MIRANDA COMPREHENSION AND REASONING: AN INVESTIGATION OF
MIRANDA ABILITIES IN ADULT INPATIENTS

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Nearly 700,000 suspects with mental disorders are arrested and Mirandized each year. The current study systematically examined the effects of cognitive deficits and psychological symptoms on both Miranda comprehension and reasoning. The current sample was comprised of 85 adult psychiatric inpatients recruited from University Behavioral Health (UBH), a private psychiatric hospital in North Texas. Unexpectedly, most inpatients demonstrated pervasive deficits in their immediate recall of a representative Miranda warning, omitting approximately four-fifths of its content. In addition, the majority of inpatients evidenced damaging errors in their reasoning about waiver decisions. As a result, 64.7% waived and subsequently confessed after only a 3-5 minute interrogation. Interestingly, impaired verbal ability but not the severity of their symptoms predicted greater deficits in Miranda comprehension.
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CHAPTER 1
INTRODUCTION

The United States Supreme Court in the landmark case *Miranda v. Arizona* (1966) provided far-reaching decisions protecting the constitutional rights of suspects against self-incrimination. Interestingly, the Miranda case was one of four similar cases (*California v. Stewart; Vignera v. New York; Westover v. United States*) granted certiorari by the Supreme Court at that time. All four cases shared many similarities: the suspects were in police custody, held incommunicado, interrogated in a police-dominated atmosphere, and eventually confessed to their alleged crimes after a number of hours (Goldstein & Goldstein, 2010). The Miranda ruling, based in the 5th Amendment protection against self-incrimination, established what we know today as “Miranda warnings.” This ruling required police officers to convey Miranda rights to all detained suspects before any of their statements could be used as evidence in court. It was the Court’s intent that if suspects choose to relinquish their rights, they should have a full understanding of those rights and the consequences of waiving them. Unfortunately, most suspects waive their rights with very little knowledge about those rights and the ramifications of surrendering them (Rogers, Shuman, & Drogin, 2008).

Past research on Miranda indicates that these warnings are not particularly effective in communicating to custodial suspects their Constitutional rights. The current study focuses on examining how well persons with dual diagnosis (i.e., serious mental disorders plus substance abuse) understand and appreciate their Miranda rights. As the first of five sections, this chapter begins with an overview of the legal landscape prior to the Miranda ruling. Next, the second section presents a detailed discussion of the case law leading up to the Miranda decision. The third and fourth sections provide reviews of the empirical literature on Miranda comprehension
and reasoning, respectively. They lead into the fifth and final section that outlines the primary objectives of the current study.

Interrogation Practices Prior to Miranda

As a backdrop to Miranda, scandalous reports of police abuse emerged during the 1960’s and revealed instance of severe police misconduct towards custodial suspects (Wrightsman & Pitman, 2010). American perceptions and attitudes towards harsh, long-standing interrogation methods changed in light of these reports. Prior to this shift, a heavy emphasis was placed on controlling crime and protecting the public from criminal acts. Gradually, the justice system began to place a greater emphasis on due process and suspects’ rights. According to Sung (2006), the criminal justice system sought to balance the need to protect society at large with the need to preserve justice at the individual level. Evidence of this fundamental shift was apparent as the United States Supreme Court placed a greater emphasis in the Constitutional protection of suspects’ rights.

Prior to Miranda, publications recommended new interrogation techniques, such as “truth serums,” hypnotic interrogation, and polygraphs (Field & Dworkin, 1967; Inbau & Reid, 1966; Kubis, 1957). Hinkle (1961) emphasized the concerning negative physical effects of interrogation, such as sleep deprivation and concomitant fatigue. According to Hinkle, the first cognitive capacity to decline was the ability to “cope with complex and changing situations without making mistakes” (Hinkle, 1961, p. 30). Surely, cognitive impairment resulting from sleep deprivation would heavily influence suspects’ willingness to cooperate during interrogation.
As an important advance, Inbau and Reid’s (1962) interrogation techniques, later known as the “Reid technique,” became one of the most widely used methods of eliciting confessions via interrogations (Wrightsman & Pitman, 2010, p. 140). The technique is designed to disadvantage the suspect in order to elicit an outright confession by the following methods: (a) isolating the suspect in a cramped, often windowless room, (b) presenting evidence (real or fictitious), and (c) interrupting any denials from the suspect. Because of its adversarial methods, the Reid technique may put a suspect’s due process rights at risk.

The steady proliferation of information on questionable police practices during interrogation made it clear that legal reforms were needed. The U.S. Supreme Court made decisions that helped bring about these much-needed reforms to rebalance the relationship between crime control and protecting individual rights (Colorado v. Spring, 1987; Miranda v. Arizona, 1966). The changes required by the Court were not intended to keep officers from performing their duties, though, many officers feared this would be the result of the Miranda ruling.

Early Cases on Coerced Confessions

Case law served as one of the earliest sources for ensuring better due-process protections for suspects (Rogers & Shuman, 2005). This section provides a brief overview of case law that laid the foundation for the Miranda decision. These early cases (e.g., Bram v. United States, 1897; Brown v. Mississippi, 1936; Spano v. New York, 1959) required explicit guidelines for police procedures during custodial interrogation. Although individual cases had their own circumscribed influence on police procedures, the cumulative effect of these decisions brought about the major shift in police practices toward greater protections for custodial suspects.
Over a century ago, the U.S. Supreme Court ruled to restrict the admissibility of confessions, if they were made under severe physical threat or coercion (Bram v. United States, 1897). However, the ruling did little to define what specifically constitutes such threats or coercions, which would render a confession inadmissible. Even after the Bram ruling, officers would sometimes physically threaten and intimidate suspects into confessing. Later, with the case of Brown v. Mississippi (1936), the United States Supreme Court explicitly prohibited coerced confessions obtained through the use of police physical violence. Its decision was based upon the 5th Amendment’s due process protection against self-incrimination (Wrightsman & Pitman, 2010).

Before the Miranda decision, the Court already broadened the construct of coercion to include psychological forms of intimidation. Two court cases (Leyra v. Denno, 1954; Spano v. New York, 1959) identified police tactics involving emotional and psychological manipulation as unacceptable means to obtaining confessions. In Spano v. New York (1959), for example, the court overturned the suspect’s confession after being subjected to unrelenting questioning lasting throughout the night and ignoring the suspect’s request for legal counsel. Based on the 6th Amendment right to access legal counsel, the Court determined that suspects exposed to strong psychological coercion by law enforcement are not able to provide a free and voluntary confession. Such decisions led to the next section which addresses case law developments on the right to legal counsel, just prior to the Miranda decision.

The Miranda Decision

The U.S. Supreme Court recognized that the 6th Amendment right to counsel would be a hollow promise to defendants without the financial means to retain their own counsel. To ensure
this safeguard for indigent defendants, the Court mandated access to counsel in all federal cases
(*Johnson v. Zerbst*, 1938). However, more than two decades ensued before the right to counsel
was expanded to all state felony cases (*Gideon v. Wainright*, 1963).

The U.S. Supreme Court advanced the 6th Amendment protections for detained suspects
in *Escobedo v. Illinois* (1965). Its decision required that all custodial suspects must be informed
of their right to legal counsel before any statements could be used as incriminating evidence.
Danny Escobedo, the defendant in this case, had been taken into police custody on suspicion of
murdering his brother-in-law. While in custody, the officers denied Escobedo’s repeated requests
for a lawyer, and according to the U.S. Supreme Court, Escobedo was compelled to incriminate
himself. He appealed his case on the basis of being denied his 6th Amendment right to counsel.
The narrow 5-4 decision Court decision established that suspects must be provided their right to
counsel before any statements can be admitted into evidence. However, this decision did not
address the method by which these Constitutional protections must be communicated to suspects.
The Miranda decision would later remove some of the ambiguity left from the Escobedo case by
enumerating the safeguards that must be given to custodial suspects prior to police questioning.

In *Miranda v. Arizona* (1966), the U.S. Supreme Court addressed one of two unresolved
issues. This decision clarified the first question: “What rights should be communicated to
suspects be provided prior to interrogation?” Regarding the second unresolved issue, however,
the Miranda decision did not specify the means of communicating these protections to detained
suspects. The issues facing the Court will become more evident by more closely examining the
details of the Miranda case.

As a brief background for the Miranda case, a young woman by the name of Lois Ann
Jameson was kidnapped and driven to a desert area. There, she was raped and then returned to
the neighborhood from which she had been abducted (Stuart, 2008). Having a partial plate and
general description of the car, police focused on their lead suspect: Ernesto Arturo Miranda.
Days later, he was observed to be apparently following her. The police subsequently
apprehended him and brought him to the station for questioning. Miranda, a young Hispanic
American, went cooperatively to the police station but denied any knowledge or involvement in
the crime. The lead detective on the case, Officer Carroll Cooley, questioned Miranda in a small,
12-foot interrogation room “with pale green walls and fluorescent tubes set into acoustic tile
overhead” (Stuart, 2008 p. 6), which was appropriately named the “sweat room.”

Although providing an accurate description several days earlier, the victim could not
positively identify Miranda from the police lineup. Despite the unsuccessful lineup, police
falsely informed Miranda he had been correctly identified and indicated they had all the evidence
they needed. Soon after that, Miranda provided police with a one-page written confession. At his
trial, he was convicted and sentenced twenty and thirty years, to be served concurrently, for the
kidnapping and rape charges (Wice, 1996).

Miranda appealed his conviction based on the fact he had not been informed of his 6th
Amendment right to counsel, with his lawyer stating that one cannot “unwittingly waive [his
right to a lawyer]” (Stuart 2008, p. 46). Although Miranda’s appeal was grounded in the 6th
Amendment right to counsel, the Court’s decision in *Miranda* was predicated under the broad
umbrella of the 5th Amendment right to protection against self-incrimination (*Miranda v.
Arizona*, 1966). In the close 5-4 ruling, the U.S. Supreme Court was strongly divided by values
of crime control versus justice for individual rights (Wrightsman & Pitman, 2010). Favoring the
latter, the majority opinion acknowledged the “inherently compelling pressures” in custodial
interrogation, which works to “undermine the individual’s will to resist” making incriminating statements against himself (*Miranda*, 1966, p. 384).

The Court required five essential components to Miranda advisements: the right to remain silent, the perils of waiving that right, the right to legal counsel, the right to have legal counsel appointed to those without financial means, and the option of invoking these rights at any time throughout the police proceedings (*Miranda*, 1966, p. 479). A central issue of the *Miranda* decision was ensuring those elements are included when suspects are provided their rights prior to interrogation. The Court intentionally offered flexibility in how the information could be conveyed noting that the Constitution “does not require any specific code of procedures for protecting the privilege against self-incrimination during custodial interrogation” (*Miranda*, 1966, p. 490). The Court presented the necessary components of an advisement, subsequently known as “Miranda warnings.” Different wordings of the warning were acceptable. As later emphasized in *California v. Prysock* (1981, p. 359), “no talismanic incantation was required to satisfy its strictures.”

For the Miranda warnings, the first two components address the right to remain silent and the perils of relinquishing this right (Rogers, 2008). In other words, a suspect does not have to talk to officers or answer any questions. However, warnings vary in the level of interpretation provided. Combining two national survey studies (Hazelwood, Sewell, Harrison, & Sewell, 2008; Rogers, Harrison, Hazelwood, & Sewell, 2007), less than 7% of the warnings specifically clarified that the right to silence meant they did not have to talk or make any statements. In contrast, nearly all of the warnings (99.2%) included the legal context (e.g., in a court of law) in which the evidence would be used.
The third component of the Miranda warnings informs suspects regarding the right to legal counsel. Interestingly, it does not include a parallel statement cautioning suspects about the perils of waiving this right (Rogers, 2008). Just over half of the warnings (i.e., 51.7%) across two national surveys (Rogers et al., 2007; Rogers et al., 2008) explain the lawyer’s role passively as “being present” but mentions nothing about their active legal role in “consulting with” or “advising” the suspect. Under half of the warnings only specify that a suspect can have a lawyer during the interrogation. This unduly narrow specification could lead suspects to mistakenly believe they are not able to consult with their lawyer prior to questioning.

