Detecting Feigning in a Correctional Setting: A Comparison of Multiple Measures

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Abstract
Feigning has been found to be a clinical concern both in clinical settings inside and outside the correctional setting. The goals of this study were to determine the utility of the PAI and SIMS as screening measures for feigning in a correctional setting. The study was also conducted to add to the relatively small literature base on the reliability and usefulness of these measures in a correctional setting. The SIRS was utilized as the gold standard by which the PAI scales and SIMS was compared. One hundred individuals on intake status in the Oregon Department of Corrections participated in this study. The participants were approached and asked to participate in the study. The participants were given administered a PAI, SIMS, and SIRS measure if they chose to participate. The researchers utilized correlations, AUC analyses, and linear regressions in order to examine the usefulness of the different measures in detecting feigning. The researchers found that the SIMS scales and some of the PAI scale scores correlated significantly with the individuals SIRS score. As well, it was found that the SIRS classified fewer participants as feigning compared to the SIMS and PAI. Finally, the SIMS was identified to have good sensitivity and specificity indicating that it is a good screening measure for feigning in a correctional setting. Based on the findings of this study, it would be most appropriate to conduct another study, which utilized an experimental design, which included a group of inmates asked to feign mental illness. By conducting a new study, it would allow for further research into the effectiveness of the SIMS in a correctional setting.

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DETECTING FEIGNING IN A CORRECTIONAL SETTING: A COMPARISON OF
MULTIPLE MEASURES

A DISSERTATION
SUBMITTED TO THE FACULTY
OF
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OF
DOCTOR OF PSYCHOLOGY
DECEMBER 11th, 2009

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Abstract

Feigning has been found to be a clinical concern both in clinical settings inside and outside the correctional setting. The goals of this study were to determine the utility of the PAI and SIMS as screening measures for feigning in a correctional setting. The study was also conducted to add to the relatively small literature base on the reliability and usefulness of these measures in a correctional setting. The SIRS was utilized as the gold standard by which the PAI scales and SIMS was compared. One hundred individuals on intake status in the Oregon Department of Corrections participated in this study. The participants were approached and asked to participate in the study. The participants were given administered a PAI, SIMS, and SIRS measure if they chose to participate. The researchers utilized correlations, AUC analyses, and linear regressions in order to examine the usefulness of the different measures in detecting feigning. The researchers found that the SIMS scales and some of the PAI scale scores correlated significantly with the individuals SIRS score. As well, it was found that the SIRS classified fewer participants as feigning compared to the SIMS and PAI. Finally, the SIMS was identified to have good sensitivity and specificity indicating that it is a good screening measure for feigning in a correctional setting. Based on the findings of this study, it would be most appropriate to conduct another study, which utilized an experimental design, which included a group of inmates asked to feign mental illness. By conducting a new study, it would allow for further research into the effectiveness of the SIMS in a correctional setting.

Correctional, feigning, SIRS, SIMS, PAI,
# Table of Contents

Copyright ............................................................................................................................... ii

Abstract ................................................................................................................................. iii

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

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

   Mental Health in Corrections ........................................................................................... 1
   Resources ............................................................................................................................ 1
   Malingering Definition ..................................................................................................... 2
   Knowledge Level .............................................................................................................. 3
   Forms of Malingering ....................................................................................................... 4
   Presentation of Malingering ............................................................................................. 5
   Personal Factors .............................................................................................................. 7
   Malingering as a Clinical Concern .................................................................................. 8
   Malingering in a Correctional Setting ............................................................................. 9
   Detection of Malingering ............................................................................................... 10

   Structured Interview of Reported Symptoms ............................................................... 11
   Personality Assessment Inventory .................................................................................. 15
   Negative Impression Management Scale ........................................................................ 16
   Rogers Discriminant Function ....................................................................................... 19
   Malingering Index ............................................................................................................ 21
   PAI Conclusions ............................................................................................................. 23
   Concerns about the PAI ................................................................................................. 23
   Structured Inventory of Malingered Symptoms ............................................................. 24
   Critique and Summary .................................................................................................... 26
   The Current Study and Hypothesis ................................................................................ 27

Method .................................................................................................................................. 28

   Participants ....................................................................................................................... 28
   Measures .......................................................................................................................... 29
   Procedure ........................................................................................................................ 30
   Statistical Analyses ....................................................................................................... 32

Results................................................................................................................................ 33

   Descriptive Statistics ..................................................................................................... 33
   Correlation Analyses ...................................................................................................... 36
   ROC Analysis .................................................................................................................. 37
   Logistic Regressions ...................................................................................................... 38

Discussion .............................................................................................................................. 41

   Description of Results ................................................................................................. 41
   Limitations ....................................................................................................................... 46
   Future Directions for Research ..................................................................................... 48
List of Tables

Table 1

*Intercorrelation between PAI subscales, SIMS, and SIRS Total Score* ..................................37

Table 2

*Area Under the Curve Analysis* .................................................................................................38

List of Figures

Figure 1

*Area Under the Curve Analysis* ..................................................................................................38
Introduction

*Mental Health in Corrections*

While many individuals are in need of mental health treatment, those in correctional facilities have a particularly dire need. In 2005, roughly 56% of state prisoners and 45% of federal prisoners were diagnosed with a mental health problem (James & Glaze, 2006). This statistic translates to roughly 705,600 individuals in state prisons and 78,800 in federal prisons with a mental health diagnosis. Furthermore, state prisoners with a mental illness spent an average of four months longer in the prison than those without a diagnosis. The sheer numbers of individuals who are diagnosed with a mental illness are overwhelming the system and its resources with longer stays in the prisons, which could lead to further mental health treatment. James and Glaze also found that more than one in three state prisoners had received mental health treatment since their admission to the prison. In New Jersey, approximately 16% of jail and prison inmates were diagnosed with a mental health problem, which equated to 5,400 individuals. Wolff (2003) stated that approximately 16% of inmates were reported to have a mental illness, yet 20% of the prison population was on psychotropic medications. Further, the researchers reported in 2002, that 97 million dollars or roughly 4,000 dollars per inmate were spent on medical and mental health care. The volume of resources being utilized is important to consider when states are already stretched for resources in the correctional system.

*Resources*

An important consideration in a correctional setting is discerning whether or not inmates are seeking out services because they are truly in need, or if there are other
motivations to seeking out treatment. When clinicians are practicing in correctional settings, they are limited in their ability to provide mental health treatment to such a large group of clients. In the prison system, statistics indicate that many resources are needed in order to treat prisoners suffering from mental illnesses. For example, in Oregon it is reported that psychiatric treatment totals $1,665 per prisoner (Stephan, 2004). The lack of resources and staff leads to decreased time assessing prisoners for mental disorders and increases the possibility of inmates successfully feigning symptoms.

**Malingering Definition**

Malingering is the intentional fabrication or gross exaggeration of physical or psychological symptoms in an effort to achieve a goal or avoid a punishment as defined by the *Diagnostic and Statistical Manual, Fourth Edition-Text Revision* (American Psychiatric Association, 2000). Similarly, feigning is similar to malingering except it lacks the overt goal or avoidance of a punishment. It is important to determine the prevalence of both in prison, so as to understand how mental health services might be better utilized. In order to identify individuals who are feigning or malingering, confirmation through multiple measures helps obtain a better baseline number. This study will examine the prevalence of feigning in the Oregon Department of Corrections (ODOC) intake population. The researcher will utilize several measures designed to detect malingering in order to understand the prevalence and phenomenology symptom feigning among ODOC inmates and to assess the utility of the newer measures in correctly identifying symptom feigning.

Malingering is a condition of clinical concern when working with mentally ill patients, and is diagnosable on Axis I (Eisendrath, 2001). According to Morrison (1994),
any psychological or psychiatric disorder can be exaggerated or feigned. Thus malingering can be difficult to identify because of the broad nature of its presentation.

Many studies have attempted to identify the prevalence rates of individuals who are malingering. Rogers, Sewell, and Goldstein (1994) reported that seven to 21% of individuals in general and forensic settings have malingered a mental illness. Mainly, the focus of research has been on malingering in forensic cases, where Rogers et al. (1994) utilized forensic experts and asked them to examine attributes of malingering. These experts were asked what percentage of individuals they evaluated, were found to be malingering, which was 15%. In another study, Rogers, Ustad, and Salekin (1998) also looked at defendants in criminal cases being evaluated for insanity. The researchers found that 20% of those individuals were suspected of malingering, as determined by the Structured Interview of Reported Symptoms (SIRS). When examining inmates in a correctional setting using the Minnesota Multiphasic Personality Inventory (MMPI), Walters, White, and Greene (1988) found that 40% of inmates who claimed to have psychological impairment were found to be malingering. Overall, it appears that the percentage of individuals found to be malingering varied widely based on the population selected and the method used to detect symptom exaggeration.

Knowledge Level

Some individuals who malinger are well read and coached, some strive to appear realistic in their symptoms but fall short, while others subconsciously malinger. In addition, some individuals with true mental disorders may also feign further symptoms (Tan, Slick, Strauss, & Hultsch, 2002). Inmates have a great deal of time to educate themselves, thus their presentation can range from well-coached to subconscious,
depending on their knowledge of mental health symptoms. Additionally inmates are in close quarters with individuals actually suffering from mental illness, giving them the opportunity to learn by observing what different symptoms and disorders look like.

To highlight how knowledgeable individuals are with regards to mental illness, Resnick (1999) conducted a study asking college freshman to endorse symptoms for major depression. The results indicated that 97% of the students were able to correctly identify enough symptoms to support a diagnosis of Major Depressive Disorder. Even though college freshman might have more access to psychology books and resources, and might be more educated about mental health symptoms, this finding is still important. These results underscore the fact that in today’s world individuals are knowledgeable about mental health symptoms. Because individuals can report symptoms or act in a manner that would display symptoms in order to falsely obtain medication or services, this is a cause of clinical concern. Malingering can occur on many different severity levels which impact the client’s presentation to the clinician. In a correctional setting being aware that inmates could have the same knowledge is important. It is of particular importance to identify which inmates are in need of treatment and those who are feigning their symptoms. The current research study is designed to understand the best way to distinguish between those who are and are not feigning their symptoms.

