental illness may have aggressive tendencies and exert more aggressive behavior compared to non-mentally ill offenders. With regard to the higher proportion of mentally ill parolees who engaged in property crimes, there is a substantial amount of mentally ill offenders that experience periods of homelessness (Rosenheck, Bassuk & Salomon, 1998), and may resort to committing property crimes in order to provide for their basic needs.

Parolees with a diagnosed mental health problem were statistically significantly older at the start of parole supervision (M=36.46, SD=10.26) than parolees without a diagnosed mental health problem (M=34.08, SD=10.05), t(28,171)=-17.418, p<.01. There was also a significant association found between having a diagnosed mental health problem and race, X^2 (1, N=28284), = 853.648, p<.01, as 36.3% of white parolees had a diagnosed mental health problem whereas 20.5% of nonwhite parolees had a diagnosed mental health problem. A significant association was found between a diagnosed mental health problem and gender, X^2 (1, N=28284) =2,363.369,

p<.01. While 60.8% of female parolees had a diagnosed mental health problem, a much smaller percentage of male parolees had a diagnosed mental health problem (21.8%). These findings are consistent with past research as white individuals and females tend to have higher rates of mental illness compared to non-white individuals and males (Bronson & Berzofsky, 2017; James & Glaze, 2006). Parolees with a diagnosed mental health problem, on average, were on parole for statistically significant fewer days (M=541.47, SD=496.78) than parolees without a diagnosed mental health problem (M=679.15, SD=682.52), t (28,284) =18.52, p<.01. This could portray that parolees with a mental health problem are returning to prison at faster rates than those without mental illness. If this is the case, this finding would be consistent with a prior study by Ostermann and Matejkowksi (2014) that evaluated the association between mental illness and recidivism, where it was found that parolees with mental health disorders had higher rates of re-arrest and parole revocation compared to parolees without mental health disorders. However, this finding could also be the result of parolees with mental health problems receiving shorter parole sentences or being discharged successfully from parole.

Bi-Variate Relationship of Mental Health Status on Parole Outcomes

Prior research has found that parolees with mental illnesses are more likely to have their parole revoked compared to parolees without mental illnesses and return to prison at faster rates compared to those without mental illness. Results of the Chi-square analysis of the relationship of mental health status to felony arrest and to parole revocation support this conclusion. Results indicate that 45.4% of parolees with mental health problems had one or more felony arrest while on parole compared to 39.9% of parolees without mental health problems, X^2 (1, N=28284), =68.437, p<.001. Further, 17.1% of parolees with mental health problems had their parole revoked compared to 11.8% of parolees without mental health problems, X^2, (1, N=28284),

=138.960, p<.001. We also examined the influence of the predictor and control variables on these two parole outcomes. These findings suggest that more males (14.3%) have their parole revoked compared to females (5.6%), X^2 (1, N=28284), =197.527, p<.001. Furthermore, 42.4% of males receive felony arrests while on parole compared to 3.2% of females, X^2, (1, N=28284), =83.191, p<.001. No significant relationship was found between race and parole revocation. Regarding race of the parolee, 42.3% of whites received felony arrests while on parole compared to 40.8% of nonwhites, X^2 (1, N=28284), =5.784, p<.05.

The results of the independent t-tests show that parolees with a diagnosed mental health problem had higher risk levels compared to parolees without a diagnosed mental health problem. Further, women were over-represented among parolees with diagnosed mental health problems. These findings suggest that risk level and gender may moderate the influence of mental health status on parole outcomes. To isolate the independent effects of mental health status, interaction terms need to be included into the logistic regression model predicting the occurrence of a felony arrest while on parole and the logistic regression model predicting the occurrence of parole revocation. Two interaction terms were added into the logistic regression models: mental health status and gender, and mental health status and risk level.

Multivariate Analysis of the Relationship between Mental Health Status, Risk Factors, and Parole Outcomes

Given that the bi-variate analysis of the relationships of mental health status and risk level to the two measures of parolee failure (felony arrest and revocation) were found to be significant, it is necessary to conduct multi-variate analyses. Stepwise logistic regression analyses were used to answer the following questions: Are mental health status and individual risk factors related to re-arrested for a felony offense? Are mental health status and individual

risk factors related to parole revocation? Logistic regression is appropriate for such analysis because each outcome variable is coded as a binary outcome (i.e. success v. failure) (Weisburd & Britt, 2014). The outcome variable for felony arrests has a range of zero to nine, with 75% of the distribution of the variable being a zero or one. As a result of this variable being negatively skewed, it is coded as zero for no arrests, and one for one or more felony arrests while on parole supervision. The outcome variable for parole revocation is coded as 0 = did not have their parole revoked and as 1=did have their parole revoked.