The fourth component ensures that all indigent suspects have access to legal representation. In doing so, the Court recognized all defendants, no matter their financial status, should have access to legal counsel (*Miranda v. Arizona*, 1966). Rogers and his colleagues (2008) found warnings mentioned access to legal services, but only 38.1% stated clearly that these services were free without any cost to the suspect. Without the fourth component, the Miranda decision would have been an empty promise to indigent defendants (Rogers, 2011).

The fifth and final component informs suspects of their continuing Constitutional rights throughout the police proceedings (Rogers et al., 2007). Even if suspects begin talking to police, they can choose to stop talking and request a lawyer. All previous statements could be used against them in court, however, the police would have to stop questioning immediately because any further statements to police would be inadmissible. Most warnings (> 80%) include the fifth component of continuing legal rights (Rogers et al., 2008), although the remainder leaves out this potentially critical component. In most cases, where the confession is obtained almost immediately, this omission would not affect the outcome. However, in cases where a confession
is delayed, absence of this information could potentially mislead suspects wanting to invoke their Miranda rights (Rogers & Drogin, 2014).

**Controversy Regarding the Miranda Decision**

Supporters of Miranda viewed the decision as a major step towards more safeguards for protecting suspects’ due process rights (Wrightsman & Pitman, 2010). Conversely, others (e.g., Grano, 1993) saw Miranda as an unconstitutional effort to hinder the criminal justice system’s ultimate objective of finding the truth. To those in the latter group, Miranda was a potential hindrance to police investigations, making it easier for criminals to escape conviction. They feared that obtaining confessions would prove more difficult, resulting in decreased conviction rates and pushing justice to the wayside (Cassell, 1996).

Just two years after the Miranda decision, opposition arose from the U.S. Congress through the enactment of the Omnibus Crime Control and Safe Streets Act of 1968. This law included a section, which essentially reversed and invalidated the Miranda decision in federal cases. The Omnibus Act merely required the suspect’s statement to be “voluntary.” The constitutionality of this law was brought into question in the landmark case of *Dickerson v. U.S* (2000). In this case, the suspect attempted to have his confession suppressed because he had not received his Miranda rights prior to questioning. The prosecution rebutted with 18 USC Section 3501 of the Omnibus Act saying his confession was made voluntarily, and thus, was admissible in court.

The *Dickerson* case (2000) raised the key issue whether the administration of the Miranda warning was constitutionally required. If warnings were *not* constitutionally required, then Congress’s Omnibus Act was legal. In *Dickerson*, the U.S. Supreme Court upheld the
Miranda warnings as a requirement to allow any statement or confession into evidence. As written by Chief Justice Rehnquist, “principles of stare decisis weigh heavily against overruling it now” (Dickerson, 2000, p. 433). His opinion concluded that “Miranda announced a constitutional rule that Congress may not supersede legislatively,” (Dickerson, 2000, p. 434).

The Heterogeneity of Miranda Warnings

Initial Miranda research missed many important differences among the various warning versions. Three decades ago, it was generally assumed that the Miranda warnings were nearly identical with only slight variations (Grisso, 1981). More recently, systematic research on Miranda has demonstrated that the warnings actually vary remarkably across jurisdictions (Rogers & Drogin, 2014).

Two initial studies on Miranda warnings contradicted that conventional wisdom that Miranda warnings do not vary within or across states. Looking within the state of New Jersey, Greenfield, Dougherty, Jackson, Podboy, and Zimmermann (2001) found that over two dozen warnings differed greatly in reading level, from fourth grade to post-college. Across the United States, Helms (2003) collected and analyzed the reading levels of nearly sixty state and federal Miranda warnings. Compared to Greenfield et al. (2001), he found a less variable range in reading grade levels (Grade 4 to Grade 9.9); however, most warnings continued to differ in content. Importantly, Helms observed the disparities between general (i.e., all ages) and juvenile (i.e., youth only) Miranda warnings. Generally, the higher reading grade levels noted for the juvenile warnings, ironically stemming from the well-intended attempts to include additional information.
Rogers and his colleagues (2007, 2008) examined the reading grade levels for the Miranda warnings at the component level. Comparisons across the two surveys revealed large but comparable range in reading grade levels from a Flesch-Kincaid score of 3.15 to 10.22. Importantly, the second survey provided a detailed analysis on the vocabulary and legalistic terms often used in Miranda warnings. This survey (Rogers et al., 2008) found that at least six of the words from Miranda warnings required at least a college education: appointed, coercion, indigent, waive and waiver.

Since over two-thirds of criminal defendants have only a sixth-grade reading level (Haigler et al., 1994), the inclusion of challenging vocabulary words greatly diminished many suspects’ Miranda comprehension. The lack of comprehension can be highly consequential given the fact that the defendant’s confession is the “single most influential factor” in verdict of guilt (Oberlander, Goldstein, & Goldstein, 2003, p. 355). Before examining the empirical evidence on Miranda comprehension and reasoning, the following section will address the legal and mental health constructs underlying the measurement of Miranda abilities.

Legal and Forensic Mental Health Constructs

Totality of the Circumstances

The totality of circumstances approach, the de facto option for most criminal issues, is applied to Miranda cases in an effort to be comprehensive. This approach allows all factors of each particular case to be taken into consideration in determining the validity of waivers. No single factor can be categorically used to validate or invalidate a waiver (Frumkin, 2000; Goldstein & Goldstein, 2010). As intended, the totality of circumstances provides trial courts much discretion when evaluating each case. In the case of *Coyote v. United States* (1967), the
U.S. Supreme Court required that Miranda waiver decisions consider the “totality of the circumstances.” This ruling was later extended to juveniles in *Fare v. Michael* (1979). Factors to be considered can include suspects’ education level, IQ, literacy and language abilities, and mental health status (Goldstein & Goldstein, 2010). Also, legal considerations, such as prior experience with police and the justice system, can be included in this determination.

Based on the Miranda decision, suspects may legitimately choose to waive their rights as long as “the waiver is made voluntarily, knowingly, and intelligently” (*Miranda*, 1966, p. 445). Like most U.S. Supreme Court decisions, the specification of these prongs was left to lower appellate decisions for interpretation. Although the knowing and intelligent prongs are occasionally treated as a single prong in court case rulings, they are examined separately. This organization is consistent with many appellate decisions and the majority of scholarly opinions that delineate the two as separate, yet related constructs (Rogers & Shuman, 2005).

**Knowing Prong**

The knowing prong means that suspects must have concrete, factual understanding of the warnings given to them at the time of the questioning. This prong involves suspects’ “memory and working knowledge” (Rogers & Drogin, 2014, p. 87). Some court cases have required only a minimal standard for the validity of a Miranda waiver. For example, *Edwards v. Arizona* (1981) only required suspects to have a basic understanding of their legal rights. In a legal context, the knowing and intelligent prongs often overlap to varying degrees; but from a scholarly perspective, the knowing prong is concerned with the general comprehension of the warning material (Rogers & Shuman, 2005). The legal term “knowing” could be considered practically interchangeable with the term “comprehension” commonly used as a psychological construct.
Intelligent Prong

The intelligent prong involves rational decision-making and the ability to reason about one’s own circumstances. Whereas the knowing prong implies fact-driven, basic understanding, the intelligent prong involves the rational ability to apply this knowledge. As emphasized by Rogers and Drogin (2014), the knowing and intelligent prongs are hierarchical. An intelligent waiver cannot be made without first having a basic understanding of what the warning means (i.e., knowing prong). A suspect may understand the Miranda components, but they may not be able to apply that knowledge to make an adequately intelligent decision when waiving their rights (i.e., intelligent prong). The U.S. Supreme Court decision in Moran v. Burbine (1986) represents the more complex requirement the intelligent prong. The Court described a valid waiver (p. 475) as one made with the “full awareness of both the nature of the right being abandoned and the consequences of the decision to abandon it.”

The intelligent prong can be distinguished from the knowing prong by following the example suspects may understand their right to speak with an attorney, while not grasping its personal import, specifically how consulting with counsel could help in their own case (Grisso, 2003). In bridging law and psychology, the term “reasoning” in the psychological literature is often closely associated with the intelligent prong used in legal contexts. Some scholars have described the intelligent prong to be equivalent to the “appreciation” of one’s rights (Goldstein & Goldstein, 2010), which requires suspects to be able to apply that knowledge to their own situation. However, Blackwood (2014) characterized the intelligent prong to include both appreciation and reasoning. Reasoning goes one step further in applying that knowledge to reach a reasoned decision about the Miranda waiver.
Voluntary Prong

The U.S. Supreme Court underscored the “compelling atmosphere inherent in the process of in-custody interrogation” (Miranda, 1966, p. 478) stressing the importance of the voluntariness of a waiver. This point was reemphasized in Burbine (1986, p. 475) that a waiver decision must be “free and deliberate choice” without the influence of “intimidation, coercion, or deception.” In the same year, however, the definition of voluntariness was markedly restricted in Colorado v. Connelly (1986). After the defendant’s confession was deemed inadmissible based on his severe mental disorder, the U.S. Supreme Court reversed the ruling because the coercion did not stem from external sources (Rogers & Shuman, 2005). The voluntary prong was narrowed by deeming confessions inadmissible based only on external police coercion and not on internal sources of coercion, such as delusions. The voluntariness determination is typically left to the trial judge, who makes the final decision if the waiver was valid (Goldstein & Goldstein, 2010).

Miranda Comprehension: Empirical Evidence

Custodial suspects’ comprehension of the Miranda rights is critical for ensuring the effectiveness of these warnings. Some of the earliest research on Miranda rights (Grisso, 1978) investigating Miranda comprehension was conducted with adult and juvenile offenders. The majority of Miranda research focuses on Miranda comprehension as opposed to reasoning. The empirical evidence on Miranda comprehension will be explored in depth after an explanation on the methods available for measuring Miranda abilities.

Forensic assessment instruments are used to measure the two psycho-legal constructs of Miranda comprehension and reasoning. In 1998, Grisso’s Miranda Instruments (GMI; Grisso,
1998) were published. Subsequently, modifications were made to the GMI resulting in the Miranda Rights Comprehension Instruments (MRCI, Goldstein, Zelle, & Grisso, 2012), which are commonly used in juvenile evaluations. Later, additional validation of the MRCI provided adult norms for this instrument making it available for use with adults as well (Goldstein, Zelle, & Grisso, 2014). As an entirely separate measure, the Standardized Assessment of Miranda Abilities (SAMA; Rogers, Sewell, Drogin, & Fiduccia, 2012), provides a more in-depth assessment of Miranda abilities. The SAMA achieves this by measuring different aspects of Miranda abilities such as comprehension, reasoning, misconceptions about Miranda, and Miranda-related vocabulary abilities.

Upper-Bound Studies

Miranda comprehension has been investigated in a number of research studies utilizing upper-bound samples of undergraduate college students. They are characterized as “upper-bound” because the participants in these studies demonstrate the best-case scenario for Miranda abilities given their involvement in higher education and being tested in a minimally stressful environment. Past research has found factors, such as situational stress (Kassin & Norwick, 2004) and the warning modality (e.g., oral, written, or combined modality; Rogers, 2008), played a significant role in undergraduates’ Miranda abilities.

Upper-bound studies are frequently investigated using a mock-crime paradigm, which enable researchers to produce a mild form of the situational stress via a simulated offense without crossing any ethical boundaries (Rogers, Gillard, Wooley, & Fiduccia, 2010). Interestingly, even mild situational stressors produced decrements in Miranda abilities. Based on the decision in *Berghuis v. Tompkins* (2010), Gillard, Rogers, Kelsey, and Robinson (2014)
studied implicit or explicit waivers. Regardless of the type of waiver, situational stress significantly impeded Miranda comprehension in this upper-bound sample. Using a research design based on the decision in *Berghuis v. Tompkins* (2010), Gillard, Rogers, Kelsey, and Robinson (2014) provided further evidence for decrements in Miranda abilities as a result of situational stress. Regardless of whether the waiver was implicit or explicit, situational stress significantly impeded Miranda comprehension in this upper-bound study.

The method of communication (i.e., modality) of the Miranda warnings clearly plays a role in Miranda comprehension for upper-bound samples. Rogers and his colleagues (2010) found that students comprehend significantly more of the warning material when given a written warning ($d = 0.50$). Of great concern, however, students’ average Miranda comprehension did not exceed 50% regardless of the warning modality. The written advantage in upper-bound studies was further demonstrated with Canadian cautions that parallel *Miranda* (Eastwood & Snook, 2010). When receiving a written warning, over one-third of Canadian undergraduates understood the right to silence and right to counsel, whereas only 7% understood both components when receiving an oral warning.