*Forms of Malingering*

To understand the concept of malingering, it is important to understand the different forms of malingering. Rogers (1988) described malingering as mild when the client acknowledges the presence of mental health difficulties but attempts to minimize the severity of the symptoms and experience. In essence the individual is stating that they
are experiencing symptoms that they are not, but the symptoms they are reporting are minimal and not severe. Many individuals fall into this category because it takes less effort to display mild rather than severe symptomology. Even though mild malingering appears counter to the description of malingering, what is important is the individual is acknowledging symptoms that they are not actually experiencing. Rogers explained that moderate malingering is when the client attempts to present themselves (and their symptoms) in a more severe light. This is usually done by exaggerating or completely fabricating symptoms that they are experiencing. He pointed out that the presentation could include a few critical symptoms or a wide array of minor symptoms. Lastly, Rogers reported that severe malingering is characterized when the client fabricates his or her symptoms to an extreme level well outside of the normal range of symptoms. Essentially, the client is endorsing most, if not all, symptoms associated to the illness to a degree not seen when working with the majority of clients. All three forms of malingering can cause difficulty when assessing or treating clients, especially in the context of a correctional institute where little time can be spent exploring the possibility of malingering. This highlights the need for easily administered measures that can identify different levels of malingering.

*Presentation of Malingering*

There are many ways in which individuals may present with malingered symptoms. Ossipov (1944) described individuals who are malingering as actors who are presenting their symptoms to the best of their understanding. Rogers (1988) reported that individuals who malinger symptoms tend to be more willing to bring attention to their symptoms. This is in contrast to individuals suffering from actual mental illness, who are
often more hesitant and embarrassed about sharing their symptoms. In criminal cases, defendants found to be malingering tend to present obvious symptoms that a layperson will associate with a severe mental disorder (Cornell & Hawk, 1989). Often these will be overemphasized and overacted because the individual wants to ensure they demonstrate their symptoms to the target audience (Resnick, 1999).

This is also an important consideration for individuals in prison, as they have minimal time with mental health providers. The inmates may want to assert their symptoms to the provider, whether completely feigned or overemphasized, to the fullest. For example, Resnick (1999) reported that individuals found to be malingering tended to endorse visual and auditory hallucinations and appeared to have a sudden onset of a delusion, even though delusions generally take several weeks to develop. One symptom lacking in many individual’s presentations are negative psychotic symptoms, including problems with thinking, relating, and affect, which are key components of many diagnoses (Rogers, 1988). In conclusion, Ackerman (1999) found that individuals who malinger tend to be vague and general when pressed for details of their symptoms and disorder. This finding calls attention to the importance of assessing the client’s clinical presentation in order to understand how best to treat them. In a correctional setting it is not always possible to spend a great deal of time with each client learning the details of their reported symptomology, so quick and efficient assessments are vital.

Knowledge. How individuals learn about the symptomology of mental disorders varies. Cornell and Hawk (1989) examined two groups of criminal defendants who were referred for pre-trial forensic evaluations. Specifically, forensic clinical psychologists diagnosed individuals in one group as psychotic and the other group as malingering
psychosis. The researchers had six psychologists with forensic training examine the files of each defendant and rate their confidence in the diagnoses. Researchers found that half the individuals diagnosed as malingering had a history of prior psychiatric hospitalization, which may have exposed them to other individuals suffering from mental illnesses, giving them the opportunity to learn about a variety of symptoms and disorders during these interactions. The hospitalizations could also lead to individuals exaggerating symptoms that they are currently experiencing, based on information they have obtained. Norris and May (1998) stated that adult inmates in maximum and minimum-security correctional facilities who were found to be malingering tended to be less educated, were younger, and had committed more violent crimes than individuals who were not malingering. The researchers explained that younger individuals might be more impulsive and willing to employ risky strategies to obtain the secondary gains. Another explanation is that individuals who are less educated may malinger due to lack of decision-making skills.

**Personal Factors**

McCusker, Moran, Serfass, and Peterson (2003) examined various personal factors, including how the severity of a criminal’s offense could contribute to malingering in a correctional population. The researchers concluded that the severity of the offense had little effect on an individual’s presentation of malingering and responses to malingering measures. Thus it appears that intrinsic personal factors tend to contribute more to malingering than extrinsic factors. In sum, incarcerated offenders tend to be younger and less educated, both of which are risk factors for malingering. More research
needs to be done in the correctional setting to better understand why malingering is prevalent with this population.

*Malingering as a Clinical Concern*

The exaggeration or feigning of symptoms is a concern in both clinical and correctional settings (Edens, Poythress, & Watkins-Clay, 2007). Individuals in a clinical setting may have multiple motivations for feigning psychological symptoms including obtaining a better living situation, financial gains, and/or continued treatment (Rogers, Sewell, Morey, & Ustad, 1996). Eisendrath (2001) states that individuals who mangle feel the benefits of displaying these symptoms and possibly receiving treatment outweigh the potential consequences of dishonesty.

*Assessment.* The assessment of malingering is a task that should not be taken lightly due to the potential repercussions for the client. Resnick (1999) detailed the dilemma, stating that if someone is wrongly diagnosed as truly ill, the person has essentially achieved their goal and is avoiding responsibilities or gaining incentives for which they are not qualified. However if they are diagnosed as malingering when in fact they are mentally ill, then services may be refused and an actual illness may go untreated. Rogers (1988) suggested that clinicians examine the individual’s behavioral patterns, consider co-morbid conditions such as genuine illness, Conversion Disorder, and Factitious Disorder, as well as examine the course of symptoms and presentation. Essentially, the clinician should be looking for the symptoms and presentation to be time limited and opportunistic dependent upon the environmental conditions.

*Accurate diagnosis.* The importance of obtaining an accurate diagnosis is magnified in a correctional setting where mental health resources are strained and little
time is allotted to work with each inmate. There are some resources for diagnosing malingering, but much of what is available is subject to interpretation. An important consideration is that when giving assessments that might have malingering scales or measures within them, individuals who are actually experiencing severe psychological symptoms will tend to score higher because their symptoms are causing them distress and impairment in their lives (Kucharski, Duncan, Egan, & Falkenbach, 2006). Thus it is important to be aware that high scores on malingering measures do not always indicate that the individual is in fact malingering, it some cases it may indicate severe psychopathology.

"Malingering in a Corrections Setting"

Malingering can complicate the diagnostic decision making process, especially within the correctional system (Wang et al., 1997). The problem is rapidly expanding due to the increasing number of individuals incarcerated. There was a 446% increase in the number of incarcerated individuals in state and federal prisons in the United States from the mid to late 1990’s (Megargee, 1997). Most recently, midyear 2007, it was found that 2,299,116 prisoners were held in federal, state prisons, or in jails which represents a 1.8% increase from 2006 (Sabol & Minton, 2008).

Inmates malingering mental illness can drain services within the prison system that would otherwise go towards treating those legitimately suffering from mental illness (Guy & Miller, 2004). There are multiple incentives to malinger in prison, including obtaining cell transfers to more desirable locations, obtaining psychoactive medications, and transfers to less secure facilities such as a state hospital (Resnick, 1999). Metzner, Cohen, Grossman, and Wettstein (1998) reported that less research has been conducted in
prisons as compared to jails, however the prevalence rates of psychopathology in these systems as compared to the general community appears to be much higher.

*Statistics.* Some specific studies focused on the number of individuals malingering in prison. One such study was Rogers, Ustad, and Salekin (1998) which examined 122 males in a large Texas county jail that had an emergency referral for mental health treatment. The study was designed to examine the convergent validity of the Personality Assessment Inventory (PAI) with the Structured Interview of Reported Symptoms (SIRS) in a correctional setting. The researchers found that roughly 20% of individuals in this study were found to be malingering based on SIRS scores. Similarly, Wang et al. (1997) conducted an archival study of 334 PAI profiles of adult male prisoners that were receiving or had requested mental health treatment in an inpatient correctional psychiatric facility. The researchers utilized the PAI to examine problematic behaviors in prison, such as malingering, suicide, and aggression. The researchers then used the SIRS as a standard to compare the PAI malingering scales. The SIRS has been previously administered to any inmate suspected of malingering based on their Negative Impression Management (NIM) and Malingering Index (MAL) scores as well as their mean clinical elevations on the PAI. In addition, the inmates also could have been given the SIRS based on discrepancies between their symptoms reported and behavior displayed. Forty (12%) of the 334 participants were identified as having elevated scores on the NIM or other clinical indicators of possible malingering. The researchers found that 37.5% of inmates suspected of malingering were clearly identified as feigning their symptoms by their SIRS scores. Both of these studies suggest that malingering is a
definite issue in a correctional setting and finding an appropriate measure to detect it is critical.

_Detection of Malingering_

Malingering is difficult to detect and there is no one test that unequivocally identifies someone who is malingering. In the past, clinicians have relied on clinical interviews and more formal psychological testing such as intellectual and personality tests in order to make the diagnosis (Farkas, Rosenfeld, Robbins, & van Gorp, 2006). Measures of malingering should function to minimize both over and under identification of individuals feigning symptoms (Edens et al., 2007). Rogers, Gillis, Bagby, and Monteiro (1991) spoke of the transition from a forced choice methodology in which clinical observations were controlled and narrowly defined in order to detect malingering, to a more structured interview. This transition puts the focus on the clients’ perceptions rather than the clinicians’ ratings, as individuals are asked to respond to highly specific questions about the presence or absence of psychopathology (Rogers et al., 1991b). Researchers stated that the advantage of this approach is that response patterns may be compared directly to individuals clearly malingering, suspected of malingering, and those suffering bona fide symptoms. In this vein, there are several instruments which can help in the decision making process to obtain the diagnosis (Ackerman, 1999).