Table 3: Logistic Regression Results Predicting Felony Arrest

	Block 1			Block 2			Block 3		
	B	SE	Exp(B)	B	SE	Exp(B)	B	SE	Exp(B)
Predictors									
Diagnosed Mental Health Problem (1=yes)	**0.110****	**0.028**	**1.117****	**.185****	**.029**	**1.204****	**.240****	**.031**	**1.272****
Risk Level at End of Parole	**0.15****	**0.005**	**1.161****	**.079****	**.006**	**1.083****	**.029****	**.007**	**1.029****
Age				**-.023****	**.002**	**.977****	**-.027****	**.002**	**.973****
Chronic Illness (1= yes)				-.104**	0.033	.901*	-.048	.033	.953
Prior Prison Incarceration (1=yes)				-.166**	.040	.847**	.071	.043	1.074
Offense Type: (reference category is property)									
Violent Personal				**-.208****	.034	**.812****	**-.226****	.035	**.798****
Drug Sales and Possession				**-.288****	.032	**.750****	**-.223****	.032	**.800****
Alcohol/DUI				**-.447****	.172	**.640****	**-.567***	.174	**.573***
Sex Offense				**-.214***	.083	**.807***	**-.420****	.084	**.657****
Other				-.043	.048	.958	-.061	.048	.941
Employment while on Parole (1 = yes)				**-.119****	.029	**.888****	-.017	.031	.983
Positive Drug Tests (1 = yes)				**.303****	.030	**1.354****	**.374****	.030	**1.454****
Violation: Residence Change without Permission (1=yes)				**.215****	.037	**1.240****	**.293****	.038	**1.340****
Violation: Not Reporting (1=yes)				**.174***	.053	**1.190***	**.200****	.054	**1.221****
Violation: Not Attending Program (1=yes)				-.668	.423	.513	-.669	.426	.512
Violation: Instructions Not Followed (1=yes)				**.184****	.031	**1.202****	**.281****	.031	**1.454****
Administrative Hearing (1=yes)				.120	.172	1.127	.156	.174	1.169
Enrollment in Programs (1=yes)				.054	.029	1.055	**.130****	**.030**	**1.138****
Nonwhite							**-.184****	**.028**	**.832****
Male							**.407****	**.042**	**1.502****
Unmarried							**.084***	**.037**	**1.087***
Days at Risk (Log)							-.851	.043	.427
Nagelkerke R Square	.048			.083			.108		
***p<.05, **p<.001**									

Stepwise logistic regression analyses were conducted to examine the influence of predictors on the two outcomes of interest (felony arrest and revocation). This method permits sets of variables to be entered as a block in a series of steps. The first block includes two variables of central theoretical interest- mental health status (1 = has diagnosed mental health problem) and the overall risk level at end of parole (range from 0-10) predicting the occurrence of felony arrest. The second block retains mental health status and risk level and adds individual risk items comprising the G-PARA-2. The last block in the regression model contained mental health status, risk level, the identified risk items of the G-PARA-2, and the control variables of race, gender, marital status, and days on parole (log). Due to the positive skew of the variable days on parole, this variable was log transformed.

The first logistic regression model predicted felony arrest while on parole (See Table 3). The first block of variables entered included diagnosed mental health problem and risk level when ending parole. These variables were included in the first block because they are the variables of primary interest. As prior research noted that overall risk score may not vary significantly by mental health status, it is of interest to determine if other identified factors in the G-PARA-2 are influencing parole outcomes. More important is the examination of any change in the significance of mental health status and overall risk score when the individual risk factors are included in the model. In other words, when certain factors are introduced in the model, does the strength of the relationship between overall risk score and mental health status on parole outcomes change? Therefore, the second block of the regression analyses introduces the other identified individual factors contained in the risk instrument. The last block contains risk level when ending parole, having a diagnosed mental health problem, the individual risk factors of the G-PARA-2, and the control variables of gender, race, marital status, and days at risk.

The results of the first stepwise logistic regression predicting felony arrest are represented in Table 3. The outcome variable in this analysis is whether or not the parolee had a felony arrest while on parole. In this analysis, risk level when ending parole and having a diagnosed mental health problem remained significant as each block of variables was entered (e.g., primary variables of interest, G-PARA-2 risk variables, and control variables), suggesting that inclusion of individual risk factors did not diminish the overall influence of risk score or mental health status. It should be noted that the pseudo r-squared coefficient increased throughout each block accounting for a better model fit as variables were added. However, this coefficient is relatively low (Nagelkerke $R^2 = .108$). Therefore, the model at Block 3, which includes all variables of interest is a better fit compared to Block 1. Looking at the full model produced at Block 3, if a parolee was diagnosed with a mental health problem, the likelihood of being arrested for a felony offense while on parole increased by 27%. These findings agree with past research that has found that parolees with mental health problems have higher rates of re-arrest compared to parolees without mental health problems (Ostermann & Matejkowski, 2014). As risk level at parole end increased by 1 unit, the likelihood of receiving a felony arrest on parole increased by 3%. Examination of the effects of individual risk items factors indicate that age is a predictor of parole success; as offender's age increased by 1 unit, the likelihood of experiencing a felony arrest decreased by 2.7%. Another interesting finding is related to the effects of employment. Prior to entering the block of control variables, if a parolee had at least one job while on parole, the likelihood of being arrested for a felony offense decreased by 11%. However, after the control variables were entered into the model, employment no longer had a significant effect on likelihood of felony arrest. Two variables, presence of chronic illness and prior prison