Contrary to these findings, Winningham, Rogers, Fiduccia, and Gillard (2013) found no written advantages, and results indicated very similar comprehension percentages across modalities. Although non-significant, oral administration evidenced an edge over written warnings ($d = -0.72$). Consistent with previous findings, undergraduates’ Miranda comprehension did not surpass 50%.

Using a different paradigm, Sherr and Madon (2012) utilized a simulated cheating scenario to examine the relationship between situational stress and Miranda abilities. This paradigm differs from the mock-crime paradigm by using direct confrontation of participants for
their wrong-doing. Students falsely accused of cheating demonstrated far worse \( (d = 1.14) \) comprehension on the MRCI (Goldstein et al., 2012) than the control group. Results indicate that directly challenging misconduct creates higher levels of self-reported stress when compared to a mock-crime scenario.

Miranda Comprehension with Detainees

Rogers, Steadham, and Drogin (2011) produced the same written advantage with pre-trial defendants as seen in undergraduates. The advisements were given one component at a time, and detainees who received oral advisements evidenced much higher rates of failed Miranda comprehension. In addition to warning modality, Rogers and his colleagues (2011) have shown that abstruse words and legalese may compound the problem of Miranda warning comprehensibility. In particular, problematic words and phrases were identified that hindered defendants’ Miranda comprehension. Additionally, the terms “coercion” and “coerced” were incomprehensible words to most defendants, regardless of their abilities.

In addition to external factors, a multi-site study (Rogers, Harrison, Rogstad, LaFortune, & Hazelwood, 2010) investigated the effects of internal factors- such as suggestibility and compliance- on Miranda comprehension. To make the distinction, suggestibility is the tendency to unintentionally alter one’s responses based on leading questions. On the other hand, compliance is a conscious decision to obey authority figures without actually internally accepting what is being said (Gudjonsson, 1997). However, suggestibility was not found to play a significant role, although it was originally thought to be disadvantageous in terms of Miranda abilities (Grisso, 1986). Moreover, Rogers and his colleagues found that the role of compliance
is related to further decreases in pre-trial defendants’ Miranda comprehension demonstrating the need to consider many factors that may be influencing Miranda abilities.

Miranda Comprehension with Special Populations

The following subsections focus on Miranda comprehension within special populations. According to Oberlander, Goldstein, and Goldstein (2003), special populations include juveniles, arrestees with mental disorders, and those with cognitive or organic impairment. These populations are inherently at a greater disadvantage when knowing and applying their due-process rights, as compared to the population at large. Accordingly, the vulnerabilities of special populations should be seriously considered in forensic evaluations for legally-involved individuals.

**Juveniles’ Miranda Comprehension**

The existence of juvenile (i.e., youth-specific) Miranda warnings warrants special attention when considering juveniles’ Miranda comprehension. From a developmental standpoint, juveniles are at a much greater disadvantage than their adult counterparts due to factors such as cognitive abilities and maturity level. Ironically, juvenile Miranda warnings tend to be much lengthier (> 175 words for the average advisement) than general warnings with a majority requiring at least a 6th grade reading level. To further complicate the matter, juvenile offenders tend to read several years below their actual grade level in school (Rogers et. al., 2014). It is especially troubling that some juvenile warnings even require at least a post-high school reading level (Rogers, Blackwood, Fiduccia, Steadham, Drogin, & Rogstad, 2012). As a further complication, the language in most juvenile Miranda warnings tend to put positive
connotations on waivers and leave out the disadvantages. For example, giving up the right to silence may be described as “an opportunity or privilege” to talk (Rogers, et al, 2012).

Both the MRCI (Goldstein, Zelle, & Grisso, 2012) and the SAMA (Rogers et al., 2012) measure juveniles’ Miranda comprehension through different approaches. The MRCI, uses the Comprehension of Rights (CMR-II), which asks examinees to paraphrase the Miranda content one sentence at a time in their own words and does not ask examinees to engage in any free recall. In contrast, the SAMA uses the Miranda Comprehension Template (MCT) to measure comprehension via free recall of the warning material.

Using the MRCI paraphrasing and the SAMA free recall, researchers have identified individual and contextual factors related to juveniles’ Miranda comprehension. With the MRCI, Viljoen and Roesch (2005) found that individual factors such as juveniles’ low General Intellectual Ability (GAI) scores and the presence of hyperactivity or attention deficits can lead to decrements in Miranda comprehension. Recent findings (Rogers, Sharf, Carter, Henry, Williams & Robinson, 2015) have highlighted some important differences in measurement of Miranda comprehension between the MCT and the CMR-II. Rogers and his colleagues found much higher comprehension levels when using the CMR-II (> 80% correctly paraphrased) as compared to the MCT (< 30% free recall). This discrepancy is a direct result from the method used to measure comprehension. The CMR-II, just by its design, will yield higher rates of correct paraphrasing of each sentence separately when compared to the MCT which measures free recall of the warning.

Age plays a significant role in Miranda abilities (Viljoen, Zapf, & Roesch, 2007), and more specifically, younger juveniles (i.e., ages 15 and younger) demonstrate greater impairments in comprehension than older juveniles. Results indicated that intelligence partially mediates the
relationship between age and legal abilities. More generally, juveniles tend to have a basic understanding of their rights but often struggle with the appreciation of the importance of those rights (Viljoen, Zapf, & Roesch, 2007; Zelle, Romaine, & Goldstein, 2014). When compared to their adult counterparts, juveniles demonstrate poorer Miranda reasoning. Notably, Zelle and her colleagues (2014) emphasized that age should not be examined in isolation and should be considered in combination with other factors.

Both individual and contextual factors influence juveniles’ Miranda comprehension. In addition to juvenile’s age, their level of psychosocial maturity is highly related to Miranda comprehension (Rogers, Steadham, Fiduccia, Drogin, & Robinson, 2014). For instance, juveniles in the low and middle maturity groups recalled, on average, less than a third of the warning content. Additionally, contextual factors such as limited time spent with a lawyer and growing up in a lower socio-economic status was also found to be detrimental for Miranda comprehension (Viljoen & Roesch 2005). These various sources for decrements in juveniles’ Miranda comprehension demonstrates the complex nature of understanding the Miranda rights, which is further complicated by juvenile-specific factors.

**Comprehension in Samples with Intellectual and Physical Impairment**

Special populations including suspects with intellectual disabilities have demonstrated diminished legal capacities. For example, adults with mild intellectual disabilities (IQs ranging from 50-70) have extreme difficulty with Miranda comprehension (O’Connell, Garmoe, & Goldstein, 2005). Alarmingly, half completely failed (e.g., scored a zero) on all five Miranda components on the CMR-II when asked to paraphrase the warning. Using the Comprehension of
Rights-Recognition-II (CMR-R-II), which uses a multiple-choice format, only 2% of participants scored better than chance on simple recognition of the Miranda warning.

Defendants with language or hearing impairments experience marked disadvantages due to communication deficits, even though they are “offered” the same protections as any other suspects. Individuals with specific language impairment (SLI; Rost & McGregor, 2012) have diminished capacity to express and understand spoken and written language. In particular, suspects with SLI often have great difficulty with understanding Miranda vocabulary (e.g., $\eta^2_p = .36$) and being able to apply those rights to their own legal situation ($\eta^2_p = .19$). Importantly, Seaborn, Andrews, and Martin (2010) found that individuals with hearing impairment and limited reading abilities (i.e., < 8th grade level) experienced substantial difficulty in comprehending Miranda, even though it was given in both English and American Sign Language. Only half of the participants with a 6th to 8th grade reading level recalled over 50% of the warning when retelling the warning using sign language.

**Comprehension in Samples with Psychological Impairment**

The presence of mental disorders is a critical factor when considering Miranda comprehension, given that nearly 700,000 offenders with mental disorders are detained each year in the United States (Rogers, Harrison, Hazelwood, & Sewell, 2007). Mixed research findings demonstrate the complex relationship of severe psychotic and manic symptoms on Miranda comprehension. To illustrate, Rogers et al. (2007) did not find an effect of psychotic or manic symptoms on Miranda comprehension. Overall level of impairment (i.e., Global Assessment Scale scores, Spitzer & Endicott, 1978) did significantly affect Miranda comprehension when comparing the lowest and highest quartiles of comprehension. In contrast, Cooper and Zapf
(2008) found that psychiatric symptoms, including psychoticism, were negatively correlated with Miranda comprehension \((r = 0.30)\), even after cognitive abilities were accounted for. Inpatients’ average Miranda comprehension was more akin to the level seen in the juvenile validation sample rather than the adult validation sample (Grisso, 1998) on the Comprehension of Miranda Rights (CMR) subscale.

Conclusions from several research studies (Cooper & Zapf, 2008; Rogers et al., 2007) indicate that mentally disordered defendants have substantial difficulties in comprehending their Miranda rights. Even when receiving the Miranda warnings component-by-component, only one tenth of defendants had a good Miranda comprehension (i.e., >70% of warning) of their rights (Rogers et al, 2007). Defendants with good comprehension demonstrated a seventh-grade reading level or higher for general reading and listening comprehension. Logically, defendants with lower reading levels must rely more heavily on their listening comprehension, and defendants with adequate reading abilities tend to perform better on visual recognition of Miranda material (Rogers & Drogin, 2014).

Miranda Reasoning

The importance of being able to apply the Miranda rights to one’s situation has been clearly recognized by the Supreme Court (Colorado v. Spring, 1987; Moran v. Burbine, 1986) and mental health professionals (Rogers & Shuman, 2005) alike. However, the empirical evidence on Miranda reasoning is much narrower when compared to Miranda comprehension. Grisso (1981) pioneered early research for Miranda reasoning by developing the Waiver Expectancy Interview (WEI) which assesses juveniles’ Miranda reasoning and related problem solving skills. The interview is structured in the sense that the same inquiries regarding specific
areas of Miranda are asked of each participant. However, the questions are open-ended which allows for more information to be gathered from the juveniles’ responses. Results revealed the concerning finding that most juveniles (91.9%) stated that one could answer an officer’s questions truthfully. Over three-fourths of the juveniles interviewed (77.6%) also mentioned answering officer’s questions while denying the alleged offense as an option. In contrast, the option of silence was mentioned by very few of the juveniles (i.e., ranging between 4.9-10.4% of juveniles across three scenarios). Grisso (1981) hypothesized that even though the juveniles had been told of the option to be silent, a majority dismissed this as an option. This early conceptualization of Miranda reasoning does an excellent job at demonstrating juveniles’ faulty reasoning that can result in negative legal consequences.

Reasoning in Upper-Bound Samples

Research has demonstrated that warning modality only seems to affect Miranda comprehension, but not Miranda reasoning (Rogers et. al., 2010). Results demonstrated the detrimental impact of both involvement in the mock crime paradigm ($d = 0.58$) and significant increases in state anxiety (i.e., >10 points on the STAI; $d = 0.94$). Previous investigation of mock crime scenarios have demonstrated the increases in situational stress that can be seen in a controlled research setting (Kassin & Norwick, 2004). These stress levels would be undoubtedly amplified in a genuine apprehension and subsequent interrogation.

A variation of the mock-crime paradigm (Gillard, Rogers, Kelsey, & Robinson, 2014) has also been utilized to investigate the effects of explicit or implicit waivers on Miranda reasoning with college undergraduates. The use of explicit or implicit waivers was based on the Court’s decision in Berghuis v. Thompkins (2010). Nearly all of the participants (80.1%) who received
an explicit waiver exercised their right to silence in comparison to the scant remainder (13.7%) of participants who received an implied warning. Similarly, a much larger percentage of participants confessed to the mock crime (17.6%) when they were in the implicit waiver condition as compared to those in the explicit waiver condition (3.9%).

Reasoning in Pre-Trial Defendants

Research on Miranda reasoning with populations of mentally disordered defendants have revealed that individual characteristics like compliance can be detrimental to Miranda comprehension and subsequent reasoning. To illustrate, higher levels of compliance were associated with somewhat poorer comprehension (i.e., 10% less comprehension) and also linked to deficits in considering the long-term benefits associated with exercising their rights (Rogers, Harrison, Rogstad, LaFortune, & Hazelwood, 2010). When high levels of compliance are seen, this is typically accompanied by more severe pathology and decreased cognitive functioning. Although, according to Gudjonsson (1997), compliance can be feigned and should be considered only mildly important for Miranda waiver determinations.