_Structured Interview of Reported Symptoms_

The Structured Interview of Reported Symptoms (SIRS; Rogers, Bagby, & Dickens, 1992) is one of the best-known and well-researched malingering instruments (Boccaccini, Murrie, & Duncan, 2006). This measure represents many advances in the assessment of malingering (Norris & May, 1998). The SIRS was developed in 1985 and
has gone through several major revisions since that time (Rogers, 1988). The SIRS was created based on certain strategies believed to represent the clinical presentation of malingerers (Kucharski & Duncan, 2006). The SIRS is a 172-item structured interview composed of detailed, repeated, and general inquiries. There are eight primary scales for the evaluation of feigning which include Rare symptoms (RS), Symptom combination (SC), Improbable or Absurd symptoms (IA), Blatant symptoms, (BL) Subtle symptoms (SU), Selectivity of symptoms (SEL), Severity of symptoms (SEV), and Reported versus Observed symptoms (RO). These scales include detailed inquiries that address specific symptomology and severity levels, continuity of answering, especially regarding the specific symptoms, general psychological problems, and symptom patterns. Each scale has a series of questions that are scored 0, 1, or 2 which when summed lead to scores which range from no evidence of malingering to definite malingering (Rogers, 1988).

**Development.** The development of the SIRS scales included a multi-step procedure that utilized malingering experts to identify the dominant detection strategies for each of the SIRS items (Rogers et al., 1991b). The primary SIRS scales were rationally constructed to investigate specific detection strategies that were rigorously tested by known group comparisons and simulation designs (Rogers, Jackson, Sewell, & Salekin, 2005). In the original validation of the SIRS, scores were obtained for four normative groups (clinical honest, non-clinical honest, suspected malingering, and simulated malingering) and cutting scores for the various scales were set based on classification rates among the groups (McCusker et al., 2003).

**Classification.** When examining the criteria for classifying an individual as malingering for the SIRS, Rogers (1988) determined that a score with three or more
scales in the probable range or a single scale in the definite range of malingering is likely indicative of simulation. It was also determined that the SIRS has a correct classification rate of 94.3% in a clinical sample with a base rate of 25% for suspected malingering of psychosis. McCusker et al. (2003) also found that when two primary scale scores are in the probable malingering range the likelihood that the individual is feigning is approximately 82%. Requiring at least one primary scale score in the definite range or at least three primary scale scores in the probable range would increase the likelihood of feigning to 98% (McCusker et al.). Specifically, the researchers stated that there is an 82% likelihood of feigning for two scales in the probable range, 98% likelihood of feigning for three scales in the probable range, and a 100% likelihood of feigning for four or more scales in the probable range.

Validity. Validity was also established through convergent findings from simulation research and known group studies (Rogers et al., 1991b). In this study, the researchers examined the effects of coaching on an individual’s ability to feign mental illness. The researchers found that the discriminant validity proved to be 100% accurate for un-coached individuals. In other words, the SIRS was able to distinguish between the uncoached individuals who were and were not malingering 100% of the time. They also found that the SIRS was able to discriminate 96.7% of the simulators and 84.6% of the coached simulators. Rogers, Gillis, Dickens, and Bagby, (1991) examined interrater reliability and discriminant validity of the SIRS in a sample of 27 inpatients. High reliability estimates were achieved (mean = .96, range = 0.89-1.00). The researchers found that there was a high level of discriminating between simulators and controls. Additionally nine out of thirteen SIRS scales effectively discriminated between the
simulator and control group in the expected direction with excellent inter-rater reliability. McCusker et al. (2003) stated that along with demonstrating an ability to distinguish subjects instructed to simulate a psychiatric disorder from control subjects, the SIRS is effective in discriminating between suspected malingerers and psychiatric patients. Finally, internal consistency of the SIRS primary scales were found to be moderately-high to high with alpha values ranging from .66 to .92 (mean alpha coefficient = 0.86; Rogers, et al., 1992). In conclusion, it appears that the SIRS is able to consistently discriminate individuals who are responding honestly and those feigning symptoms which is consistent with Rogers (1988) findings.

Research. There have been several studies that have utilized the SIRS to examine individuals in correctional settings. Gothard, Viglione, Meloy, and Sherman (1995) examined feigned incompetency to stand trial with 115 male defendants and correctional inmates. The participants were split into several groups. The first two groups comprised individuals who were awaiting competency to stand trial evaluations or were categorized by forensic examiners based on a clinical interview to either be incompetent or competent. The second two groups were incarcerated individuals who were randomly assigned to a simulation (fake incompetency) or control group (honest responding). Finally, the fifth group comprised seven individuals referred for competency to stand trial evaluations were scored as malingering based on several tests. Results revealed that the SIRS yielded an overall classification rate of 90.8%. However the researchers fond that the individual scales varied in their effectiveness to distinguish between the simulators and suspected malingerers but did classify the honest reporters effectively. The results
also revealed that the simulators and suspected malingerers scored significantly higher on all the SIRS primary scales.

According to Rogers, Kropp, Bagby, & Dickens (1992), the researchers examined the effectiveness of the SIRS for feigned Schizophrenia, mood disorders, and Post Traumatic Stress Disorder (PTSD). Participants included 45 male inmates currently in mental health counseling and were asked to simulate one of three mental disorders: Schizophrenia, Depression, or Generalized Anxiety Disorder (GAD). Due to their counseling experience, these individuals were considered psychologically knowledgeable and were given DSM-III sections in order to study their respective disorders. This group was considered the sophisticated subjects whereas the other group, which consisted of a psychiatric sample from a forensic clinic, was considered naïve. The naïve group was not given any study materials or time to research. Nearly all of the naive (90.8%) and sophisticated (87.9%) simulators were able to achieve a clinical elevation on the targeted scales of the SIRS. Thus, the researchers concluded the SIRS to be relatively effective at the detection of individuals feigning symptoms.

The SIRS high reliability and validity are an important consideration especially in a correctional setting. Currently, it is considered the “gold standard” measurement for malingering and numerous studies validate it as a useful measure that is easy to administer and score. It is imperative to have measures that accurately detect malingering when resources and time are limited. Finally, it is important to note that many other measures, which may be more accessible to clinicians, are also designed to examine malingering.

*Personality Assessment Inventory*
The Personality Assessment Inventory (PAI; Morey, 1991) is a widely used assessment measure that examines psychopathology, personality features, and other clinically relevant issues. It is a 344-item self-report inventory scored on a four point Likert scale for the assessment of response style, clinical syndromes, and treatment consideration. These questions are separated into 22 non-overlapping scales, which measure a wide range of factors. The PAI has been gaining wider acceptance in forensic practice, however research on the detection of malingering has been less extensive (Kucharski, Toomey, Fila, & Duncan, 2007). A distinct element of this measure, allowing for its use in a wide range of settings, is its fourth grade reading level requirements (Morey, 1991). Finally, a key factor of the PAI is the non-overlapping scales, which improves the discriminant validity and clinical applicability for different populations, especially a correctional one (Kucharski & Duncan, 2006).

Research. Hopwood, Morey, Rogers, and Sewell (2007) conducted a study comparing samples of individuals with true or feigned clinical diagnoses, with individuals asked to feign Depression, General Anxiety Disorder, or Schizophrenia, and compared these groups with individuals diagnosed with the actual illnesses. The researchers found that discrepancies between observed clinical scale scores and NIM helps to identify the nature of the individual’s feigning attempt. Specifically, the difference between the scales helped to single out which disorder the individual was attempting to feign. It appears that the discrepancy for the feigned disorder tends to be quite large for the scale that the disorder is on, with the other disorders being non-existent or very small. These results imply there is a great deal of negative distortion when
individuals are found to be malingering on the PAI. This suggests that individuals tend to want their symptoms to appear worse than they actually are on the measure.

**Negative Impression Management Scale**

The Negative Impression Management (NIM) scale was designed to measure an exaggerated unfavorable impression, and is one of four validity scales on the PAI (Braxton, Calhoun, Williams & Boggs, 2007). The NIM scale is comprised of nine items with very atypical psychotic and dysphoric content. Specifically, this scale looks at individuals who are exaggerating unfavorable characteristics such as anti-social, depression, or violence on the PAI. These response distortions can be a wide range of things including purposeful attempts at deception and negative distortions such as malingering (Braxton et al.). Negative distortions can occur for numerous reasons. First, individuals with many forms of genuine psychopathology, such as Bipolar Disorder or Major Depressive Disorder, present with cognitive distortions that lead them to over represent the negative aspects of themselves, their environment, and their future.

**Research.** When examining NIM’s ability to detect symptom feigning, the results are mixed. Rogers, Ornduff, and Sewell (1993) examined the usefulness of the NIM scale to detect both naïve and sophisticated subjects simulating specific disorders. The researchers selected 76 unprepared undergraduate students as the naïve subjects and 33 psychology graduate students with a week of preparation as the sophisticated subjects. Results of the study indicated that all subjects were able to achieve clinical elevations on the NIM scale (naïve = 90.8%, sophisticated subjects = 87.9%). Utilizing the NIM cutting score of greater than 8 led to variability in classifying the feigning of different disorders. The researchers found that the NIM was effective in detecting the feigning of
Schizophrenia (90.9%), barely effective with Depression (55.9%), and ineffective with Generalized Anxiety Disorder (38.7%). The researchers noted that only two items (89 and 109) addressed the dysphoric feelings, therefore they concluded that the NIM is generally ineffective with affectively based disorders. These results are an important consideration when examining the effectiveness of the NIM scale in detecting malingering.