incarcerations, lost significance once the control variables were entered into the model in Block 3.

Overall, type of conviction offense influenced likelihood of felony arrest. If a parolee was on supervision for either a violent offense or for a drug sale and/or drug possession rather than a property crime, the parolee was 20% less likely to be arrested for a felony offense. If a parolee was on parole for an alcohol or DUI related conviction, the parolee was 43% less likely to be arrested for a felony offense compared to a parolee on parole for a property offense. If a parolee was on parole for a sex related crime, they were 34% less likely to be arrested for a felony offense compared to a parolee on parole for a property offense.

A few of the dynamic risk items contained in the G-PARA-2 were significantly related to the occurrence of felony arrest. These dynamic factors are of particular interest because they are not included in many popular risk assessment tools. If a parolee failed a drug test, they were 45% more likely to receive a felony arrest while on parole. If a parolee received a violation for changing residences without the permission of their parole officer, the parolee was 34% more likely to experience a felony arrest. If the parolee received a violation for not following instructions, the parolee was 45% more likely to be arrested for a felony. If the parolee was violated for not reporting, the parolee was 22% more likely to be arrested for a felony offense while on parole. Also, if a parolee was enrolled in at least one program while on parole supervision, they were 14% more likely to be arrested for a felony offense. This finding is interesting as one would expect that if a parolee is partaking in a program, they are assimilating to society and following the rules of parole and not partaking in criminal offenses.

Four control variables were included in the model – race, gender, marital status, and days on parole (i.e., days at risk). Results indicate that a male parolee is 50% more likely to receive a

felony arrest compared to a female parolee. A nonwhite parolee is 17% less likely to receive a felony arrest compared to a white parolee. An unmarried parolee was 8% more likely to be arrested for a felony offense while on parole. Days at risk were not significantly related to risk of arrest for a felony.

Table 4: Logistic Regression Results Predicting Parole Revocation

	Block 1			*Block 2*			*Block 3*		
	B	*SE*	*Exp(B)*	*B*	*SE*	*Exp(B)*	*B*	*SE*	*Exp(B)*
Predictors									
Diagnosed Mental Health Problem	**0.262****	**0.039**	**1.3****	**.289****	**.040**	**1.335****	**.439****	**.042**	**1.552****
Risk Level at End of Parole	**0.218****	**0.007**	**1.244****	**.0200****	**.009**	**1.222****	**.181****	**.009**	**1.198****
Age				-.001	.002	.999	-.001	.002	.999
Chronic Illness				-.169*	0.049	.845*	-.065	.050	.938
Prior Prison Incarcerations				**.247****	**.056**	**1.280****	**.315****	**.060**	**1.370****
Offense Type:									
Violent Personal				.117*	.048	1.124*	.075	.049	1.078
Drug Sales and Possession				.020	.047	1.020	.078	.048	1.082
Alcohol/DUI				**-.594**	**.349**	**.552**	**-.689***	**.350**	**.502***
Sex Offense				**.425****	**.115**	**1.530****	**.241***	**.116**	**1.272***
Other				.158*	.067	1.171*	.124	.068	1.132
Employment while on Parole				-.044	.041	.957	-.003	.043	1.003
Positive Drug Tests				**.363****	**.042**	**1.438****	**.351****	**.043**	**1.420****
Violation: Residence Change without Permission				**.269****	**.048**	**1.309****	**.304****	**.049**	**1.355****
Violation: Not Reporting				-.077	.072	.926	-.069	.073	.933
Violation: Not Attending Program				**1.044***	**.424**	**2.842***	**.978***	**.427**	**2.659***
Violation: Instructions Not Followed				**.229****	**.042**	**1.438****	**.271****	**.043**	**1.311****
Administrative Hearing				**1.462****	**.178**	**4.314****	**1.457****	**.179**	**4.292****
Enrollment in Programs				**.144***	**.043**	**1.154***	**.200****	**.044**	**1.222****
Nonwhite							**-.164****	**.040**	**.848****
Male							**1.168****	**.081**	**3.217****
Unmarried							**.195***	**.059**	**1.215***
Days at Risk (Log)							**-.405****	**.062**	**.667****
Nagelkerke R Square		**.075**			**.103**			**.126**	
***p<.05, **p<.001**									