Defendants’ mistaken beliefs about their rights sometimes threaten adequate Miranda reasoning (Rogers et al., 2010). Surprisingly, a third of defendants mistakenly believed that their silence can be used as incriminating evidence against them. Over half inaccurately believed that police practices during pre-interrogation could not include the mention of fictitious eye-witnesses and non-existent charges. Such misconceptions are likely to lead to erroneous reasoning that it is better to waive their rights than exercise them to avoid being incriminated by silence or because of overwhelming eye-witness evidence.
Given the high prevalence of mistakenly held beliefs about Miranda, Rogers and his colleagues investigated whether repeated exposures to the Miranda warning material would correct some of those detrimental misconceptions (Rogers, Fiduccia, Robinson, Steadham, & Drogin, 2013). The defendants received five Miranda warnings (including two educative versions with low reading levels) and then were asked to paraphrase each Miranda component aloud. Even with this active engagement in the warning administration process, most defendants did not show any marked improvement in Miranda misconceptions following the intervention.

Reasoning in Justice-Involved Juveniles

Viljoen, Zapf, and Roesch (2007) found that many justice-involved youth have marked decrements in Miranda abilities in Miranda abilities, particularly in applying their knowledge of Miranda rights (i.e., FRI). To accommodate two legal standards for reasoning, Viljoen, Zapf, and Roesch (2007) compared juveniles’ comprehension of Miranda warnings under both the “understanding” standard and the “understanding and appreciation” standard.” Specifically, younger defendants, 15 years of age or younger, showed significantly more impairment in their reasoning of Miranda as compared to their understanding alone. To illustrate, 62.7% of younger juveniles demonstrated impairments under the “understanding and appreciation” as compared to 33.3% for the “understanding” only.

Juveniles are prone to decrements in reasoning often as a result of Miranda misconceptions. Justice-involved youth have demonstrated difficulty in rationally applying the concept of the right to silence. Although nearly half (48.8%) of juveniles were able to correctly define the right to silence on the CMR-II, they mistakenly believed that a judge could force juvenile defendants to talk about the crime during a court hearing when given the FRI (Zelle,
Romaine, Goldstein, 2014). While juveniles’ may possess the capacity to paraphrase the warning in their own words, Miranda misconceptions will likely hinder their reasoning abilities when using the warnings within a legal context.

Beyond chronological age per se, juvenile’s psychosocial maturity levels was inversely associated to the number of Miranda misconceptions (Rogers, Steadham, Fiduccia, Drogin, & Robinson, 2014). Juveniles in the low maturity group were found to have more misconceptions than the middle or high maturity group which would likely lead to more faulty reasoning when making waiver decisions. Juvenile’s maturity level appeared less important in the appreciation of police officers’ adversarial role. The middle maturity group, as measured by the Risk-Sophistication Treatment Inventory (Salekin, 2004), demonstrated the lowest number of misconceptions in regard to this misconception content area.

Reasoning in Individuals with Mental Disorders

Miranda research on mentally disordered populations has been very sparse, especially with respect to Miranda reasoning. Only two studies, to date, have specifically investigated Miranda reasoning abilities in mentally disordered individuals. In a sample of mentally disordered defendants, Rogers and his colleagues (2007) found that Verbal IQ and listening comprehension were the strongest predictors for generating reasons to exercise one’s rights, accounting for over 10.0% of the variance. Astonishingly, they found that nearly one quarter (27.0%) could not generate a single reason for why they should exercise their right to remain silent, and 16.2% failed to generate any good reasons to exercise their right to counsel.

The FRI goes beyond measuring Miranda comprehension by assessing the ability to apply the Miranda rights to a hypothetical scenario (Rogers & Drogin, 2014). The FRI which has
been described as measuring “the appreciation of Miranda rights,” (Grisso, 1981) could be thought of as measuring more than Miranda recall or comprehension alone. Psychiatric symptoms were negatively correlated with Miranda abilities, even when holding IQ constant. (Cooper & Zapf, 2008). On the FRI, about half (50.7%) of the inpatients falsely believed that their right to silence could be revoked by a judge during a court hearing. In comparison to the normative samples used for Grisso’s measures, the psychiatric inpatients tended to have Miranda abilities more comparable to the juvenile normative sample, with the presence of psychotic symptoms causing even further decrements.

Current Study

As noted, most of the previous literature has focused on Miranda comprehension and very little research has examined Miranda reasoning. For both Miranda comprehension and reasoning, upper bound research with undergraduates has documented major deficits (Rogers, et al., 2010). Individual factors further contributed to those deficits: young age, psychosocial maturity, misconceptions, and intellectual and psychological impairment. Likewise, contextual factors such as situational stress, detention status, low SES, and limited time spent with legal counsel all impact Miranda abilities. Surprisingly, less than a handful of research studies have focused on Miranda abilities within clinical populations (Cooper & Zapf, 2008; Rogers et al., 2007).

Given the high comorbidity of mental disorders and substance abuse (Thoma & Daum, 2013), the small amount of research on Miranda abilities in patients with comorbid diagnoses is concerning. No research, to date, has systematically investigated the Miranda abilities of dually-diagnosed patients (i.e., comorbid mental disorders and substance abuse). The current study
intends to add to the literature on Miranda comprehension and expand the limited research on Miranda reasoning abilities by examining Miranda abilities in a sample of dually-diagnosed inpatients. Specifically, the relationship among mental disorders and substance abuse will be examined in relation to Miranda comprehension, misconceptions, and reasoning. It is the first study to examine Miranda comprehension and misconceptions in relation to Miranda reasoning in order to better explain the complex relationship predicted to exist among these factors.

The current study operationally defined three Miranda comprehension groups and three Miranda reasoning groups (i.e., impaired, questionable, and likely adequate; for further description, see Table 1 in the Methods).

- Impaired abilities
  - Impaired comprehension: Participants recalled less than half of the Miranda warning
  - Impaired reasoning: Participants demonstrated impaired reasoning (i.e., a score of “0”) on at least one MRM item.

- Likely adequate abilities
  - Likely adequate comprehension: Participants recalled 70% or more of the warning content.
  - Likely adequate reasoning: Participants demonstrated considerations of immediate circumstances and at least minimal consideration of long-term circumstances. In addition, there will be no evidence of impaired reasoning.

- Questionable abilities
  - Questionable comprehension: Participants recalled over half of the warning content, but not enough to determine if comprehension is adequate (i.e., 51 to 69%).
  - Questionable reasoning: Participants who didn’t demonstrate impaired reasoning; however, they are providing unclear reasoning (i.e., one or more scores of “1”).
Research Questions and Hypotheses

Research Question 1: Will lower levels of verbal abilities (i.e., Verbal Comprehension Index [VCI]) and more severe impairment (Global Assessment Scale [GAS] and symptoms at severe and extreme intensity) predict Impaired Miranda Comprehension?

Literature on Miranda (Cooper & Zapf, 2008) has shown that low IQ significantly impact performance on Miranda abilities. Also, severe psychological impairment has been found to be negatively correlated with Miranda comprehension (Rogers et al., 2007; Rogers & Drogin, 2014).

- Hypothesis 1: Greater cognitive deficits (i.e., VCI, Reading Comprehension [RC], and Listening Comprehension [LC]) will be seen in the impaired Miranda comprehension group when compared to the likely adequate and questionable Miranda comprehension groups.

- Hypothesis 2: Greater levels of impairment (GAS) and symptom and ratings of 5 or 6 on the Schedule for Affective Disorders and Schizophrenia (i.e., “severe” and “extreme”) will be seen in the impaired Miranda comprehension group when compared to the likely adequate and questionable Miranda comprehension groups.

Research Question 2: Will lower levels of verbal ability (i.e., VCI) and higher levels of symptom severity (i.e., GAS scores and symptoms at severe and extreme intensity) predict impaired Miranda reasoning?

Past research (Rogers et al., 2007) has shown that marked deficits in verbal IQ and listening comprehension leads to poor understanding of the Miranda rights. Additionally, low GAS scores accounted for unique variance seen in Miranda reasoning to either exercise or waive those rights.
• Hypothesis 3: Greater cognitive deficits (i.e., VCI, RC, and LC) will be seen in the impaired Miranda reasoning group as compared to the likely adequate and questionable Miranda reasoning groups.

• Hypothesis 4: Greater levels of impairment (GAS) and symptom and ratings of 5 or 6 on the Schedule for Affective Disorders and Schizophrenia (i.e., “severe” and “extreme”) will be seen in the impaired Miranda reasoning group when compared to the likely adequate and questionable Miranda reasoning groups.

Research Question 3: Do lower percentages of Miranda comprehension and higher numbers of Miranda misconceptions predict membership in the impaired Miranda reasoning group?

Logically, for individuals to demonstrate adequate Miranda reasoning abilities, they must first be able to understand the basic components of the Miranda warning. Additionally, research has found that misconceptions can lead to decrements in Miranda reasoning (Rogers et al., 2010). Therefore, poor comprehension and many misconceptions will likely affect subsequent Miranda reasoning.

• Hypothesis 5: Participants in the impaired Miranda comprehension group will more likely fall within the impaired Miranda reasoning group than the questionable or likely adequate reasoning groups.

• Hypothesis 6: Those with a greater number of Miranda misconceptions will more likely fall within impaired Miranda reasoning group than the questionable or likely adequate reasoning groups.

Supplementary Research Question 1: When controlling for cognitive abilities (i.e., VCI as a covariate), does level of impairment (i.e., GAS scores) go above and beyond in predicting Miranda comprehension?
Previous research indicates that symptoms of psychopathology are negatively related to Miranda comprehension even when controlling for factors such as IQ (Cooper & Zapf, 2008). Other studies have not come to this same conclusion (Rogers, et al., 2007). Given the mixed findings, further research is needed.

Supplementary Research Question 2: Will a larger percentage of participants with severe (i.e., “5” on the SADS-C) and extreme (i.e., “6” on the SADS-C) psychotic symptoms fall within the very impaired Miranda comprehension group when compared to participants with less intense psychotic symptoms (i.e., SADS-C scores ranging from 2 to 4 for psychotic symptoms)?

Past research (Cooper & Zapf, 2008) has shown that inpatients’ psychotic symptoms are significantly and negatively correlated to Miranda abilities. Also, individuals with psychotic disorders have not only impaired Miranda comprehension, but also impaired Miranda reasoning (Redlich, 2005).

Supplementary Research Question 3: Will a larger percentage of participants with severe and extreme psychotic symptoms fall within the very impaired Miranda reasoning group when compared to participants with less severe psychotic symptoms?

As a parallel to the second supplementary research question, the third supplementary question is concerned with how psychotic disorders effect Miranda reasoning, as Redlich (2005) has demonstrated that psychotic symptoms hinder this particular Miranda ability.

Supplementary Research Question 4: Does alcohol and drug abuse on the SADS-C predict impaired miranda comprehension and reasoning?

As a part of considering the totality of circumstances, previous research has shown that alcohol and substance use greatly effects Miranda reasoning abilities and subsequent waiver decisions (Hazelwood, 2009).
CHAPTER 2

METHOD

Design

The current study utilized a between-groups design to test the primary hypotheses that cognitive deficits and psychological impairment will significantly predict adequate and impaired groups based on Miranda comprehension and Miranda reasoning. Participants were categorized into (a) one of three Miranda comprehension groups and (b) one of three Miranda reasoning groups. The primary independent variables in the current study were continuous variables that included the following: cognitive functioning, academic achievement, and psychological impairment. For the dependent variable of psychological functioning, four Schedule for Affective Disorders and Schizophrenia Change Version (SADS-C) subscales were used to examine four common symptom areas.