In a similar study, Rogers, Hinds, and Sewell (1996) looked at the effectiveness of the PAI in detecting individuals feigning Schizophrenia, Major Depressive Disorder, and Generalized Anxiety Disorder. The researchers asked 166 naïve undergraduate students with very little preparation and 80 sophisticated psychology doctoral students to feign one of the three disorders. The researchers administered the PAI to both groups, and found that the NIM was moderately successful in identifying roughly two-thirds of the naïve subjects feigning. However, the sophisticated subjects were not identified as easily, only one in five were identified as feigning depression, and none were identified as feigning anxiety. The naïve subjects appeared to take on a more global response style, having elevations on all the global scales, which led to elevations on the NIM. The sophisticated subjects were very narrow in their feigning, and kept consistent within their specific disorder. The sophisticated subjects obtained a NIM score of 68.82 for all the diseases asked to feign. So, as this study indicates, the sophistication of the individual feigning is related to the effectiveness of the NIM in detecting malingering.

Morey (1991) conducted a simulation study of the PAI using 44 undergraduate students asked to feign a mental disorder. The researchers found that using a NIM score of 8 or higher resulted in a correct classification of 88.6% of individuals feigning a
mental illness and 10.2% of actual patients. Finally, Calhoun, Earnst, Tucker, Kirby and Beckham (2000) examined whether the PAI could detect feigning among individuals instructed on PTSD criteria from the DSM-IV. The researchers examined 25 veterans with combat related PTSD and 23 undergraduate students asked to simulate PTSD symptoms. They found that a NIM score of 8 demonstrated good sensitivity by correctly classifying 83% of participants feigning PTSD. However, specificity was poor in that NIM misclassified 65% of the veterans who were actually experiencing PTSD symptoms.

In one study, examining the effectiveness of the PAI as a screening measure for malingering in a large pre-trial forensic sample showed the most effective PAI measure was the NIM, which was used with a cut off score of 77T or greater and correctly classified 84% of malingerers and 74% of honest responders (Boccaccini et al., 2006). Overall, it appears that the NIM is an effective measure in identifying more severe psychopathology among unsophisticated individuals. Most importantly, it appears that the scale should not be relied upon solely to identify individuals who could be feigning their symptoms.

*Roger’s Discriminant Function*

On the PAI, there are two supplementary indexes that allow for an understanding of negative distortion of symptoms or malingering (Braxton et al., 2007). The Rogers Discriminant Function (RDF) is an algorithm developed in order to detect feigned psychopathology or malingering. Specifically, the RDF is designed to separate those feigning an illness from those who are actually experiencing the reported symptoms (Hopwood et al., 2007). The RDF is comprised of 20 PAI scales and subscales that best distinguish simulators instructed to feign specific disorders based on different levels of
preparation (Kucharski et al., 2007). The initial study of Rogers et al. (1996b) using simulation design, found that the RDF discriminated subjects with acceptable accuracy. There was a hit rate of 92.2% in the calibration sample, which shrunk to an 80.4% hit rate for the cross validation sample. His discriminant model was based on the fact that feigners, regardless of whether they are sophisticated or not, will have difficulty fabricating the overall pattern of symptoms that would normally be found in an individual suffering from the disorder.

Research. Braxton et al. (2007) utilized 472 military veterans to examine validity rates, rates of inconsistent reporting, and positive and negative distortion of the MMPI-2 and PAI. The researchers found the RDF to be effective at distinguishing between malingerers and those who are honestly responding, compared to the MMPI scores in simulation studies. Similarly, Morey and Lanier (1998) examined the characteristics of six different indicators of response distortion on the PAI. The researchers examined 134 undergraduate students instructed to malinger and compared them with clinical patients from the original PAI standardization sample. The researchers found that the RDF performed the best compared to the MAL and NIM scales with an effect size of 1.96 compared to 1.75 and 1.63 respectively. However, Kucharski et al. (2006), when examining the connection between psychopathology and malingering in criminal defendants, found that there was no significant association between the severity of psychopathology and the RDF scores. The percentage of low, medium, and high psychopathology, which exceeded the cut off scores for the RDF, was reported as 3.5%, 3.6%, and 7.7%, which was not significant.
Bocccacini et al. (2006) found mixed results using the RDF as a screening measure for malingering with 166 adult male defendants awaiting pre-trial forensic evaluations as malingering. In this study, the RDF did not demonstrate a better than chance ability to detect a malingering utilizing an Area under the Curve (AUC) value, AUC=.54, indicating statistically that the difference between the two groups was minimal. This is in contrast to the Morier and Lanier (1998) finding of an AUC value of 0.99. Rogers et al. (1998) compiled data on 58 genuine patients and 57 known malingering patients from several correctional and forensic sites. The researchers looked at three indicators of feigning from the PAI including the RDF scale. The RDF correctly classified 61.7% of the total current sample but sensitivity was poor (50.9%). The authors stated that their results indicate the RDF may be ineffective when used in a forensic setting. Similarly, Kucharski et al. (2007) assessed the PAI validity scales utility for individuals malingering psychiatric disorders with 350 criminal defendants needing evaluation by the federal courts. The researchers found that when the RDF was applied to this forensic sample, the detection accuracy decreased to near chance levels, leading the researchers to issue a caution regarding the use of the RDF with forensic subjects, which corroborates other past studies.

Overall, when examining studies utilizing the RDF the findings are mixed. Some studies show that the RDF is effectively identifying individuals who are malingering where as other studies show that the RDF is equally or less effective at identifying malingering as the other PAI scales. Some researchers report that the inconsistencies of results may be indicating that the RDF does not appear to be influenced by true psychopathology but rather a more direct measure of effortful negative distortion
(Hopwood et al., 2007). To further examine the RDF, we will be examining it’s effectiveness in a correctional population compared to several other malingering measures as well as the other PAI scales.

*Malingering Index*

The Malingering Index (MAL) consists of eight scale differences and cut offs that are designed to detect the over endorsement of items that appear to reflect obvious pathology on the PAI (Braxton et al., 2007). These features are frequently in the profiles of individuals who are simulating mental disorders particularly in the more severe range compared to actual clinical patients. Baity, Siefert, Chambers, and Blais (2007) examined the diagnostic accuracy of the PAI in detecting feigning of symptoms with un-coached psychiatric inpatients. The researchers utilized 62 patients in a large medical center, and found that participants asked to simulate poorly had higher scores on several variables that measure over reporting including the MAL. Thus it appears that in a non-forensic setting the MAL is able to help clinicians recognize when a client might be feigning their symptoms.

In another study, Boccaccini et al. (2006) examined the effectiveness of the PAI as a screening measure in a forensic pre-trial population. The researchers found that both the NIM and MAL performed well in identifying malingering when utilizing the SIRS as a comparison. Even though the NIM performed better than the MAL, the MAL still showed good specificity (0.84) and sensitivity (0.53) utilizing a cut off score of 2. Edens et al. (2007) examined the effectiveness of several measures in detecting malingering in both a psychiatric unit and a general prison population and found that both the MAL and
RDF were effective in identifying malingering. The researchers reported that the RDF led to a correct classification rate of 70% and the MAL 69%.

Kucharski et al. (2007) found that the MAL index performed better than the RDF in their sample of 153. However, its sensitivity and specificity were unacceptable, AUC = 0.67, for use in a forensic population. In contrast, when examining how psychopathology relates to the PAI index scores. Kucharski et al. (2006) found that the MAL was not related to the severity of the psychopathology of the participant. In other words, the MAL score did not increase as the reported symptom severity increased. The researchers found when utilizing Receiver Operating Characteristics (ROC) an area under the curve for NIM= 0.86, for Mal = 0.67, and for RDF= 0.55.

**PAI Conclusions**

Overall, the findings concerning the PAI were mixed. Across studies, it appears that all of the scales have some utility in detecting malingering, but not on a consistent basis. Edens et al. (2007) found that both the MAL and RDF were significantly predictive of malingering status. Wang et al. (1997), when assessing malingering in a forensic setting, found overall that individuals feigning scored higher on the NIM and the MAL index, compared to individuals not feigning their symptoms. The researchers suggested that in order to screen for malingerers through the PAI, there might be some utility to combining validity scales such as NIM with the Positive Impression Management (PIM) scale, or the NIM with the Infrequency (INF) scale. This would increase the scales ability to detect malingering, when added together.

When compared to the SIRS, the NIM was clearly the best potential screening measure, although MAL was also effective (Boccaccini et al., 2006). When applying
these scales to a correctional setting it appears that more research needs to be done utilizing all three PAI scales and indices comparing their ability to detect individuals malingering.

*Concerns about PAI*

There are several concerns regarding response styles and the PAI validity scales. Edens and Ruiz (2006) discussed the argument concerning the various response styles of clients and how they might affect the response patterns. The researchers found that the PAI features were able to effectively identify individuals’ defensiveness. More so, they found these results in a correctional setting which many researchers questioned the validity scales in this setting. Still, they reiterate there is limited evidence suggesting that the validity scales are actually valid. However, Rogers (2003) reported that many of these scales are designed to detect response styles and other test taking behaviors that decrease the validity of the results, thus helping clinicians identify these patterns. Because of these differences in response styles by clients, it might decrease utilizing the PAI scales individually to detect malingering. Because of the mixed results found with shorter measures of malingering, researchers have attempted to develop new effective measures of malingering. Unlike the PAI scales, the Structured Interview of Malingered Symptoms is a measure with the sole purpose of detecting malingering, but is also shorter and less time consuming compared to the SIRS.

*Structured Inventory of Malingered Symptoms*

The Structured Inventory of Malingered Symptoms (SIMS; Smith & Burger, 1997) consists of 75 true or false items that can be administered in approximately 15 minutes at a fifth grade reading level. The SIMS has five non-overlapping scales to assess
different types of malingering: Affective Disorders (AF), Psychosis (P), Neurological Impairment (N), Low Intelligence (LI), and Amnesia (AM). The authors reported a score of 14 or greater for the total score as being indicative of malingering. The test authors report that it has excellent sensitivity, 95.61% when using this cut off score, and is accurate in identifying individuals malingering.