While parolees may be arrested for a felony offense while they are on parole, this does not always result in parole revocation, as lesser sanctions can be given. However, if a parolee is performing very poorly on parole, they could have their parole revoked. The second logistic regression model includes parole revocation as the outcome. Overall, 13.2% of the parolees in this dataset had their parole revoked. The results of this model are presented in Table 5. Like the results reported on the first logistic regression (Table 4), the pseudo r-squared was the highest in Block 3 (Nagelkerke $R^2 = .126$) accounting for a better model fit as variables were added. If a parolee had a diagnosed mental health problem, the likelihood of parole revocation increased by 55%. These results are expected as they fall in line with past research that has found that the mentally ill offenders are more likely to have repeat incarcerations compared to those without mental illness (Baillargeon et al., 2009; Cloyes at al., 2010; Ostermann & Matejkowksi, 2014). As the risk level of a parolee increased by 1 unit, the likelihood of parole revocation increased by nearly 20%. Higher risk parolees tend to be more closely monitored by parole officers, and this could result in the higher rate of revocation (Petersilia & Turner, 1993).

If a parolee had any prior prison incarceration, the likelihood of parole revocation increased by 37%. Using property offenders as the reference category, only two types of conviction offenses were significantly related to likelihood of revocation. If a parolee was convicted of an alcohol or DUI offense, compared to a parolee convicted of burglary, the likelihood of revocation decreased by 50%. If a parolee was convicted of a sex offense, likelihood of revocation increased by 20% when compared to a parolee convicted of burglary.

Almost all the variables of the G-PARA-2 that are specifically related to the performance of the parolee on supervision were statistically significant in this regression model. For example, if a parolee failed a drug test while under supervision the likelihood of revocation increased by

42%. If a parolee received a violation for changing residences without first gaining permission from their parole officer, the likelihood of parole revocation increased by 36%. The chances of parole revocation increased by 165% if a parolee received a violation for not attending a mandatory program. Furthermore, the chances of revocation increased by 31% if a parolee received a violation for not following the instructions of their parole officer. The likelihood of revocation increased by 329% if a parolee had an administrative hearing. An administrative hearing is a serious intervention for parolees and typically precedes any changes in parole supervision levels and/or revocation.

All the control variables in this analysis were significant. Being nonwhite, compared to white, decreased the likelihood that a parolee would be revoked by 15%. Being a male parolee rather than a female parolee increased the likelihood of parole revocation by 221%. If a parolee was not married, the likelihood of parole revocation increased by 22%. Furthermore, for every log unit increase of the number of days a parolee was under supervision, the log likelihood of revocation decreased by 33%. In other words, the longer a parolee was on supervision, the chances of having their parole revoked decreased.

Overall, the main variables of interest – diagnosed mental health problem and risk level when ending parole – were both predictors of receiving a felony arrest while on parole and parole revocation. It is important to point out that not all the other variables included in these analyses that were predictive of receiving a felony arrest while on parole were predictive of parole revocation. For example, age, offense type (violent personal, drug sales and possession, alcohol/DUI, and sex offense), positive drug tests, violation: residence change without permission, violation: not reporting, violation: instructions not followed, enrollment in programs, race, gender, marital status, and days at risk (days on parole) were all predictive of receiving a

felony arrest while on parole. However, prior prison incarcerations, offense type (Alcohol/DUI, sex offense), positive drug tests, violation: residence change without permission, violation: not attending program; violation: instructions not followed, administrative hearing, enrollment in programs, race, gender, marital status, and days at risk (days on parole) were predictive of parole revocation. Despite the difference in these predictors, there were variables that remained predictive for both parole outcomes. These variables include offense type (alcohol/DUI and sex offense), positive drug test, violation: residence change without permission, violation: instructions not followed, enrollment in programs, race, gender, marital status, and days at risk. Thus, we are seeing that certain variables are remaining consistent throughout the different models of multivariate analyses, specifically we are seeing consistency among a few of the parole performance variables and all the control variables. One of the control variables that is having a large effect on the outcomes is gender, whereas male parolees are more likely to receive a felony arrest while on parole or have their parole revoked. However, having a diagnosed mental health problem is also affecting parole outcomes negatively, and this characteristic that was found merits further analysis into how gender is associated with mental health status and parole outcomes.