For psychological functioning, the SADS-C scores were examined in two ways. First the scores were analyzed as total summed scale scores. Then, the SADS-C subscales of Dysphoria, Mania, and Psychosis were transformed to focus more closely on higher levels of severity. This approach allowed the current study to examine the severe and extreme symptom levels, which is where the greatest levels of impairment in Miranda abilities have been seen (Rogers & Drogin, 2014). The strategy was to recode each individual item on with those receiving a score of 0 through 4 (i.e., no symptom endorsement to moderate ratings) being recoded as a zero. Those with a raw symptom score of 5 (i.e., severe) were recoded as a 1, and those with a symptom raw score of 6 or 7 (i.e., extreme or very extreme) were recoded as a 2. Importantly, with the Insomnia subscale, two items were answered in a yes/no format, which did not allow for examination of that subscale.
Operationalization of Miranda Groups

Miranda Comprehension Groups

The Miranda comprehension groups (Table 1) were modeled after two groups operationalized by Rogers and his colleagues (2009). The criteria for failed Miranda comprehension was set for free recall of less than 50% of the Miranda warning. In comparison, adequate understanding required at least 70% free recall. Inclusion of a questionable group allowed for the analysis of those participants who do not meet the other two. This operationalization established the inadequate, questionable, and likely adequate comprehension groups.

Adequate understanding required an understanding of at least 70% of the warning content. Having the questionable group allowed for the analysis of those participants who do not meet the criteria for inadequate or likely adequate comprehension. Keeping with this operationalization, the inadequate, questionable, and likely adequate comprehension groups in the current study were planned to use pre-determined scoring criteria.

The sample from the current study recruited from the dual-diagnosis unit were predicted to have greater levels of impairment overall (Wooley, 2013) as evidenced by past research with comparable inpatient populations. Although previous research demonstrated acceptable group sizes (Rogers et al., 2007), it was recognized that achieving adequate group sizes using these cut scores might have posed a problem within this specific population (i.e., for the likely adequate Miranda comprehension and reasoning groups). In this case, it was planned that the distribution of comprehension and reasoning scores within the current sample would be examined to determine more feasible criteria.
Miranda Reasoning Groups

The Miranda reasoning groups (Table 1) were also previously operationalized (Rogers et al., 2012 Rogers & Drogin, 2014). Responses on the MRM with a score of “0” (i.e., indicative of impaired reasoning or damaging factual errors) were be categorized as impaired Miranda reasoning. Following previously established criteria (Rogers et al., 2012), MRM responses consisting of all “2s” or 3s” (i.e., recognizing immediate and long-term consequences) with at least one response being scored a “3” for exercising rights (i.e., recognizing long-term consequences) would be designated as likely adequate Miranda reasoning. Finally, the questionable reasoning group was planned to include those who had any responses with a score of “1” (i.e., indicating unclear yet not incorrect responses), but received no scores of “0” (i.e., indicative of impaired reasoning or damaging factual errors) on the MRM.

Table 1

Operationalization of Miranda Comprehension and Miranda Reasoning Groups

<table>
<thead>
<tr>
<th>Miranda Comprehension Groups (MCT)</th>
<th>Impaired</th>
<th>Questionable</th>
<th>Likely Adequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on percentages from the Miranda Comprehension Template.</td>
<td>Less than 50% immediate recall of the warning content</td>
<td>50%-69% immediate recall of the warning content</td>
<td>70% or more immediate recall of the warning content</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Miranda Reasoning Groups (MRM)</th>
<th>Impaired</th>
<th>Questionable Group</th>
<th>Likely Adequate</th>
</tr>
</thead>
</table>
| Based on scoring on the Miranda Reasoning Measure. | Any responses receiving a score of “0” (i.e., impaired reason or damaging factual error). | Any responses with a score of “1”, but received no scores of “0”. | All responses of “2s” or 3s” with at least one response being scored a “3”.

Note. For more information on the specific scoring procedures for the MRM, please refer to measures section.
Table 1 operationalizes the original conceptualization of Miranda comprehension and reasoning groups based on criteria used in prior research (Rogers et al., 2009). To clarify, all participants were measured on their comprehension and reasoning on the Miranda warnings. According to the operationalization, each participant was classified within one of the comprehension groups and one of the reasoning groups. A factorial design was considered, which would have included six Miranda comprehension/ reasoning groups.\(^1\) The major drawback of this design was ensuring adequate group numbers (e.g., impaired comprehension/adequate reasoning). As a result, the between-groups was selected over the factorial design.

The current study used a scenario to create a plausible context for participants to identify with the others. As emphasized by Rogers and Cruise (1998), the context, incentive, and relevance of a study affect participants’ level of engagement in the study and therefore, the study results. To encourage active participation, each participant will receive $10 for completing the study.

An important goal of the current study was the consideration of external validity within this design. The current study used a representative Miranda warning of moderate difficulty (7.8\(^{th}\) grade reading level based on Flesch-Kincaid estimates) to more closely align with the advisements used in real-life arrest situations. Also, the warning was administered via an oral format within the video clips, because most Miranda warnings are presented orally (Rogers, 2008). Finally, the use of an oral warning format reduced the confounding factor of decreased reading levels with Miranda comprehension and reasoning. The researcher script used in the

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1 The combinations are comprised of: (a) Impaired Comprehension/ Impaired Reasoning, (b) Impaired Comprehension / Questionable Reasoning (c) Impaired Comprehension / Likely Adequate Reasoning (d) Questionable Comprehension / Impaired Reasoning (e) Questionable Comprehension / Questionable Reasoning (f) Questionable Comprehension / Likely Adequate Reasoning (g) Likely Adequate Comprehension / Impaired Reasoning (h) Likely Adequate Comprehension / Questionable Reasoning (i) Likely Adequate Comprehension / Likely Adequate Reasoning.
current study was modeled after a script previously utilized in past simulation studies (Rogers et al., 2010).

Participants and Setting

The current study recruited 89 adult inpatients from University Behavioral Health, an inpatient psychiatric hospital. University Behavioral Health also provides other inpatient services including the Crisis Stabilization Program, Chemical Dependency Program, and the Mental Health Program. Inpatients admitted to the unit typically had comorbid diagnoses of psychological disorders and substance use disorders. The program’s main goal was to improve the quality of life by helping them stabilize and continue recovery upon discharge.

Inclusion and Exclusion Criteria

Participants were required to be at least 18 years or older. Participants were excluded from the study if they were experiencing severe withdrawal symptoms or extreme levels of impairment that would impede their capacity to participate in the current study. Also, participants were required to speak English fluently in order to be eligible for the study. Participants were not excluded based on demographic variables of gender or ethnicity.

Measures

Demographic Information

Demographic information was collected via self-report from the participants (see Appendix A). This brief questionnaire included age, gender, ethnicity, primary language, and marital status. It also included education level and occupational status. Participants were asked about their use of alcohol and substances and their number of psychiatric hospitalizations.
Finally, information was gathered on the number of arrests and the number of times participants have been formally Mirandized.

Measures of Psychological and Cognitive Functioning

*Schedule for Affective Disorders and Schizophrenia Change Version (SADS-C, Spitzer & Endicott, 1978)*

The SADS-C is a semi-structured clinical interview with standardized questions and optional inquiries for evaluating symptom severity for mood, psychotic, and anxiety disorders. For most symptoms, the intensity is ascertained on a 6-point scale: 1 for *none*, 2 for *slightly*, 3 for *mild*, 4 for *moderate*, 5 for *severe*, and 6 for *extreme*. The SADS-C provides a Global Assessment Scale (GAS) with an overall score ranging from 1-100, evaluating the general level of impairment (Rogers, 2001). The SADS-C has high inter-rater reliability (ICC = .95). The SADS-C demonstrates moderate convergent validity and excellent discriminant validity (Johnson, Magaro, & Stern, 1986; Rogers, Sewell, Ustad, Reinhardt, & Edwards, 1995). Confirmatory factor analysis with a detainee sample (Rogers, Jackson, Salekin, & Neumann, 2003) indicated that the four-factor model of the SADS-C was indeed a good fit (CFI of .92 and a RCFI of .94). This study provided evidence for four sub-scales on the SADS-C (i.e., Dysphoria, Psychosis, Mania, and Insomnia) that closely resemble criteria used for diagnostic purposes within the DSM-IV.

*Wechsler Abbreviated Scale of Intelligence Second Edition (WASI-II; Wechsler, 2011)*

The WASI-II is a condensed version of the Wechsler Adult Scale of Intelligence- Fourth Edition (WAIS-IV; Wechsler, 2008). The Verbal Comprehension Index (VCI) assesses for word knowledge and abstract verbal reasoning via two subtests (i.e., Vocabulary and Similarities). In
addition, Perceptual Reasoning Index (PRI), tests non-verbal abstract reasoning and visuo-spatial processing via two subtests: Block Design and Matrix Reasoning. The current study used only measure the VCI because research has found that verbal abilities have a much greater effect on Miranda comprehension and reasoning as compared to perceptual reasoning abilities (Rogers et al., 2010). The VCI (alpha = .94) and PRI (alpha = .92) have demonstrated high internal reliability. The WASI-II was also found to have exceptional concurrent validity with the WAIS-IV Verbal Comprehension Index ($r = .88$; Wechsler, 2011).

*Wechsler Individual Achievement Test-Third Edition (WIAT-III; Wechsler, 2009)*

The WIAT-III is a standardized achievement test that can be used to assess levels of academic achievement in a broad range of content areas. The current study used the Reading (RC) and Listening Comprehension (LC) subtests of the WIAT-II, designed to measure the ability to comprehend written and oral language, respectively. The RC and LC subtests have demonstrated high internal reliability (i.e., .83 and .86), and composite scores on the WIAT-III have been shown to be highly correlated with the FSIQ on the WAIS-IV ($r = .59$ to .80).

Miranda Measures

*Miranda Quiz (MQ)*

The MQ, a questionnaire of 25 true-false items, assesses common misconceptions about Miranda rights and false beliefs about police practices with detained suspects (Rogers et al., 2010). Misconceptions about Miranda warnings are organized by the five components: right to silence, risk of talking, right to counsel and associated benefits, free legal services, and
continuing legal rights. Two other components address misconceptions more generally and pre-interrogation police practices.

Two supplementary domains are comprised of items that inquire about misconceptions related more generally to Miranda and pre-interrogation police practices. Examination of the MQ items at the subscale level is also possible with its two subscales—MQ Primary Items and MQ Ancillary Items. The MQ Primary Item Totals (i.e., items directly related to Miranda) were found to have moderately high test-retest reliability for initial short delay (.63), follow-up short delay (.82), and long delay (.69). Ratings from four forensic experts (Rogers et al., 2012) demonstrate high content validity for the primary MQ items (M = 90.0%).

**Miranda Comprehension Template (MCT)**

The Miranda Comprehension Template assesses Miranda comprehension by facilitating scoring of Miranda recall. It is derived from an earlier measure known as the Miranda Statements Scale (MSS; Rogers, 2006). MCT item ratings depend on subcomponents included in particular Miranda warnings which makes the template flexible for use with different warning versions. The flexible template design does not allow for the formal validation of the MCT. However, the MCT has demonstrated high inter-rater reliability (Rogers et al., 2012). Regarding the content validity, independent forensic researchers agree highly (98.0%) on the prototypical subcomponents on the MCT.

**Miranda Reasoning Measure (MRM)**

The Miranda Reasoning Measure is designed to assess an individuals’ capacity to reason and consider the consequences related to their own Miranda waiver decisions. It consists of eight
items, organized into two aggregate scores (i.e., waiving and exercising rights). In regards to construct validity, experts reached a high level of agreement for the eight items covering the breadth of Miranda decision making (Rogers et al., 2012). The MRM was found to have high inter-rater reliability ranging from .84 to .98. On the item level, the MRM demonstrated understandably modest convergent and discriminant validity when compared to broad constructs such as intelligence and psychological impairment (See Table 7.21; Rogers et al., 2012).

*Miranda Vocabulary Scale (MVS)*

The MVS tests the ability to define 36 Miranda-relevant vocabulary words. The words included were originally selected based on their relevance to Miranda, legal meaning, and possible semantic confusion. MVS scoring utilizes a range of 0 to 4 (i.e., zero being incorrect and 4 being the correct, Miranda-relevant definition). The MVS demonstrates excellent internal reliability (alpha = .90). It also has very high inter-rater reliability as a scale (.98) and for its two sub-scales- the MVS-Easy ($r = .95$) and the MVS-Difficult ($r = .96$). The MVS-Easy subscale is comprised of 10 words that were correctly and relevantly identified by most defendants, and the MVS-Difficult subscale represents the 10 most difficult words for defendants. Regarding discriminant validity, all but one item, demonstrated good discriminant validity, at the item level analysis (Rogers et al., 2012). As expected, the MVS has good convergent validity with verbal abilities (Verbal IQ $r = .34$) as measured by the Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999).
Procedure

Recruitment

Participants were recruited at the end of a group therapy session via a verbal announcement. The announcement briefly explained the purpose of the study and what is involved (e.g., brief film clip and questionnaires). The announcement included the length of the study of 1.5 hours and the $10 compensation. Participants who are interested had an opportunity to talk with a researcher individually.