Research. Poythress, Edens, and Watkins-Clay (2001) examined the relationship between psychopathy and malingering in male inmates using the SIMS. The researchers found that for individuals from the general prison population asked to mangle, roughly 10.3% were found to avoid detection by the researchers utilizing the SIMS total score. For individuals deemed by the clinical staff as malingering without any instruction, roughly 15.4% avoided detection, again utilizing the SIMS total score. The researchers reported that these percentages were much lower than the SIRS Definitely Malingering score (DEF) and PAI MAL scales, indicating that the SIMS is a good predictor of malingering. These researchers suggest that the SIMS is designed for maximal sensitivity since it is used as a screening measure with little concern for false positives, whereas a measure like the SIRS is more concerned about avoiding false positives.

The SIMS identified both honest and simulated profiles with considerable accuracy, sensitivity, and specificity rates ranging from 73% to 95% for the scale and subscales (Edens et al., 2007). The total score for the SIMS proved to be the most efficient indicator of malingering; it accurately identified 95.6% of the simulators and 87.9% of the honestly responding participants (Rogers, 1988). Rogers et al. (1996a) evaluated with the clinical utility of the SIRS, MMPI-A, and SIMS in detecting malingered psychopathology in adolescents in a court referred residential psychiatric
facility. The SIMS proved to be moderately effective in screening these adolescents for malingering. The researchers predicted correctly that the Affective Disorders (AF) scale most easily detected adolescent malingering by examining the Positive Predictive Power (PPP). The PPP examines the chance of an individual being classified as malingering when they actually are. When utilizing the total score it was found that a PPP score of 87% with a cut off score of 16 was deemed to be an acceptable number. The Negative Predictive Power (NPP) of the SIMS was calculated examining the chance an individual is not classified as malingering when they actually are, was found to be 0.62. The researchers determined that this was an unacceptable number of misclassified individuals. The measure appears to have good sensitivity but seems to lack specificity. The SIMS however has shown some promise in a correctional setting but its clinical utility is in its infancy (Edens et al., 2007).

Summary

Many research studies have been conducted on malingering in a correctional setting. However, there is little consensus between researchers particularly concerning the effectiveness of the PAI. The different scales of the PAI alone or in conjunction with each other do not seem to have consistent findings in the research when used as a screening measure for malingering. Few studies have taken a closer look at these scales and indices together in a correctional setting. The SIMS appears to be an effective screening measure, but being a relatively new measure, more research is needed, especially in a correctional setting. Finally, the SIRS continues to be seen as the best measure of malingering however, its length can be problematic when attempting to quickly assess for malingering.
The SIMS when combined in a study with the PAI, and SIRS will allow the researchers to add to the small research base currently available for the measure. Utilizing the SIRS as the gold standard for malingering, which the literature supports, will add strength to identifying how accurate the PAI and SIMS are as screening measures.

The Current Study and Hypotheses

The goal of this study was to determine the utility of the PAI and SIMS as screening measures for feigning in a correctional setting. Specifically, the researchers examined how the SIMS and PAI identify individuals as feigning compared to the SIRS. By detecting feigning accurately in this correctional setting it may help staff allocate their limited resources to individuals who are truly in need of mental health services. More specifically, finding accurate feigning screening measures will allow staff at the ODOC to identify feigning without expending large amounts of time or resources. In addition, this study will increase the relatively small literature base on the reliability and usefulness of tests for feigning within correctional settings.

Research Question 1: Are participants’ PAI malingering scale scores (RDF, MAL, NIM) correlated to their total scores on the SIRS?

It is predicted that as participants’ SIRS scores increase, their scores on PAI malingering scales (RDF, MAL, and NIM) will also increase.

Research Question 2: Are participants’ SIMS scores correlated with their SIRS scores?

It is predicted that as SIMS scores increase SIRS scores will also increase.

Research Question 3: Which measure will classify fewer participants as feigning or exaggerating psychological symptoms than the other measures?
It is predicted that the SIRS will classify fewer participants as feigning than the SIMS and PAI given that these latter measures may serve better as screening measures for malingering.

Method

Participants

The target population included male and female inmates on intake status at Coffee Creek Correctional Facility (CCCF) in Wilsonville, Oregon. The sample size was approximately 100 inmates, 50 male and 50 female inmates. A total of 6 males and 25 females declined to take part in the study. Most individuals declined to participate in the study because of the time commitment; others reported that they did not want to disclose their mental health symptoms. The average age of the inmates was 35.13 (SD = 11.25) with a range from 18 to 73 years. The majority of participants reported that they were single at 49%, with 19% reporting that they were currently married, and one percent indicating that they were widowed. Eleven percent of the participants stated that they were separated, and 20% reported that they were currently divorced. The participants had a mean number of 2.03 children, and the number of children ranged from zero to eight. The participant’s educational level ranged from seven to 18 years with a mean of 11.36. Eighty of the participants identified as Caucasian, with 12 identified as Hispanic, three as African American, three as American Indian/Alaska Native, and two as biracial. The diversity of current ODOC inmates appears to be represented appropriately in our study. Finally, 39% of the participants reported that they had received mental health treatment in the past, with 61% reporting that they had not.
There were several exclusionary criteria for participant selection. Individuals who are under the age of 18, who do not fluently speak or understand English, or do not have the behavioral stability to complete an hour-long interview were excluded from the study. Individuals who have too low of a reading ability to complete the PAI (i.e., below a 4th grade reading level) were also excluded.

Measures

Demographic Questionnaire. A short demographic questionnaire was administered to all participants by the experimenters. The measure included information on age, gender, ethnicity, marital status, number of children, education level, and previous mental health treatment.

Personality Assessment Inventory (PAI). The PAI is a 344-item self-report measure of psychopathology. It has been shown to be a valid and reliable measure of evaluating personality and psychopathology, especially in correctional settings (Morey, 2003). Several scales on the PAI have been used to detect exaggeration or feigning of psychological symptoms and were used in this study. The Negative Impression Management (NIM) scale is comprised of nine items of bizarre and rarely endorsed symptoms. Another scale, the Rogers Discriminant Function (RDF), has been found to distinguish PAI profiles of actual psychiatric patients from coached and un-coached research participants fabricating psychopathology. Finally, the Malingering Index (MAL) was designed to identify response styles in which respondents over-endorse obvious pathological items, endorse items rarely endorsed in clinical samples, and under-endorse more subtle symptoms and treatment seeking items (Morey). In previous studies,
researchers have obtained mixed results concerning the utility of the NIM, RDF, and MAL in reliably detecting feigned symptoms of mental disorder.

**Structured Inventory of Malingered Symptomatology (SIMS).** The SIMS consists of 75 true-false items, divided into 5 scales designed to detect the feigning of specific disorders or symptoms (Smith & Burger, 1997). These scales include: low intelligence, affective disorders, neurological impairment, psychosis, and amnestic disorders. The items in the SIMS were taken from existing measures that demonstrated utility in detecting malingering (Rogers, 1988). The SIMS has been reported to identify both honest and simulated profiles with considerable accuracy, sensitivity, and specificity rates ranging from 73% to 95% for the scale and subscales (Edens et al., 2007).

**Structured Interview of Reported Symptoms (SIRS).** The SIRS is a 156-item interview that is designed to detect individuals who are feigning mental disorders, especially in a correctional setting [SIRS; Rogers, R., Bagby, R. M., & Dickens, S. E. (1992)]. It is divided into eight primary scales for the evaluation of feigning: Rare Symptoms (RS), Symptom Combination (SC), Improbable or Absurd Symptoms (IA), Blatant Symptoms (BL), Subtle Symptoms (SU), Selectivity of Symptoms (SEL), Severity of Symptoms (SEV), and Reported Versus Observed Symptoms (RO); (Kucharski & Duncan, 2006). Participants are asked questions such as: “Do you have exactly two nightmares every evening?” and “Do you sometimes like to fool or mislead doctors?” (Rogers et al., 1992a). The SIRS is currently considered the gold standard of malingering detection (Edens et al., 2007).

*Procedure*
Participants were randomly selected from the inmate population on intake status at CCCF. All participants had already completed the PAI during the DOC intake process. The researchers obtained a list of individuals who had completed the PAI from the ODOC intake staff and set up individual appointments with inmates. Before beginning the study, participants were informed that they must speak English and be at least 18 years of age. The participants were also informed that they would not be compensated for taking part in the study.

All the participants were scheduled for approximately 90-minute interviews. During the interview, the demographic questionnaire, the SIRS (30 to 45 minutes), and the SIMS (10 to 15 minutes) were administered, and time was allotted for informed consent and debriefing. The order of the measures was counterbalanced across participants.

The experimenters (psychology doctoral students) approached potential participants on the intake units at CCCF and conducted the interviews in designated rooms. Experimenters first discussed the informed consent form with all participants, assuring that the inmates fully understood the concept of informed consent and answered any questions that came up. Participants were assured that their answers would be kept confidential and not released to ODOC or any other parties. All participants were assigned a random identification code, which was used to identify all portions of the testing materials. These random codes were utilized to protect the inmates’ confidentiality throughout the study. The experimenters administered a short demographic questionnaire, as well as the SIMS and SIRS to all participants. Following the interview, experimenters debriefed the participants concerning the purpose of the
study and provided information on what resources (e.g. ODOC Behavioral Health Services) were available if their participation caused any psychological discomfort or distress. The participants also completed a debriefing form to reconfirm that they agree to have their test data used in the study. Finally, participants were thanked for taking time to participate in the study.