Moderation Effects of Gender, Risk Scores, and Mental Health Status

Prior research suggests that female offenders are more likely to evidence mental health problems (Bronson & Berzofsky, 2017). Results of earlier independent t-tests showed that parolees with a diagnosed mental health problem had higher risk levels compared to parolees without a diagnosed mental health problem. Findings also indicated that a larger percentage of female parolees had mental health problems compared to male parolees. Because of these results, it is of interest to explore how mental health status interacts with gender and risk level. In other

words, the likelihood of receiving a felony arrest while on parole or having their parole revoked may differ for males with a mental health problem compared to females with a mental health problem. Moreover, the likelihood of receiving a felony arrest while on parole or having parole revoked may differ for parolees with a mental health problem with a low-risk level versus a high-risk level. Given that gender and risk level have a significant relationship with parolee success, and each is also related to mental health status, it is plausible that gender or risk level moderate the effect of mental health status on parole success.

To test for these effects, a logistic regression was performed that includes the interaction terms for mental health status and gender, and mental health status and risk level with the outcome variable of felony arrests while on parole, along with the other predictor variables of the G-PARA-2 and control variables.

Results of the logistic regression for the outcome felony arrest with the interaction terms included are presented in Table 6. The interaction terms were not statistically significant (diagnosed mental health problem * gender: p=.313; diagnosed mental health problem * risk level: p=.621). This result is somewhat surprising based on preliminary bi-variate analysis and prior research. However, according to this analysis, being female does not generate a stronger relationship between mental health problems and the likelihood of experiencing a felony arrest. Likewise, risk level does not generate a stronger relationship between mental health problems and the likelihood of experiencing a felony arrest. All three variables, being male, having a diagnosed mental health problem, and risk level have significant and independent influences on the likelihood of receiving a felony arrest. In sum, gender and risk level are not moderators between mental health and felony arrest.

Table 5: Logistic Regression - Felony Arrests on Parole with Interaction Terms

Predictors	*B*	*SE*	*Exp(B)*
*Diagnosed Mental Health Problem*Gender*	.085	.084	.919
*Diagnosed Mental Health Problem*Risk Level*	-.033	.067	.967
Age	**-.030****	**.001**	**.970****
Gender	**.455****	**.064**	**1.576****
Risk Level	**.116***	**.042**	**1.123***
Diagnosed Mental Health Problem	**.337****	**.079**	**1.401****
Chronic Illness	-.049	.033	.952
Prior Prison Incarcerations	**.083***	**.043**	**1.086***
Offense Type:			
Violent Personal	**-.237****	**.034**	**.789****
Drug Sales and Possession	**-.242****	**.032**	**.785****
Alcohol/DUI	**-.594***	**.174**	**.549***
Sex Offense	**-.452****	**.084**	**.552****
Other	-.072	.048	.932
Employment while on Parole	-.056	.030	.946
Positive Drug Tests	**.404****	**.030**	**1.498****
Violation Count: Residence Change without Permission	**.307****	**.037**	**1.359****
Violation Count: Not Reporting	**.187****	**.053**	**1.206****
Violation Count: Not Attending Program	-.636	.426	.529
Violation Count: Instructions Not Followed	**.288****	**.031**	**1.334****
Administrative Hearing	.160	.173	1.174
Enrollment in Programs	**.121****	**.030**	**1.129****
Unmarried	.087	.037	1.090
Days at Risk (Log)	**-.920****	**.041**	**.398****

Nagelkerke R Square=.104
*p<.05, **p<.001

Results of the logistic regression for the outcome - parole revocation - with the interaction terms included are presented in Table 6. The interaction for diagnosed mental health problem *gender is significant (p=.000), but the interaction term for diagnosed mental health problem *risk level is not significant (p=.589). In this analysis, gender is acting as a moderator of the relationship between mental health and parole revocation. Therefore, having a diagnosed mental health problem increases the likelihood of parole revocation for both males and females, but the increase in likelihood is greater for males than for females. However, according to this analysis, risk level does not influence the strength of the relationship between having a

diagnosed mental health problem and the likelihood of parole revocation. In sum, gender is a moderator of the relationship between mental health and parole revocation, but risk level is not a moderator of the relationship between mental health and parole revocation.