Informed Consent and Confidentiality

For each potential participant, the researcher gave a brief summary of what the study entails, key elements of confidentiality. Participants were asked to read the informed consent form (or the researcher will read the consent form if required by the circumstances) and summarize its contents in their own words. If participants missed a part of the informed consent, it was explained again. Then participants were asked to summarize just that part alone. After answering any questions and receiving participants’ written, informed consent, the researcher began administering measures for the current study.

General Procedures

Demographic information was gathered. Then, the MCT was given to assess baseline Miranda knowledge. Following this, the MQ was given to assess Miranda misconceptions. Participants were asked to read the first several MQ items aloud to get a rough estimate of their reading abilities. If the items are not read fluently, the researcher read the rest of the MQ items aloud with participants responding whether the items are true or false.
As the experimental condition, participants watched a short video clip of a staged burglary. A second video clip depicted a police officer reading a Miranda warning. Immediately after the Miranda warning, participants were asked for their free recall of the warning, recorded and scored using the MCT. The video clip was used one question at a time to query the participant who is asked to identify with the perpetrator. Participants’ responses were transcribed and later recorded on the MRM.

Following the experimental condition, information on cognitive abilities and symptom severity was collected. To do this, the researcher administered a measure of cognitive functioning via the WASI-II and reading and listening comprehension via the WIAT-III subtests. Then, the SADS-C was administered to measure the severity of psychological impairment. Measures will be counterbalanced (WASI-II, WIAT-III, and SADS-C), with a reverse ordering of the cognitive and psychological measures will be done for half of the participants to minimize the possibility of any ordering effects.

Finally, a manipulation check was used to ensure that participants are actively engaged in the burglary scenario and can recall the instructions. Also, participants were asked to describe the purpose of the study in their own words. If participants were unable to accurately describe instructions or describe the general purpose of the study, their data was excluded from future analyses.

Scenario

The current study utilized a mock-crime scenario, creating an opportunity for participants to put themselves in a situation relevant to the abilities being assessed. As a background for simulation, participants were asked to watch a brief video of a staged theft. The video depicts an
adult named “AJ” stealing a wallet from the passenger seat of a car. Wearing a hooded jacket and gloves, AJ’s face and hands were never shown to make the video clip equally applicable to female and male participants of any ethnicity. Participants were asked to identify with AJ while watching this video.

The second component provided the Miranda warning, recall, and police questioning. First, the video clip depicted an “officer” (i.e., a male graduate student acting the role of a police officer) verbally administering the Miranda rights to the participant. Next, the officer asked interrogation questions related to the previously depicted theft. Participants answered these questions by assuming AJ’s role as the perpetrator. Below is the script read by the researcher prior to the video clips being shown.

I’m going to show you a brief video about someone who got into some trouble. Please watch and listen carefully. I’m going to ask you to pretend you’re in [his/her] shoes. [Play video clip of burglary].

Before asking questions, the officer is going to read AJ the Miranda rights. [Play Miranda rights and Interrogation Questions video clip.]

After viewing the video clip of an “officer” reading the Miranda warning, participants were asked to respond to the recording of the police officer’s interrogation questions as if they were in AJ’s situation. Subsequently, the investigator administered the MCT (for the second time) and the MRM to assess participants’ Miranda comprehension and reasoning. The MQ was administered a second time to test whether the warning content or scenario resulted in a decrease in misconceptions.

Revision of the Original Comprehension and Reasoning Groups

Changes to the original Miranda comprehension and reasoning groups was necessary because participant data was within a lower range of abilities than previously anticipated. The
original groups were based on the prediction that at least some participants would perform well enough on their Miranda abilities to be placed in the likely adequate Miranda comprehension and reasoning groups. Given that the original grouping criteria was too stringent, alternative ways of grouping these Miranda abilities was necessary to perform the proposed data analysis. This was done by examining the existing range of participants’ Miranda comprehension and their Miranda reasoning basing these new groups on the narrow range of Miranda abilities within the sample. With this lower and narrower range of Miranda abilities, the new groups are more focused on differentiating the levels of impairment as opposed to attempting to analyze the fuller range of Miranda comprehension and reasoning.

For Miranda comprehension, the MCT was completed twice for each participant. Once at the beginning of the study to capture participants’ free recall or baseline, and once following the Miranda warning video. The comprehension measure following the warning video was chosen over the free recall as it is more representative of comprehension during the time of arrest and interrogation. Examining participants’ second MCT recall, comprehension ranged from 10% to 52% of the total warning content. With such low comprehension, no participants met criteria for inclusion in the likely adequate Miranda comprehension group.

As an alternative, the spread of existing comprehension percentages was examined, and all participants were either above or below 30% Miranda comprehension. At this natural cut-point, no participants were comprehending 30% of the warning content. In line with participants’ actual performance on comprehension, participants were divided into two new comprehension groups, based on this organic divide at the 30% comprehension mark. To fit with this new group operationalization, new names were chosen to be a more accurate reflection of these groups. Participants comprehending greater than 30% of the warning material were grouped as impaired
Miranda comprehension, and those below 30% comprehension were grouped as very impaired Miranda comprehension. As such, these new groups capture impaired performance of Miranda comprehension and differentiates between impairment of a greater or lesser degree.

For Miranda reasoning, none of the participants met criteria for placement in the likely adequate Miranda reasoning group. With the original criteria, most participants were within the impaired Miranda reasoning group \((n = 62)\) and the rest were in the questionable reasoning group \((n = 23)\). With so many participants being within the impaired group, it was deemed necessary to divide this into two groups for a finer grain analysis. This mirrors previous rationale for the need to examine not just the presence of impairment, but differentiating between severities of impairment.

To provide rationale for how the impaired reasoning group was further divided, the reader’s attention is turned to the construction of the MRM (Rogers, Sewell, Drogin, & Fiduccia, 2012) for a moment. For the development of this measure, items were divided between the two choices faced by suspects, either to exercise or waive their rights. This provided the ability to have total scores for Miranda reasoning exercise items and a total score for waive items (i.e., this total score does not take into account the items scored using “yes” or “no” responses). It was determined that having sound reasoning on waiving their rights would not be enough to lead to decision fulling using the rights provided to them. Therefore, sound reasoning for the “Exercise” items were deemed of even greater importance for custodial suspects. It is simply not enough to avoid waiving the rights, but suspects must be able to reason that they must exercise those rights in order to experience the full protections offered by Miranda.

Based on the rationale that “Exercise” items should be given greater weight, the impaired reasoning group \((n = 62)\) was further divided on their Exercise Aggregate scores using a median
split. The idea was to further divide the impaired Miranda reasoning into two subgroups—participants who were performing poorly and those who were performing dismally. Analyses revealed the median was equal to 9, and those participants who scored directly on the median were removed from the grouping process ($n = 14$ participants removed). Those participants who scored above the median on the Exercise items were termed the impaired Miranda reasoning group, and those falling below the median of 9 were placed in a category termed the very impaired Miranda reasoning group. Below is an outline designed as a visual aid to help demonstrate the revised groups and the rationale behind their creation.

Revised Miranda comprehension groups

- Impaired Miranda comprehension (I-Comp.): Above 30% comprehension of total warning
- Very impaired Miranda comprehension (VI-Comp.): Below 30% comprehension of total warning

Revised Miranda reasoning groups

- Questionable Miranda reasoning (Q-Reas.): Having any scores of “1” on the MRM, but having no scores of “0” indicating damaging error in reasoning.
- Impaired Miranda reasoning (I-Reas.): Above the median split of 9 when looking at the “Exercise” aggregate score for the MRM.
- Very impaired Miranda reasoning (VI-Reas.): Below the median split of 9 when looking at the “Exercise” aggregate score for the MRM.
CHAPTER 3

RESULTS

Sample Refinement

The original sample was comprised of 89 adult inpatients from University Behavioral Health (UBH), a private psychiatric hospital in North Texas. Three participants terminated their participation in the study early. In addition, one participant was unable to complete the study because the staff needed to prepare him for discharge from the facility. Thus, a total of 85 participants were included in the final analyses for the primary and supplementary research questions.

Description of the Final Sample

As noted, the final sample contained 85 adult inpatients at UBH. Regarding gender, the sample was comprised of slightly more males \( (n = 46; \ 54.2\%) \) than females \( (n = 39; \ 45.8\%) \). Three participants, who identified as transgender, were excluded from only those analyses related specifically related to gender. Participants averaged 33.84 years old \( (SD = 13.18) \) and ranged in age from 18 to 62 years. A majority of the sample self-identified as European Americans \( (73.5\%) \). The remainder of the sample identified as African American \( (12.0\%) \), Hispanic American \( (6.0\%) \), Asian American \( (1.2\%) \), bi-racial \( (5.9\%) \), or another unspecified ethnicity \( (1.2\%) \). For marital status, most participants reported being single \( (60.2\%) \). The rest of the participants were married \( (6.7\%) \), divorced \( (15.7\%) \), or in another marital status \( (7.2\%) \).

The sample varied considerably in regards to educational attainment and employment status. In regards to level of education, over 16.8\% of participants reported having less than a
high school education. Regarding employment status, over half of inpatients (i.e., 26.5%) reported being unemployed, and 14.5% were on disability.

Table 2

Demographic Differences between Male and Female Inpatients

<table>
<thead>
<tr>
<th>Gender</th>
<th>Ethnicity</th>
<th>Male (n = 46)</th>
<th>Female (n = 39)</th>
<th>X^2</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>European American</td>
<td>37</td>
<td>58.7</td>
<td>26</td>
<td>41.3</td>
</tr>
<tr>
<td></td>
<td>African American</td>
<td>5</td>
<td>50.0</td>
<td>5</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Hispanic American</td>
<td>1</td>
<td>20.0</td>
<td>4</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Bi-racial</td>
<td>2</td>
<td>40.0</td>
<td>3</td>
<td>60.0</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>1</td>
<td>100.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employment Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employed</td>
<td>22</td>
<td>50.0</td>
<td>22</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>13</td>
<td>56.5</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td></td>
<td>Disabled</td>
<td>8</td>
<td>61.5</td>
<td>5</td>
<td>38.5</td>
</tr>
<tr>
<td></td>
<td>Education Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle School</td>
<td>1</td>
<td>50.0</td>
<td>1</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>9th Grade</td>
<td>2</td>
<td>100.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>10-12th Grade</td>
<td>24</td>
<td>58.5</td>
<td>17</td>
<td>41.5</td>
</tr>
<tr>
<td></td>
<td>Some College</td>
<td>14</td>
<td>56.0</td>
<td>11</td>
<td>44.0</td>
</tr>
<tr>
<td></td>
<td>Degree (Higher Education)</td>
<td>5</td>
<td>33.3</td>
<td>10</td>
<td>66.7</td>
</tr>
</tbody>
</table>

*Note. a Participants identifying as transgender individuals were removed for the gender analyses. b Data for employment status was not collected for the first five participants.*
For self-appraised Miranda knowledge, most participants—irrespective of gender—(60.0%) rated their Miranda knowledge as average (see Table 3). Only a small percentage of participants appraised their Miranda knowledge to be in the excellent range (11.8%). This finding reflects the participants’ optimistic view of their Miranda knowledge which was equivalent across males and females ($X^2 = .38, p = .82$). However, this self-appraisal of Miranda abilities does not likely align closely to participants’ actual MQ performance.

Table 3

*Demographic Differences in Previous Legal Experience and Miranda*

<table>
<thead>
<tr>
<th>Gendera</th>
<th>Male ($n = 46$)</th>
<th>Female ($n = 39$)</th>
<th>$X^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miranda Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>12</td>
<td>50.0</td>
<td>12</td>
<td>50.0</td>
</tr>
<tr>
<td>Average</td>
<td>29</td>
<td>56.9</td>
<td>22</td>
<td>43.1</td>
</tr>
<tr>
<td>Excellent</td>
<td>5</td>
<td>50.0</td>
<td>5</td>
<td>50.0</td>
</tr>
<tr>
<td>Arrested (Traffic)</td>
<td>16</td>
<td>94.1</td>
<td>1</td>
<td>5.9</td>
</tr>
<tr>
<td>Arrested (Other)</td>
<td>32</td>
<td>71.1</td>
<td>13</td>
<td>28.9</td>
</tr>
<tr>
<td>Mirandized in Custody</td>
<td>31</td>
<td>77.5</td>
<td>9</td>
<td>22.5</td>
</tr>
</tbody>
</table>

*Note.* a Participants identifying as transgender individuals were removed for the gender analyses.