**Statistical Analyses**

The researchers utilized SPSS version 14.02 to conduct all analyses in this study. The researchers first ran descriptive analyses of demographics of the client characteristics. During the analyses of the data, the participants’ scores on the SIMS and SIRS were compared with their scores on the NIM, RDF, and MAL scales from the PAI. Utilizing the participants' SIRS scores, participants were split into two groups, likely feigning and likely non-feigning. Participants were classified as likely feigning if they had a total score on the SIRS of 76 or greater, one or more primary scales in the “definite malingering” range, or three or more primary scales in the “probable malingering” range, which have all been effectively used in past studies to identify individuals malingering (Edens et al., 2007).

After the participants were split into groups, logistic regression analyses were performed to determine if the PAI scales (NIM, RDF, MAL) and SIMS could predict group membership (feigning or non-feigning). The sensitivity and specificity of the scores were examined in the analyses as well. The researchers also examined whether the SIMS could add incremental validity to the PAI in predicting suspected malingering. Finally, the researchers utilized receiver operating characteristics (ROC) analyses to
examine the predictive power of recommended cutoff scores for the SIMS total score in differentiating between the feigning and non-feigning groups.

Results

This study looked at several research questions. First, we examined if the participants’ PAI malingering scale scores (RDF, MAL, NIM) were correlated to their total and subscale scores on the SIRS. Secondly, we examined if the participants’ SIMS scores were correlated with their SIRS scores. Finally, we examined which measure will classify fewer participants as feigning or exaggerating psychological symptoms than the other measures.

*Descriptive Statistics.* The SIRS identified one participant’s score in the definite range of malingering, and six participants’ scores in the probable range, while five other individuals were identified as probably malingering through a total score greater than 76. The mean SIRS total score for the inmates was 47.50 with a SD of 22.00. The SIRS total scores ranged from 7 to 112 for the inmates. The inmates had a mean SIMS scale of 10.07 with a SD of 5.89 with scores ranging from 2 to 30. The NIM scores mean was 53.58 with a SD of 10.26 with scores ranging from 44 to 81. The MAL score mean for the PAI was 54.58 with a SD 6.48 and scores ranged from 30 to 50. Finally, the inmates PAI RDF score mean was 38.91 with a SD of 12.26, with scores ranging from 4 to 62. These means appear consistent with average scores reported in the norming studies for the measures.

Utilizing the SIMS recommended cutoff of 14 or higher, twenty individuals were identified as feigning compared to the twelve identified by the SIRS total score. When examining the overlap between SIRS and SIMS identified feigners the data indicated that
nine out the twelve SIRS identified feigners were also identified by the SIMS. Thus, this leaves 11 individuals who were identified as malingering by the SIMS, but were not identified by the SIRS. Specifically, the sensitivity of the SIMS was found to be 0.75 and the specificity 0.88 when using the SIRS to identify malingers. The NPP was 0.96 and the PPP 0.45. These scores indicate that the SIMS has an acceptable level of sensitivity and specificity even though as a screening measure having a higher sensitivity would be more desirable. The lower sensitivity and PPP could be affected by the low base rate of our sample. Even so, the much higher NPP compared to PPP indicates that the SIMS is doing a very effective job at identifying individuals who are not feigning.

In order to better understand the effectiveness of the SIMS, the same statistics were run utilizing the SIRS definite and probable malingering scales. Utilization of the SIRS total score is considered one of the weaker definitions of likely feigning. The cut off of one score in the definite range or three scores in the probable range were utilized. When examining the overlap between SIRS and SIMS identified malingerers the data indicated that five out the five SIRS identified feigners were also identified by the SIMS. Thus, this leaves 15 individuals who were identified as feigning by the SIMS, but were not identified by the SIRS. Specifically, the sensitivity of the SIMS was found to be 1.00 and the specificity 0.84 when compared to the SIRS. The NPP was 1.00 and the PPP 0.25. These scores indicate that the SIMS has a high level of sensitivity and an acceptable level of specificity, which highlights its acceptability as a screening measure. Again, the much higher NPP compared to PPP indicates that the SIMS is doing a very effective job at identifying individuals who are not feigning.
When examining the PAI individual’s scales effectiveness utilizing the two different methods of SIRS identified malingerers some discrepancies were found. The MAL identified five individuals as feigning based on the cut off of two and found no individuals feigning based on the more stringent cut off of five. When utilizing the SIRS full scale to identify feigners, the MAL with a cut off of two was found to have a sensitivity 0.83, a specificity of 0.95, a PPP score of 0.25, and a NPP 0.88. When utilizing the definite and probably malingering scales of the SIRS, the MAL was found to have a sensitivity of 0.20, a specificity of 0.96, a PPP score of 0.20, and a NPP score of 0.96. The results indicate that using the more stringent cut off on the SIRS resulted in a large decline in the sensitivity of the Mal and an increase in the NPP score. It appears from these results that the MAL is better at identifying those who are not feigning rather than those who are.

When examining the NIM scales, it identified two individuals as feigning based on the cut score of greater than 77t. When utilizing the SIRS full scale to identify feigners, the NIM was found to have a sensitivity of 0.00, a specificity of 0.98, a PPP score of 0.00, and a NPP score of 0.88. When utilizing the definite and probable malingering scales of the SIRS, the NIM was found to have a sensitivity of 0.00, a specificity of 0.98, a PPP score of 0.00, and a NPP score of 0.95. The NIM scale appears to be a very poor screener of malingering based on the lack of sensitivity scores, and appears to be slightly better at identifying those who are not feigning when the more stringent SIRS scales are utilized.

Finally, when examining the RDF, it identified zero individuals based on its cut off of 70 and higher. When utilizing the SIRS full scale to identify feigning, the RDF
was found to have a sensitivity of 0.00, a specificity of 1.00, a PPP score of 0.00, and a NPP score of 0.88. When utilizing the definite and probable malingering scales of the SIRS, the RDF was found to have a sensitivity of 0.00, a specificity of 1.00, a PPP score of 0.00, a NPP score of 0.95.

Correlation Analyses

In order to understand if the participants PAI malingering scale scores and SIMS total scores were correlated to the SIRS total score, a correlation analysis was run. The relationships between the SIRS total score, SIMS total score, PAI NIM scale, MAL T score and PAI RDF T score were examined using Pearson correlation coefficients. Preliminary analyses were performed to ensure no violations of the assumptions of normality, linearity, and homoscedasticity were performed. When examining the correlations between measures of malingering, several were significant.

The SIRS Total Score correlated with both the SIMS Total Score at 0.71 p< .01, as well as the PAI NIM Scale at 0.48, p< .01. The SIRS Total Score also correlated significantly with the PAI MAL T Score at 0.35, p< .01 but did not significantly correlate with the PAI RDF at 0.07, p> 0.49. The SIMS total score correlated significantly with the PAI NIM scale at 0.59, p< .01, as well as with the PAI MAL T score at 0.29, p< .01. The SIMS total score did not correlate significantly with the PAI RDF as 0.13, p = 0.21. The PAI NIM Scale correlated significantly with the PAI MAL T score at 0.34, p< .01 but did not correlate significantly with the PAI RDF at 0.12, p = 0.21. Finally, the MAL T score did not correlate significantly with the PAI RDF at -.11, p = 0.30. The findings of the correlation analyses support the hypothesis that the participants PAI scale scores would correlate to the SIRS Total score with the exception of the PAI RDF T Score.
Table 1
Intercorrelations between PAI subscales, SIMS, and SIRS total scores

<table>
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<th>SIMS Total Score</th>
<th>PAI NIM Scale</th>
<th>MAL T Score</th>
<th>PAI RDF T Score</th>
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<tr>
<td>PAI RDF Score</td>
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<td>-</td>
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</table>

ROC Analyses

To examine the effectiveness of the PAI scales and SIMS measure of malingering, we examined the area under the curve. An area under the curve (AUC) value is the area under a receiving operator characteristic curve. The ROC curve is a plot of all the possible cut points of performance on a predictor (e.g. SIM total score) with respect to making an accurate diagnosis about a criterion (e.g. SIRS identified malingering). A large value indicates an increase in the predictor which is associated with an increased likelihood of being a member of the criterion group; smaller values that an increase in the predictor which is associated with a decrease likelihood of being in the criterion group. When examining the different AUC values, the SIMS appeared to have the highest likelihood of classifying individuals, AUC= 0.85. The PAI NIM, MAL, and RDF scales all proved to have similar AUC values, AUC= 0.79, AUC= 0.69, AUC= 0.69 respectively. The PAI NIM Scale and SIMS Total Score were the only two values that were significant at p < 0.01.
Figure 1. 
*Area Under the Curve Analysis*

![ROC Curve](image)

Diagonal segments are produced by ties.

<table>
<thead>
<tr>
<th>Test Result Variable(s)</th>
<th>Area</th>
<th>Std. Error</th>
<th>Asymptotic Sig.</th>
<th>Asymptotic 95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAI RDF T Score</td>
<td>0.69</td>
<td>0.10</td>
<td>0.04</td>
<td>0.49 0.89</td>
</tr>
<tr>
<td>PAI NIM Scale</td>
<td>0.79</td>
<td>0.07</td>
<td>0.00</td>
<td>0.64 0.93</td>
</tr>
<tr>
<td>Total Score for SIMS</td>
<td>0.84</td>
<td>0.06</td>
<td>0.00</td>
<td>0.73 0.96</td>
</tr>
<tr>
<td>MAL T Score</td>
<td>0.69</td>
<td>0.08</td>
<td>0.05</td>
<td>0.52 0.85</td>
</tr>
</tbody>
</table>

*Logistic Regressions*

A forward hierarchical logistic regression was conducted to determine which independent variables (PAI scales (NIM, RDF, MAL), and SIMS) were predictors of
group membership (feigning or non-feigning). For this analysis, the PAI scales (NIM, RDF, and MAL) were entered at step 1, and the SIMS total score entered at step 2. When entering the NIM, the overall model was significant, $\chi^2 (1, N = 96) = 10.19, p < .01$. The Wald statistic for this model was 9.11, $p < .03$ with the odds ratio as 1.10. This model had an overall classification accuracy rate of 88.5%. In the second step, when the SIMS total score was entered, the overall model continued to be significant, $\chi^2 (2, N = 96) = 19.00, p < .01$, this indicates that the $\chi^2$ value increased by 8.81. When examining the SIMS total score, the Wald statistic was 7.49, $p < .01$ with the odds ratio being 1.23. The overall classification rate was 89.6%, which was an increase of 1.1%.