Table 6: Logistic Regression - Parole Revocation with Interaction Terms

Predictors	*B*	*SE*	*Exp(B)*
Diagnosed Mental Health Problem and Gender	**-.590****	**.205**	**.555****
Diagnosed Mental Health Problem and Risk Level	-.150	.082	.861
Gender	**1.580****	**.186**	**4.854****
Risk Level	**.707****	**.055**	**2.029****
Age	**-.010****	**.002**	**.990****
Chronic Illness	**-.064**	**.050**	**.938****
Prior Prison Incarcerations	**.327****	**.059**	**1.386****
Offense Type:			
Violent Personal	.011	.048	1.011
Drug Sales and Possession	.002	.048	.962
Alcohol/DUI	**-.796***	**.348**	**.451***
Sex Offense	.131	.115	1.140
Other	.089	.067	1.093
Employment while on Parole	-.079	.042	.924
Positive Drug Tests	**.415****	**.042**	**1.514*****
Violation Count: Residence Change without Permission	**.356****	**.049**	**1.428****
Violation Count: Not Reporting	-.075	.072	.928
Violation Count: Not Attending Program	**1.098***	**.423**	**2.999***
Violation Count: Instructions Not Followed	**.320****	**.042**	**1.377****
Administrative Hearing	**1.440****	**.177**	**4.219****
Enrollment in Programs	**.185***	**.044**	**1.203***
Unmarried	**.190****	**.058**	**1.210****
Days at Risk (log)	**-.670****	**.059**	**.512****
Nagelkerke R Square=.112			
*p<.05, **p<.001			

Discussion

Prior research indicates that mentally ill offenders perform worse on parole than the general offender population (Osterman & Matejkowski, 2014). Meta-analyses suggest that mental health status is not the contributing factor to this poor adjustment (Bonta et al., 2014; Morgan, Flora, Kroner, Mills, Varghese & Steffan, 2012). Research has reported that mentally ill offenders tend to score higher on risk assessment instruments and their higher risk levels may be the reason for their poor parole performance (Matejkowski & Ostermann, 2015). This study sought to understand the underlying relationship between risk level, individual risk factors, and mental illness among a cohort of parolees to identify their influence on parole success. More specifically, this study examined the degree to which mental health status predicted felony offenses and parole revocation, as well as determined whether gender moderated the predicted relationship between mental health status, felony offenses and parole revocation. Findings suggest that parolees with a diagnosed mental health problem had higher risk levels when ending parole compared to parolees without mental health problems. As prior research noted that mentally ill offenders and general population offenders did not differ in scores on common risk factors (Bonta et al., 2014), differences on individual items that comprised the G-PARA-2, the risk instrument utilized here, were evaluated for the two groups: parolees with a diagnosed mental health problem and parolees without a diagnosed mental health problem. The G-PARA-2 contains common risk items related to the Central Eight, items related to parole performance, and some items not related to the Central Eight but associated with parole outcomes for this cohort. Findings indicate significant differences for items related to parole supervision and other risk factors included in the G-PARA-2 by mental health status.

Bi-variate Findings on Differences Found between Parolees with and without a Diagnosed Mental Health Problem

Falling in line with past research, it was expected that there would be no differences among the risk factors of the G-PARA-2 that are common for parolees with and without a diagnosed mental health problem as prior studies have indicated that common risk factors are the same for the general offending population and mentally ill offenders (Bonta et al., 1998; Bonta et al., 2014). Overall, there were some differences found between parolees with and without a diagnosed mental health problem for these variables. There are three risk factors that are included in the G-PARA-2 for which differences are found: prior incarcerations, prior prison admission due to a parole violation, and age. Parolees with a mental health problem were older and had more often been in prison as the result of a parole violation. However, a higher percentage of parolees without a diagnosed mental health problem had a prior prison admission. This result is somewhat unexpected, but it should be noted that the difference found was slight. Other factors in this analysis that are not part of the G-PARA-2, but were included because they were readily available in the dataset were also found to have some differences by mental health status: offense type, presence of chronic illness, and presence of an alcohol problem. A higher percentage of parolees with a diagnosed mental health problem were convicted of violent personal offenses, property crimes, and drug offenses compared to parolees without a diagnosed mental health problem. Overall, these findings are not surprising as individuals with mental health problems tend to have more aggressive tendencies, chronic illnesses, and/or alcohol problems (Skeem, Winter, Kennealy, Louden, & Tatar, 2014). Therefore, these findings contradict the original assumption of the study that no differences would be found among the risk factors related to the Central Eight and the other variables referred to as ‘common variables’ such as chronic illness, offense type, age, and criminal history. In this cohort, there are

differences among the parolees with a diagnosed mental health problem and without a diagnosed mental health problem that have not necessarily been found in other studies. These differences could indicate that risk assessment tools might better suit mentally ill offenders if they consider certain factors where mentally ill offenders may have higher levels of risk. Also, this a large data set, and the differences found could be the result of this large size, and not necessarily be factors that are more significant for mentally ill offenders.