A much greater proportion of male participants had been arrested as compared to their female counterparts. Over half (52.9%) of the sample reported being arrested for a more serious charge. Of the participants arrested for a more serious crime, an overwhelming proportion were males (i.e., 71.1%). These current study arrest rates for more serious offenses closely mirror the
statistics in a report by the U.S. Department of Justice (2010). For the year of 2010, 74.6% of arrestees were male and only 25.38% were female. For previous experience with being Mirandized, close to half (47.1%) of the total sample reported being Mirandized while in police custody. As expected, these percentages closely mirrored the rates of serious arrests.

Previous hospitalizations averaged 3.91 times ($SD = 4.29$), with no significant gender differences, which partially reflects the considerable variability ($SD = 5.29$) for male inpatients. Interestingly, only about one third (31.3%) reported being hospitalized for the first time. The remaining participants reported multiple psychiatric stays at varying frequencies, with the highest being 30 self-reported psychiatric stays. A high frequency of hospitalizations (i.e., > 10) was reported by 5.9%, which is clinically concerning given their average age of 38.6 years.

Verbal abilities fell within the average range ($M = 90.94; SD = 12.40$), with similar abilities being found between females and males. Though, this mean does not reflect the wide range of intellectual functioning seen within the total sample, which ranged from the extremely low range (VCI = 52) to the high average range (VCI = 117). As expected, participants did more poorly in their comprehension of written material with an average of an eighth-grade score equivalence. In contrast, participants’ average listening comprehension was a substantially higher, at an average of 9.93 grade equivalent (Cohen’s $d = 0.53$).

Exposures to the Miranda rights occurs through different formats or outlets of popular media such as television shows, movies, books, and the internet. When asked to estimate how many times they heard Miranda on TV, participants gave an extremely wide array of answers, some reporting thousands of times. To minimize the effects of outliers, this number was capped at 100 times. On average, participants reported they had heard the Miranda rights 64.12 times. Aligning with expectations, participants reported having read Miranda for themselves much less
often, averaging only about twice across their lifetime. This disparity may have important implications because the written versions of the Miranda rights will often provide much more information specific to each component, as compared to the abbreviated versions recited on popular television shows.

Table 4

*Differences between Male and Female Inpatients on Cognitive Abilities, Psychiatric Hospitalizations, and Previous Miranda Exposure*

<table>
<thead>
<tr>
<th></th>
<th>Total Sample</th>
<th>Gendera</th>
<th>Gendera</th>
<th>Gendera</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 83</td>
<td>Male n = 45</td>
<td>Female n = 38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Age</td>
<td>33.84</td>
<td>13.18</td>
<td>35.27</td>
<td>13.38</td>
</tr>
<tr>
<td>VCI</td>
<td>90.94</td>
<td>12.40</td>
<td>91.89</td>
<td>11.37</td>
</tr>
</tbody>
</table>

**Grade Equivalent**

<p>| | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Listeningc</td>
<td>9.93</td>
<td>2.96</td>
<td>9.95</td>
<td>2.92</td>
<td>9.90</td>
<td>3.05</td>
<td>.01</td>
<td>.94</td>
<td>0.02</td>
</tr>
<tr>
<td>Reading</td>
<td>8.00</td>
<td>4.21</td>
<td>7.47</td>
<td>4.38</td>
<td>8.61</td>
<td>3.99</td>
<td>1.49</td>
<td>.23</td>
<td>-0.27</td>
</tr>
<tr>
<td>Psychiatric Hospitalizationsb</td>
<td>3.91</td>
<td>4.29</td>
<td>4.46</td>
<td>5.29</td>
<td>3.24</td>
<td>2.52</td>
<td>1.87</td>
<td>.17</td>
<td>0.29</td>
</tr>
</tbody>
</table>

**Miranda Exposure**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Heard on TV</td>
<td>64.12</td>
<td>39.62</td>
<td>61.82</td>
<td>38.71</td>
<td>66.82</td>
</tr>
<tr>
<td>Read for Self</td>
<td>2.00</td>
<td>6.52</td>
<td>1.78</td>
<td>4.78</td>
<td>2.26</td>
</tr>
</tbody>
</table>

*Note.* For hearing Miranda on TV, the number of times was capped at 100 in order to minimize the effects of outliers. Cohen’s d was calculated for the effect sizes. a Participants identifying as transgender individuals were removed only for gender analyses. b HOV was violated and Welch’s statistic was used for the Hospitalization variable. c Listening comprehension was only collected for 80 of the participants included in the demographics analysis because they chose not to complete the reading comprehension task.
Research Questions and Hypotheses

Research Question 1: Will lower levels of verbal abilities (i.e., Verbal Comprehension Index [VCI]) and more severe impairment (lower Global Assessment Scale [GAS] scores and more severe symptoms on the four SADS-C subscales) predict very impaired Miranda comprehension?

The first research question examined whether low verbal ability or high symptom severity can predict which participants will have VI-Comp. via binomial logistic regression. Results indicated that the overall regression model was significant, $X^2 = 17.00, p < .01$ and explained nearly a quarter of the variance (Nagelkerke $R^2 = 24.9$).

Verbal ability was a statistically significant, yet modest predictor for Miranda comprehension impairment, with the odds ratio suggesting that participants with lower verbal abilities were 1.06 times more likely to have severely impaired Miranda comprehension. The VI-Comp. group average verbal abilities fell within the 22nd percentile on the WASI-II; whereas, the I-Comp. fell within the 36th percentile.

As an interesting finding, inpatients with higher levels of mania tended to demonstrate the most severe impairment in Miranda comprehension. To understand this finding, the current study examined the level of mania for both I-Comp. and VI-Comp groups (see Table 5). On average, the I-Comp. group is experiencing minimal manic symptoms (i.e., Mania Scale $M = 6.31$ or 1.20 across symptoms) and those in the very impaired group (i.e., Mania Scale $M = 8.54$ or 1.50 across symptoms) is experiencing sub-clinical levels of mania. To put this in perspective, SADS-C scores of “1” indicates the absence of a symptom, whereas “2” indicates mild, subclinical levels of that symptom.

Psychological impairment on the Global Assessment Scale appeared to counter the expectations. The regression showed that lower GAS scores (i.e., indicating decreased functioning) was associated with a greater likelihood of being in the I-Comp. group than the VI-
Comp. group. As an important reminder, the average GAS scores for the whole sample fell within the 30-40, which indicates “major impairment in several areas” ranging to “inability to function in almost all areas” of daily life (Spitzer & Endicott, 1978).

Table 5

*Cognitive Abilities and Psychological Symptoms as Predictors of Miranda Comprehension*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Predictors</th>
<th>Odds Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>S.E.</td>
</tr>
<tr>
<td>Intercept (Constant)</td>
<td>-2.72</td>
<td>3.02</td>
</tr>
<tr>
<td>VCI</td>
<td>0.06</td>
<td>0.02</td>
</tr>
<tr>
<td>GAS</td>
<td>-0.07</td>
<td>0.02</td>
</tr>
<tr>
<td>SADS-C Subscales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dysphoria</td>
<td>0.01</td>
<td>0.04</td>
</tr>
<tr>
<td>Psychosis</td>
<td>-0.06</td>
<td>0.10</td>
</tr>
<tr>
<td>Mania</td>
<td>-0.13</td>
<td>0.64</td>
</tr>
<tr>
<td>Insomnia</td>
<td>0.12</td>
<td>0.14</td>
</tr>
</tbody>
</table>

*Note.* Given the directional hypothesis, a one-tail probability was used. VCI = Verbal Comprehension Index. GAS = Global Assessment Scale.

Two phenomena help explain the unexpected relationship of GAS scores and Miranda comprehension. First, multicollinearity was considered, but ruled out because the two were only moderately correlated ($r = .23$). As a further step, a supplementary multiple regression was run to understand how much symptom scales were contributing to impairment in overall psychological functioning. The regression model was significant and accounted for 21.7% of the variance seen in GAS scores. The dysphoria scale, conceptualized as overall life dissatisfaction, and the psychosis subscale were both found to be predictive of GAS scores.
To delve deeper into symptom severity, the SADS-C subscales are not expected to play a role at mild to moderate levels (see Rogers & Drogin, 2014). To focus on only severe to extreme severity, SADS-C items were rescored (i.e., none to moderate, severe, and extreme). Scores indicating no symptoms to moderate symptoms (i.e., 0-4) were rescored as “None to Moderate” symptom severity. Then, severe (i.e., scores of 5) and extreme (i.e., scores of 6) were scored in their own categories to help separate symptom severity at its worst levels. This approach was unsuccessful with a non-significant regression model accounting for less than 1% of the variability (i.e., Nagelkerke $R^2 = .10$).

Consistent with Hypothesis 1, the VI-Comp. group was predicted to have lower verbal abilities than the I-Comp. group (see Table 6). Results of the one-way ANOVAs demonstrated that those participants in the VI-Comp. group have significantly lower scores on their verbal abilities, with a difference of 6.54 between mean VCI scores for both groups. A parallel pattern was seen for Listening and Reading Comprehension.

For the second hypothesis, the VI-Comp. group was predicted to have greater levels of impairment and symptom severity when compared to the I-Comp. group. The thought-provoking results only partially supported this hypothesis. Importantly, the VI-Comp. group evidenced higher levels than the I-Comp. group on the Mania subscale, yielding a small effect size ($d = -0.43$). Though, GAS scores were roughly equivalent when comparing the two groups, the more impaired Miranda comprehension group demonstrated slightly higher levels of psychological functioning.
Table 6

Cognitive Functioning and Psychological Symptoms of Inpatients with Impaired and Very Impaired Miranda Comprehension

<table>
<thead>
<tr>
<th>Scales</th>
<th>Total Sample</th>
<th>Impaired Comprehension</th>
<th>Very Impaired Comprehension</th>
<th>F</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>VCI</td>
<td>91.15</td>
<td>12.48</td>
<td>94.97</td>
<td>11.68</td>
<td>88.43</td>
<td>12.44</td>
</tr>
<tr>
<td>LC</td>
<td>100.42</td>
<td>15.06</td>
<td>105.03</td>
<td>16.13</td>
<td>97.20</td>
<td>13.51</td>
</tr>
<tr>
<td>RC</td>
<td>93.27</td>
<td>11.32</td>
<td>96.26</td>
<td>12.13</td>
<td>91.11</td>
<td>10.30</td>
</tr>
<tr>
<td>GAS</td>
<td>37.48</td>
<td>8.10</td>
<td>35.94</td>
<td>7.12</td>
<td>38.56</td>
<td>8.63</td>
</tr>
<tr>
<td>Dysphoria (7)</td>
<td>25.04</td>
<td>6.42</td>
<td>26.11</td>
<td>6.27</td>
<td>24.28</td>
<td>6.47</td>
</tr>
<tr>
<td>Psychosis (3)</td>
<td>5.53</td>
<td>2.89</td>
<td>5.23</td>
<td>2.00</td>
<td>5.74</td>
<td>3.39</td>
</tr>
<tr>
<td>Mania (5)</td>
<td>7.62</td>
<td>5.22</td>
<td>6.31</td>
<td>3.19</td>
<td>8.54</td>
<td>6.13</td>
</tr>
<tr>
<td>Insomnia (2)</td>
<td>4.04</td>
<td>1.97</td>
<td>4.17</td>
<td>1.92</td>
<td>3.94</td>
<td>2.02</td>
</tr>
</tbody>
</table>

Note. The group sizes differed for measurement of Reading Comprehension (Total n = 81; Impaired n = 34; Very Impaired n = 47). Given the directionality of the hypothesis, a one-tail probability was used. Parenthesis next to SADS-C subscales indicate how many items constitute that subscale.