When the RDF was entered first, the overall model was again significant $\chi^2 (1, N = 96) = 4.33, p < .04$. For this model, the Wald statistic was 3.78, $p < .05$, with the odds ratio being 1.06. In this model, the overall classification accuracy rate was 88.5%. When the SIMS was entered as the second step of this model, it remained significant, $\chi^2 (2, N = 96) = 20.18, p < .01$, this indicates that the $\chi^2$ by 15.85. For the SIMS, the Wald statistic was 11.36, $p < .01$, with the odds ratio being 1.27. In this model the overall rate of classification increased by 2.1% to 90.6%.

Finally, when entering the MAL first, the model was not significant, $\chi^2 (1, N = 96) = 3.34, p < .07$. The Wald statistic for this model was 3.49, $p < .06$ with the odds ratio being 1.08. The overall classification accuracy rate was 88.5%. When the SIMS was entered at step 2, the overall model was significant, $\chi^2 (2, N = 96) = 18.77, p < .01$ which indicates that the $\chi^2$ value increased by 15.43. For the SIMS the Wald statistic was 11.31, $p < .01$, with the odds ratio being 1.259. In this model the overall rate of classification was 89.6%, which was an increase of 1.1%.
To examine the predictive power of the SIMS in comparison to the PAI scales, the hierarchical logistic regression analysis was repeated in the reverse order, entering the SIMS at step 1 and the PAI scales (NIM, RDF, and MAL) at step 2. When entering the SIMS first, the overall model was significant $\chi^2 (1, N = 96) = 18.13, p < .01$, The Wald statistic for this model was 12.87 ($p < .01$) and the odds ratio was 1.27. The overall classification accuracy rate was 90.6%.

When the NIM was entered at step 2, the overall model was significant, $\chi^2 (1, N = 96) = 19.004, p < .001$, and $\chi^2$ value increased by 0.87. For the NIM, the Wald statistic was 0.88 ($p < .349$) and the odds ratio was 1.04. The overall rate of classification decreased by 1% to 89.6%.

When the RDF was entered at step 2, the overall model remained significant, $\chi^2 (2, N = 96) = 20.18, p < .01$, and the $\chi^2$ value increased by 2.05. For the RDF, the Wald statistic was 1.80 ($p < .18$) and the odds ratio was 1.05. The overall classification rate remained the same at 90.6%.

Finally, when the MAL was entered at step 2, the overall model was significant $\chi^2 (2, N = 96) = 18.77, p < .01$, and the $\chi^2$ value increased by .64. For the MAL, the Wald statistic was 0.68 ($p < .41$) and the odds ratio was 1.05. The overall rate of classification decreased by 1% to 89.6%.

The addition of the SIMS to the PAI scales (NIM, RDF, and MAL) produced larger increases in predictive power, as shown by the $\chi^2$ value, than when the PAI scales were added to the SIMS. As well, the addition of the SIMS to the PAI produced greater increases in classification accuracy rates as compared to when the PAI scales were added to the SIMS. In particular, the specificity went down slightly from 98.8 to 97.6 but the
sensitivity went up from 9.1 to 27.3 indicating a screening measure that is more effective at identifying who is not malingering than who actually is. When examining the Negative Predictive Power (NPP) it went down slightly from 0.99 to 0.98 and the Positive Predictive Power (PPP) went up from 0.09 to 0.27, which also confirms that the measure is better at identifying those who are not malingering than those who are. The results of the logistic regression confirm the hypothesis that the SIRS will classify fewer participants as feigning than the SIMS and PAI Subscales. However, the results were unexpected, in the fact that the SIMS was expected to have higher sensitivity than specificity.

Discussion

Description of Results

In the present study, the correlation between participants PAI malingering scale scores with their total and subscale scores on the SIRS was examined. Finally, the SIMS and PAI scales were compared to the SIRS to examine which measure classified fewer participants as feigning or exaggerating.

When examining the descriptive statistics, the total number if individuals found to be feigning out of the total sample of 100 was much lower compared to previous studies. The results of this study indicated a 5%- 12% rate of potential feigning depending on identification method compared to Rogers (1988) reported 20%. This difference may be due to our smaller sample size and the difference of Rogers (1998) population awaiting trial whereas the population for the current study have already been sentenced. Due to the current sample having less obvious secondary gain for feigning mental illness, it is not surprising that this rate was lower than what Rogers reported.
When comparing our total score results to Rogers et al (1992b) results from the original criterion group the results were somewhat different. The mean SIRS score from this study was slightly higher at 47.50 than the clinical and non-clinical means at 37.34 and 30.32 respectively. As well, the means from this study were lower than the malingering and simulating group means in Roger et al (1992b) study at 66.69 and 80.08 respectively. The differences in scores are somewhat accounted for by the fact that the individual feigning profiles are included in the means for the current study. Also, the fact that the participants are from a correctional population could be inflating the scores.

When examining the PAI and SIMS sensitivity and specificity compared to the SIRS identified feigners it appears that when the SIRS probable and definite scales are used the SIMS appears to have good sensitivity and is identifying the same individuals that the SIRS is. When examining the PAI scales and their effectiveness, the scales did not identify the same individuals the SIRS did utilizing both methods (full scale and probable and definite malingering scales). The NIM and RDF had no sensitivity and the MAL had low sensitivity indicating poor screening measures for feigning. Overall, the PAI scales appear better able to identify those who are not feigning than those who are.

**Correlations.** The first research question we examined in this study was whether participants’ PAI malingering scale scores (RDF, MAL, and NIM) were correlated to their total scores on the SIRS. Our results indicate mixed results. The SIRS total score correlated significantly with the PAI NIM scale, which would indicate that they are identifying similar malingering characteristics in individuals. This correlation falls in the moderate range, which was the same range that the significant correlation between the SIRS and MAL T score. However, the correlation between the SIRS Total Score and the
PAI RDF was not significant. These results are similar to those found by Boccaccini et al. (2006) in which the NIM was found to be the most effective screener for malingering. It appears that the first research question was confirmed by the findings for the NIM and MAL scores, however the RDF did not confirm the researchers original prediction.

The second research question examined in this study was whether participants’ SIMS scores correlated with their SIRS scores. The SIRS correlation with the SIMS was significant and also was considered to be a strong correlation at 0.71. These results indicate that the SIMS and SIRS are identifying similar feigning characteristics, which indicates that the two measures tend to covary with one another. The hypothesis that a correlation would exist between the SIMS and SIRS was confirmed by this data.

Another comparison was made between the SIMS and the PAI scales and the results were similar to those found in the correlations between the SIRS and PAI scales. The SIMS correlated significantly with the NIM and the MAL scales, resulting in large and small correlations respectively. The SIMS did not correlate significantly with the RDF scale. This would be expected due to the high correlation between the SIMS and SIRS. These current results would indicate that the RDF is not identifying as many characteristics of feigning as the other PAI scales, the SIMS, and SIRS.

ROC Analysis. A ROC analysis was conducted in order to understand the classification abilities of the different measures of feigning. First the SIMS had the highest AUC value and was significant at 0.844 indicating very good specificity and acceptable sensitivity. Thus this high AUC value might be inflated due to the high specificity. In essence, the SIMS is very good at identifying who is not feigning which is not ideal as a screening measure. The NIM had the second highest significant AUC value
at 0.79 compared to 0.69 and 0.69 for the MAL and RDF respectively. The MAL AUC value was found to be significant however the RDF score was not significant at a 0.05 level. These results appear to be similar to many past studies including Boccacini et al. (2006), which found an AUC value of 0.54 for the RDF. Kucharski et al (2006) found AUC values of 0.86 for the NIM, 0.67 for the MAL, and 0.55 for the RDF. Even though the current studies AUC value was higher at 0.69 it is still not reaching the AUC values of other malingering measures such as the SIMS. Kucharski et al. (2007) found an AUC value of 0.67 for the MAL, which was slightly lower than the AUC value found in the current study. Nevertheless, an AUC value at this level is more than likely acceptable for use as a feigning screening measure.

Overall, only the PAI NIM scale and SIMS reached higher AUC levels, which appear consistent with the correlation results, which showed that both of these measures were the most correlated to the SIRS. Thus far the NIM and SIMS both appear to be aligned with SIRS scores but the logistic regression results are better able to delineate how useful each of these scales are in identifying SIRS-identified feigners.

Forward Logistic Regression. The third question examined in this study was to examine which measure will classify fewer participants as feigning or exaggerating psychological symptoms compared to the other measures.

The examination of the NIM scale of the PAI through a logistic regression led to a classification accuracy rate of 88.5% and when the SIMS was added to the NIM, the classification rate went up to 89.6% but the sensitivity went down. Both the NIM alone and NIM with the SIMS were significant indicating that they were able to significantly differentiate between the feigning and non-feigning groups. However, this significance
needs to be interpreted with some caution. The SIMS is still not obtaining good sensitivity, which is what would be expected as a screening measure. Thus, in a correctional setting it would be appropriate to state that the SIMS needs to be investigated further to understand its ability to differentiate from individual who are and who are not feigning.

These classification rates are similar to those found by Morey (1991) who found a correct classification rate of 88.6% of individuals who were feigning a mental illness. The researchers also found a correct classification rate of 83% of individuals who were feigning PTSD but a poor specificity by misclassifying 65% of the individuals actually experiencing PTSD symptoms. The results from the current study indicate the NIM is serving as a good preliminary measure of feigning. These results are consistent with the ROC analysis and correlations. When comparing the current results with Calhoun et al (2000) it was found that the effect size was smaller. This might be due to the fact that the current studies sample size was smaller. Finally, Rogers et al (1998) results show a lower classification rate of 61.7% compared to the current study.