Bi-variate Findings on Factors Related to Parole Supervision

Parolees with a diagnosed mental health problem had higher rates of enrollment in at least one program while on parole and higher rates of receiving violations for changing residences without permission from their parole officer. On the other hand, parolees with a mental health problem were not any more likely to receive violations for other parole requirements (e.g., such as not following instructions, not attending programs, not reporting to appointments and having an administrative hearing) than parolees without a mental illness. Given that parolees with mental health problems have higher overall risk levels compared to parolees without mental health problems, mentally ill parolees may be more closely monitored by their parole officers, and thus the parole officer has greater opportunity to notice violations of parole conditions. However, parolees with a mental health problem may have higher rates of program enrollment and violations for changing residences without permission because of that individual's mental health problem. For example, a parolee may feel the need to enroll in a program while on supervision to better themselves or be required as result of their mental illness. Also, a parolee with a mental health problem may have higher difficulty in adhering to the rule of not being able to change residences without first gaining permission from their parole officer as mental illness is itself often a cause of homelessness (Rosenheck, Bassuk & Salomon, 1998).

Multivariate Findings of Risk Level, Mental Health Status, and Individual Risk Factors on Parole Outcomes

Considering the findings that risk levels were higher for parolees with mental health problems, it was important to examine their independent effects of mental health and other risks on parole supervision. Results of multivariate logistic regression analysis indicates that the higher the risk level of a parolee the greater likelihood of receiving a felony arrest while on parole and/or parole revocation. Similarly, the presence of a diagnosed mental health problem increased the likelihood of a felony arrest while on parole and/or parole revocation. Many of the variables predictive of felony arrest were also predictive of parole revocation, except for age, certain offense types (violent personal and drug sales/possession compared to property) and receiving a violation for not reporting. Importantly, gender was significantly related to felony arrest and parole revocation, whereas males had greater likelihood of poor outcomes compared to females. This finding is not unexpected as women tend to have lower recidivism rates compared to male offenders (Durose, Cooper, & Snyder, 2014). However, there is a larger percentage of female parolees with a diagnosed mental health problem compared to male parolees, which is why it was critical to explore the moderation effect of gender on the relationship of risk level and parole outcomes.

Violations received while on parole included in the G-PARA-2 were significantly related to both parole outcomes, with the exception that receiving a violation for not reporting was not significantly related to parole revocation and receiving a violation for not attending a program was not significantly related to felony arrest. Overall, receiving violations while on parole had negative effects on parole outcomes for offenders with and without a mental health problem. In particular, factors related to parole performance were related to parole outcomes independent of risk level and mental health status. More specifically, there were two parole

performance factors regarding parole outcomes that stand out in the analysis: receiving a violation for residence change without permission and enrollment in programs. These two factors were related to both parole outcomes, and furthermore, there were significant differences found between these factors and mental health status. The bivariate analyses showed that parolees with a mental health problem had higher rates of violations for changing residences without permission as well as had higher enrollment in programs compared to parolees without a mental health problem. This suggests that these specific parole performance factors could be impacting parole outcomes for parolees with mental health problems differently compared to parolees with a mental health problem. It would be beneficial to explore the issue of housing instability further to see whether if this factor is disproportionately affecting mentally ill parolees compared to non-mentally ill parolees. Since it has been found that mental illness itself can be a precursor for homelessness (Rosenheck, Bassuk & Salomon, 1998), perhaps housing instability for mentally ill parolees is a larger issue that needs to be addressed for the mentally ill parolee population. Furthermore, it was found that there were a higher number of parolees with a mental health problem that were enrolled in programs. As previously discussed, the specific reasons for higher program enrollment among the mentally ill parolees is not clear, however, being enrolled in a program negative impacted both parole outcomes (felony arrest and revocation). Further research is needed to understand how mental health status and these specific variables are impacting outcomes.

Moderation Effects of Gender and Risk Level

The results indicate that there is a significantly larger percentage of female parolees with a diagnosed mental health problem compared to male parolees, but male parolees were more likely to have a felony arrest while on supervision or have their parole revoked compared to

females. As a result of this, the interaction factors of diagnosed mental health problem*gender and diagnosed mental health problem*risk level were added into the logistic regression models. Risk level and presence of a diagnosed mental health problem individually increase the likelihood of a parolee receiving a felony arrest or having their parole revoked. However, risk level does not significantly interact with the relationship between having a diagnosed mental health problem and the likelihood of felony arrest or parole revocation. Although risk level is not acting as a moderator, it is of value to note that gender is, but only in relation of mental illness and parole revocation. For example, having a diagnosed mental health problem increases the likelihood of parole revocation for males and females, but the increase is greater for males. Therefore, gender is acting as a moderator in the relationship between having a diagnosed mental health problem and parole revocation. In other words, being a male parolee with a diagnosed mental health problem increases the odds of parole revocation. While it is not clear why this outcome is occurring within this dataset, there are possible explanations as to what could be happening. One plausible reason could be the result of gender-responsive research that has guided implementation of case management, programs, and risk assessment within corrections that are female focused. Gender-responsive policies focus on the specific circumstances of women offenders and their pathways to crime and are meant to emphasize the differences between males and females in the aspects of trauma, psychological development, socialization, and cultural experiences (Bloom, Owen, & Covington, 2004; Sydney, 2005). These policies guide programming within the corrections atmosphere and female offenders could be benefiting from these programs more than males are benefiting from programs available to them. The differences in characteristics between males and female offenders is also another possible explanation for male parolees more likely to have their parole revoked compared to female