Finally when the MAL was entered first the model was not significant, however when the SIMS was added the model was significant. The rate of classification was 89.6%. The non-significance of the first step is telling because it appears to conflict with the other results. The MAL has shown in the correlations and AUC that it has good sensitivity, specificity, and correlation to the SIRS, however it appears that like many of the PAI scales, that they need to be used in conjunction with other measures in order to obtain the most validity.
Reverse Logistic Regression. When examining the results of the hierarchical logistic regression in reverse the SIMS overall model was significant indicating again that this measure is able to significantly differentiate between the feigning and non-feigning groups. The overall classification accuracy rate was 90.6%, which proved to be significantly higher than the PAI scales alone. It would be predicted from the past results that the NIM would decrease the overall rate of classification, which it did when it was added in the second step. Interestingly the RDF when added in the second step led to a continued significant model and no difference in the correct classification rate. This finding supports the results in the forward logistic regression that show that the RDF is a good measure of feigning even though it does not correlate well with the other measures of malingering. When the MAL was entered as step two it had similar results to the NIM, in which the model was significant but the overall classification ratio went down. When comparing the forward and backwards logistic regression the $\chi^2$ values increased more when the SIMS was added to the PAI scales rather than the opposite way. This finding shows that SIMS is a good measure for identifying individuals who are not feigning and has much better negative predictive power compared to the individual PAI scales. It appears that the prediction that the SIRS would classify fewer participants as feigning compared to the SIMS and PAI scales was true. The measures appear to have higher standards and classify a higher rate of participants than the SIRS.

Limitations

Before making final conclusions about this current study, the limitations of the sample and study must be discussed. The sample size for the current study was smaller than past studies and the inmates were able to self-select for participation. This could
have led to an over representation of individuals seeking out services or feigning. It also
could have led to an under representation of individuals seeking out services since they
were on intake status and were possibly not interested in obtaining services.

Thus the feigning scores might be lower than those found in a typical correctional
facility. The individuals utilized in this study were all recently imprisoned and were
currently on intake status, which could have led to a decrease in symptoms reporting.
Because these inmates were on intake status they might have less reason to malinger
because they had only recently entered the correctional facility and were only possibly
temporarily being housed before going to their permanent correctional facility. Because
of these factors this population might not be very representative of the general
correctional population that might be seeking out mental health treatment.

Another limitation of our study was the time difference between when the PAI
and the other measures of malingering were administered. The PAI was given to the
inmate during an initial intake interview and the administration of the other tests occurred
at a later date usually a few weeks later. This could lead to some discrepancies between
the PAI scale scores and the other measures of malingering. Another limitation was that
some of the PAI total scores were invalid which could lead to somewhat distorted MAL,
NIM, RDF scores. It is difficult to understand what effect the invalidity of the test has on
these scale scores. It was not known by the researchers how many or which profiles were
invalid on the PAI.

Finally, one important consideration in our study was the lack of motivation
individuals had to lie about their mental health symptoms in the scope of this study. The
participants were told that their answers were confidential and prison personnel were not
conducing the study. Thus, the participants’ responses could not lead to possible medication, better housing, or treatment time outside their cells which are all reason individuals might malingering in a correctional setting.

Future Directions for Research

This study focused on a population on intake status in the correctional system, it would be useful to conduct a study that sampled individuals as varying points in their incarceration. By capturing individuals at differing point in incarceration, it would allow researchers to better translate results to general correctional populations. An increase in sample size would also allow for better understanding of the SIMS effectiveness in a correctional setting.

Because the SIMS did appear to effectively identify feigning utilizing the SIRS as a gold standard, the next study should be created to include a group asked to feign. By creating an honest responding group and a feigning group from the beginning, the SIMS effectiveness can be further examined. In particular it would allow researchers to examine how effective the SIMS is at identifying those that are genuinely malingering and those who are asked to malinger. A true experimental design would allow the SIMS to also be examined with a larger more diverse population.

In future research it would be important to use random sampling if possible, and from a wider range of people, which would lead to a better representative sample. As well, it would be interesting to utilize participants from a long-term correctional facility as well as a minimum security releasing prison in order to examine differences in malingering scores based on facility.
Because the results were mixed concerning the PAI scale scores effectiveness in identifying individuals feigning, it would be beneficial to explore this topic more. A better understand might come through a larger, broader sample size that includes random sampling and comparing an honest and malingering group.

**Conclusion**

This study contributes to the research on feigning in a correctional setting, in particular effective screening measures for feigning. There are still only a handful of studies that have examined the SIMS’ effectiveness in a correctional setting to detect feigning. The findings in this current study did indicate that the SIMS effectively identified individuals who are not feigning and was somewhat effective in identifying individuals who were feigning. In particular, this study has shown that the SIMS appears to be a good screening measure for feigning in a correctional setting. Mixed but promising results were found for the PAI scales. Because the PAI research is mixed, our study was able to contribute to the research currently out there on feigning in a correctional setting and help better identify which subscales work best. The current study also showed several areas that still need to be investigated. These areas include examining the effect that release date and security level might have on symptoms. As well, it appears important to conduct a study with a control group that is asked to feign symptoms in order to investigate the effectives of the feigning measures. However further research needs to be conducted to understand the SIMS effectiveness in a broader correctional population.
References


Appendix A: Patient Consent Form
1. Introduction and Background Information

You are invited to be in a research study of inmates. You were invited to participate because you have recently completed the Personality Assessment Inventory as part of the Oregon Department of Corrections intake process. Please read this form carefully and ask any questions you may have before agreeing to be in this study.

This study is being done by Lea Laffoon, Dave Hill, and Michelle Guyton. The purpose of this study is to look at the experience of mental health symptoms in inmates.

2. Study Location and Dates

The study is expected to begin in May 2008, and to be completed by August 2009. The location of the study will be Coffee Creek Correctional Facility, Oregon Department of Corrections.

3. Procedures
If you agree to be in this study, we will ask you to take part in an interview with the researcher. This interview will take about 1.5 hours (90 minutes), in which we will ask you about your mental health symptoms. No further participation will be required after this interview.

4. Participants and Exclusion

Only participants who meet the following conditions will be included in the study: persons 18 years or older, can speak and understand English, have high enough reading ability to complete the Personality Assessment Inventory, and are stable enough to complete a 90-minute long interview. Participants who do not meet the above items will be excluded from the study.

5. Risks and Benefits

There are risks to participating in this research. Possible risks include confidentiality not being maintained and becoming upset or uncomfortable. However, all steps will be taken to maintain confidentiality, including assigning random ID’s for your test materials.

There are no benefits to taking part in this study.

6. Alternatives Advantageous to Participants

Not applicable.

7. Participant Payment

You will not receive payment or compensation for your participation.

8. Promise of Privacy

The records of this study will be kept private. Researchers will protect confidentiality by giving all participants a random ID number and removing all identifying information from the data. The data will be stored on locked thumbdrives in locked drawers and all data will be analyzed at Pacific University. No data will be saved onto any computers; all information will remain solely on the thumbdrives. This consent form will be kept separately from any data we collect. If the results of this study are to be presented or published, we will not include any information that will make it possible to identify you as an individual. Finally, none of your data we collect will be shared with the Oregon Department of Corrections. We may share the overall results of the study, but no single inmate’s results will be shared. Sharing these results may help DOC provide better mental health services to inmates.

9. Voluntary Nature of the Study
Your decision whether or not to participate will not affect your current or future relations with Pacific University nor the Oregon Department of Corrections. If you decide to participate, you are free to not answer any question or withdraw at any time without negative consequences.

10. Compensation and Medical Care

During your participation in this project you are not a Pacific University clinic patient or client, nor will you be receiving complete mental health care as a result of taking part in this study. If you become upset during your participation in this study and it is not the fault of Pacific University, the researchers, or any organization associated with the study, you should not expect to receive care from Pacific University, the researchers, or any organization associated with the study. Participants may contact Counseling and Treatment Services at the Oregon Department of Corrections if they become upset or uncomfortable after participating in this study.

11. Contacts and Questions

The researcher(s) will be happy to answer any questions you may have at any time during the course of the study. The researcher(s) can be reached at Pacific University, 222 SE 8th Ave, Suite 563, Hillsboro, OR, 97123. If you have more questions or concerns about this study, please contact Dr. Michelle Guyton by mail at the address on the front page to discuss your questions or concerns further. All concerns and questions will be kept in confidence.

12. Statement of Consent

I have read and understand the above. All my questions have been answered. I am 18 years of age or over and agree to participate in the study. I have been given a copy of this form to keep for my records.

Participant's Signature
Date

Participant contact information:
Name: ______________________
SID: ______________________
This contact information is required in case any issues arise with the study and participants need to be notified and/or to provide participants with the results of the study if they wish.

Would you like to have a summary of the results after the study is completed?  
___Yes _____No

________________________________________________________________________

Investigator's Signature
Date
Appendix B: Personal Data Form
Demographic Questionnaire

Participant number: ________________________
Date: ________________________
Age: ________________________
Gender: ________________________

Ethnicity (circle one):
African American  Asian  American Indian/Alaska Native  Hispanic
White/Caucasian  Biracial/Multiracial
Other:_____________________

Marital Status (circle one):
Single  Married  Separated  Divorced  Widowed
Number of Children: ________________________

Education Level (number of years): ________________________

Previous mental health treatment (circle one):

Yes  No
Appendix C: Participant Debriefing Form
Debriefing Form

I have received debriefing after taking part in the study and I:

Please mark an X next to the statement you agree with:

I agree to have my test data used in this study: ______

I do not agree to have my test data used in this study: _______________________

Inmates initials:

__________________________________________________________