parolees. Gender-responsive research has shown there are fundamental differences between male and female offenders regarding factors of offense type, education and employment, children and marital status, and physical and mental health (Sydney, 2005). While both men and women suffer from mental illness, women are more likely to suffer from mood and anxiety disorders and men are more likely to suffer from substance abuse disorders and antisocial personality disorders (Eaton et al., 2012). Personality disorders can be profoundly serious marked by patterns of instability in moods, behavior, and functioning, and can result in very erratic behavior (Lenzenweger, Lane, Loranger, & Kessler, 2007). As a result of the type of mental illnesses among parolees not being available in this database, it is difficult to state for certain why male parolees are faring more poorly compared to their female parolees, but the fundamental differences that have been found between male and female parolees are possible explanations for this occurring.

Overall, prior research has noted that mentally ill offenders often score higher on risk assessment instruments. Many of these instruments include a specific item that captures mental health status. Inclusion of this item may translate into higher risk scores. However, it is also possible that mentally ill offenders score higher on other items in risk assessment instruments that are related to their unique mental health needs. In this study, I was able to sort out the effect of mental health status from the calculation of risk level as it is not an item included on the risk assessment instrument used here. Instead, mental health problem is a separate variable. The analyses of the differences in risk level and individual risk factors discussed above indicates that mentally ill offenders differ from non-mentally ill offenders on some of the risk factors included. It should be noted that some of the risk factors included in this analysis are not factors that fall under the dominion of the Central Eight. The Central Eight risk factors include: history of

antisocial behavior, education and employment, family and marital status, leisure and recreation, anti-social companions, substance abuse, pro-criminal attitudes and orientation, and anti-social patterns. While this analysis does include some variables that fall under the Central Eight, there are variables of the G-PARA-2 that do not conform to the categories of the Central Eight. For example, the variables in this study that are associated with the Central Eight include: employment while on parole, prior prison incarcerations, presence of an alcohol problem, and having a positive drug test. The rest of the variables included in this analysis do not stem directly from the Central Eight, but are variables that have been incorportated into the data-driven G-PARA-2 as a result of the predictive nature they have on parole outcomes (Meredith & Provost, 2010).

To sum up, risk levels and certain individual risk factors differ based on a parolee's mental health status, and mental health status increases the likelihood of parole revocation on male and female parolees. Also, the presence of a mental health problem has greater effect on parole outcomes for male parolees compared to female parolees. The specific indications of these differences cannot be ascertained from this analysis due to the lack of detail on the types of mental health diagnoses, and this would be of interest to explore in the next steps of this project if further information regarding type of mental illness were available. Perhaps the results are indicating that states and jurisdictions need to repair and improve their gender-responsive programing and case management styles for parolees. or that risk assessment tools need to account for gender differences while on parole supervision. This analysis can be looked at as a starting point for better understanding the connection of mental health and parole outcomes. Gender proved to have more of an influence than risk level when it comes to parole revocation and this needs to be explored more in depth as to why this is the case. It would be beneficial to

explore the differences found among certain dynamic factors related to parole performance between parolees with a diagnosed mental health disorder and without to better understand how case management styles can be geared to assist mentally ill parolees overcome issues specific to their performance on parole. For example, there are a larger amount of mentally ill parolees that receive violations for changing residences without permission, which indicates housing instability. Perhaps, if there were specific programs and policies in place that ensure housing for mentally ill parolees, these parolees would have more successful outcomes. This is an issue that could be explored more in depth. Furthermore, it would be of interest to test other common risk assessment tools to determine if differences found within this analysis hold up in other analyses.

It should be noted that there are limitations with this data set. These data were collected from one geographical location at one point in time and therefore is not generalizable to the population and is unable to distinguish how dynamic aspects of supervision might impact parole outcomes over time. There was no way to distinguish between a parolee having a serious mental illness and a less serious mental illness. Also, the variable that captured race was not coded in a manner that allowed for more differentiation in analysis on how race is influencing parole outcomes for mentally ill parolees. Despite these limitations, there was some insight gained with this study. Mental illness does influence parole revocation, specifically when it comes to male parolees. Possible future studies could help determine why mentally ill male parolees are more likely to have their parole revoked, what could be done in terms of risk assessment and supervision practices to prevent parole revocation from occurring, and how the dynamic aspects of parole supervision might impact outcomes overtime. Policy implications for this study possibly include gender-specific parole supervision plans that emphasize mental health over punishment.

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