To investigate this finding, it is important to consider which specific symptoms may be contributing to the difference seen in the levels of Mania between the I-Comp. and VI-Comp. groups (see Table 7). To accomplish this, the individual items on the Mania subscale were examined between the two groups. As expected, increased goal directed behavior played a key role, yielding a medium effect size (d = -0.52). This symptom entails being more highly involved
in work, home life, and projects or activities than normal. To contextualize this finding, the severity of symptoms fall within the subclinical level, with mean scores being below a score of “2” on the SADS-C. Here, the VI-Comp. group experienced mild elevations on these symptoms, which may be adaptive.

Table 7

*Comparison of Individual SADS-C Mania Subscale Items between Comprehension Groups*

<table>
<thead>
<tr>
<th>Miranda Comprehension</th>
<th>Total Sample $n = 85$</th>
<th>Impaired Comprehension $n = 35$</th>
<th>Very Impaired Comprehension $n = 50$</th>
<th>$F$</th>
<th>$p$</th>
<th>$d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated Mood</td>
<td>1.88 1.35</td>
<td>1.63 1.11</td>
<td>2.06 1.48</td>
<td>2.14</td>
<td>.15</td>
<td>-0.32</td>
</tr>
<tr>
<td>Less Sleep Needed</td>
<td>1.38 1.11</td>
<td>1.17 .75</td>
<td>1.52 1.30</td>
<td>2.05</td>
<td>.16</td>
<td>-0.32</td>
</tr>
<tr>
<td>Unusually Energetic</td>
<td>1.49 1.21</td>
<td>1.23 .84</td>
<td>1.68 1.39</td>
<td>2.93</td>
<td>.09</td>
<td>-0.38</td>
</tr>
<tr>
<td>Goal-Directed Activity</td>
<td>1.36 1.02</td>
<td>1.06 .34</td>
<td>1.58 1.26</td>
<td>5.69</td>
<td>.02*</td>
<td>-0.52</td>
</tr>
<tr>
<td>Grandiosity</td>
<td>1.51 1.17</td>
<td>1.23 .65</td>
<td>1.70 1.40</td>
<td>3.43</td>
<td>.07</td>
<td>-0.41</td>
</tr>
</tbody>
</table>

*Note.* Given the exploratory nature of this analysis, a two-tail probability was used.

Research Question 2: Will lower levels of verbal ability (i.e., VCI) and higher levels of symptom severity (i.e., GAS scores and more severe symptoms on the four SADS-C subscales) predict very impaired Miranda reasoning?

To parallel the first research question, a multinomial logistic regression was performed to determine whether the independent variables of verbal intelligence and symptomatology predict
impaired Miranda reasoning. The overall regression model was not significant, $X^2 = 15.52, p = .21$ (see Table 8). Both verbal intelligence and symptoms failed to predict Miranda reasoning in the current sample.

Table 8

*Cognitive Abilities and Psychological Symptoms as Predictors of Impaired Miranda Reasoning*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Odds Ratios</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>S.E.</td>
</tr>
<tr>
<td><strong>Questionable Reasoning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.99</td>
<td>4.32</td>
</tr>
<tr>
<td>VCI</td>
<td>-0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>GAS</td>
<td>-0.04</td>
<td>0.05</td>
</tr>
<tr>
<td>Dysphoria</td>
<td>0.08</td>
<td>0.06</td>
</tr>
<tr>
<td>Psychosis</td>
<td>-0.16</td>
<td>0.14</td>
</tr>
<tr>
<td>Mania</td>
<td>-0.02</td>
<td>0.08</td>
</tr>
<tr>
<td>Insomnia</td>
<td>0.33</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>Impaired Reasoning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.48</td>
<td>4.27</td>
</tr>
<tr>
<td>VCI</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>GAS</td>
<td>-0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>Dysphoria</td>
<td>0.12</td>
<td>0.06</td>
</tr>
<tr>
<td>Psychosis</td>
<td>-0.15</td>
<td>0.13</td>
</tr>
<tr>
<td>Mania</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td>Insomnia</td>
<td>0.18</td>
<td>0.19</td>
</tr>
</tbody>
</table>

*Note.* The reference group is very impaired reasoning. Given the directionality of the hypothesis, a one-tail probability was used.
Increased symptoms of depression are associated with a slightly greater likelihood of having Impaired Miranda reasoning, when holding all other predictors constant.

Overall, inpatients demonstrated marked decrements in Miranda reasoning on weighing benefits and drawbacks to exercising their rights. When considering that none of the participants did well enough to be classified as having likely adequate reasoning, the issue becomes clearer. A majority was classified as demonstrating impaired Miranda reasoning under the original group classifications. Even those in the questionable group showed at least unclear reasoning that could not sufficiently demonstrate the likelihood of making a sound waiver decision. To illustrate the level of impairment seen on the MRM, 43.5% of participants erroneously believed their silence could be used against them in court. Seeing evidence of these underlying misconceptions helps to give a better understanding of why the majority of participants demonstrated marked deficits in their Miranda reasoning.

For the third hypothesis, the VI-Reas. group was predicted to have lower cognitive abilities, including verbal intelligence, reading and listening comprehension than the other two reasoning groups. Unexpectedly, verbal abilities did not systematically differ. Non-significant but interesting trends emerged about inpatients’ reading and listening comprehension, especially between the two impaired reasoning groups. Those in the VI-Reas. group had worse listening comprehension, when compared to the I-Reas. group ($d = 0.37$); the VI-Reas. group showed lower comprehension when compared to those with lesser Miranda reasoning impairment, yielding a small effect size ($d = 0.43$), providing only partial support for the third hypothesis.
Table 9

*Cognitive Functioning and Psychological Symptoms of Inpatients Across Three Reasoning Groups*

<table>
<thead>
<tr>
<th>Miranda Reasoning Groups</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 70</td>
</tr>
<tr>
<td></td>
<td>Questionable Reasoning</td>
</tr>
<tr>
<td></td>
<td>n = 23</td>
</tr>
<tr>
<td></td>
<td>Impaired Reasoning</td>
</tr>
<tr>
<td></td>
<td>n = 30</td>
</tr>
<tr>
<td></td>
<td>Very Impaired Reasoning</td>
</tr>
<tr>
<td></td>
<td>n = 17</td>
</tr>
<tr>
<td><strong>VCI</strong></td>
<td><strong>90.57</strong></td>
</tr>
<tr>
<td><strong>LC</strong></td>
<td><strong>99.93</strong></td>
</tr>
<tr>
<td><strong>RC</strong></td>
<td><strong>92.85</strong></td>
</tr>
<tr>
<td><strong>GAS</strong></td>
<td><strong>37.87</strong></td>
</tr>
<tr>
<td><strong>Dys</strong></td>
<td><strong>25.17</strong></td>
</tr>
<tr>
<td><strong>Psy</strong></td>
<td><strong>5.49</strong></td>
</tr>
<tr>
<td><strong>Man</strong></td>
<td><strong>7.80</strong></td>
</tr>
<tr>
<td><strong>Ins</strong></td>
<td><strong>4.14</strong></td>
</tr>
</tbody>
</table>

*Note.* d1 is the comparison between Questionable and Impaired groups. d2 is the comparison between Questionable and Very Impaired groups. Finally, d3 is the comparison between Impaired and Very Impaired groups. Abbreviations for SADS-C subscales were used. Dys = Dysphoria; Psy = Psychosis; Man = Mania; Ins = Insomnia. Given the directionality of the hypothesis, a one-tail probability was used.
The fourth hypothesis was not supported at all, with both significant findings running counter to the predicted direction. It was predicted that the two impaired reasoning groups would have the highest rates of symptoms. Counterintuitively, the VI-Reas. group evidenced the lowest levels of dysphoria, with medium effect sizes when comparing the Q-Reas. group ($d = 0.68$) and the I-Reas. group ($d = 0.78$).

Examination of the Dysphoria subscale of individual items revealed two salient symptoms (see Appendix A). The VI-Reas. group demonstrated lesser levels of Worthlessness and Guilt/ Self-Reproach. As a possible explanation, inpatients with less worry, guilt, or self-reproach might not be putting forth as much effort on Miranda reasoning. The largest effect sizes were seen when comparing the VI-Reas. group on feelings of Worthlessness ($d = 0.93$ and $0.79$, respectively) to the other two groups. Interestingly, subjective feelings of dysphoria remained virtually the same across the three groups.

Research Question 3: Does greater impairment in Miranda comprehension and a higher number of Miranda misconceptions predict greater impairment in Miranda reasoning?

The third research question used a 15-item MQ Primary Total score to represent Miranda misconceptions, as explained in the SAMA manual. Miranda comprehension and misconceptions were evaluated as predictors of Miranda reasoning, using multinomial logistic regression.

The results only partially lend themselves to the hypothesis that impairment and in comprehension and underlying misconceptions is associated with greater impairment in Miranda reasoning. As seen in Table 10, a higher number of Miranda misconceptions was associated with a lower likelihood of being in the very impaired Miranda reasoning group (i.e., Odds Ratio = .75), which does not support the proposed hypothesis. However, having Very Impaired
Comprehension was associated with a lower likelihood of being in the impaired reasoning group, as compared to the very impaired reasoning group (i.e., Odds Ratio = .32).

Table 10

*Comprehension and Misconceptions as Predictors of Impairment in Miranda Reasoning*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>p</th>
<th>OR</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Impaired Reasoning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>2.76</td>
<td>2.16</td>
<td>1.63</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MQ Primary Total</td>
<td>-0.29</td>
<td>0.17</td>
<td>2.84</td>
<td>.05</td>
<td>.75</td>
<td>.53 - 1.05</td>
</tr>
<tr>
<td>Very Impaired Comprehension</td>
<td>0.29</td>
<td>0.86</td>
<td>0.16</td>
<td>.37</td>
<td>1.34</td>
<td>0.25 - 7.24</td>
</tr>
<tr>
<td>Impaired Reasoning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.98</td>
<td>2.03</td>
<td>0.95</td>
<td>.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MQ Primary Total</td>
<td>-0.09</td>
<td>0.16</td>
<td>0.34</td>
<td>.56</td>
<td>1.22</td>
<td>0.66 - 1.25</td>
</tr>
<tr>
<td>Very Impaired Comprehension</td>
<td>-1.55</td>
<td>0.69</td>
<td>2.83</td>
<td>.05</td>
<td>0.32</td>
<td>0.08 - 1.21</td>
</tr>
</tbody>
</table>

*Note.* The reference group is questionable reasoning. MQ Primary is the total score for the Primary MQ Items, as outlined in the SAMA Manual (Rogers et al, 2012). The predictor of impaired Miranda comprehension was not included in the table because this parameter was set to zero in the analytic results because it was considered redundant in the analysis. Given the directionality of the hypothesis, a one-tail probability was used.

For the fifth hypothesis, a chi square analysis more closely investigated the relationship between Miranda comprehension and reasoning. Although not significant, a trend lending itself to the hypothesis was seen with a moderate effect size (Logit’s $d = 0.52$). Nearly one third (i.e., 32.6%) of participants in the VI-Comp. group had the most severe impairment in their Miranda reasoning. In contrast, only 12.0% of the I-Comp. group fell in this category.
The sixth hypothesis predicted that a greater proportion of participants in the high misconception group (i.e., the lowest tertile for the MQ Primary total score) would fall within the VI-Reas. group. For the analysis, being in the highest tertile indicates a high score (i.e., 80-100% of the MQ correct) and fewer misconceptions. Conversely, being in the lowest tertile is indicative of low performance on the MQ with many misconceptions (i.e., 33-67% correct on MQ). Though statistically not significant ($X^2 = 5.10, p = .08$), a strong trend was clearly visible (Logit’s $d = 0.67$). The small sample size made it more difficult to detect a significant effect with this analysis. A large portion (i.e., 40%) of participants in the lowest tertile of misconceptions demonstrated the greatest impairment in their reasoning abilities.

Supplementary Research Question 1: When controlling for cognitive abilities (i.e., VCI as a covariate), does level of impairment (i.e., GAS scores) go above and beyond in predicting Miranda comprehension?

For the hierarchical logistic regression, VCI was entered first, followed by the GAS score to see if global functioning provided any incremental predictive power for Miranda comprehension. VCI was a key predictor for Miranda comprehension, but GAS scores evidenced a non-significant trend in the predicted direction. However, it is very important to keep in mind the overall level of impairment seen in this inpatient sample. The current study was attempting to predict very small differences between the I-Comp. and VI-Comp. groups, with over half (i.e., 56.5%) of inpatients with GAS scores below 40 or in the severe range of impairment. This consideration helps to explain some of the homogeneity seen in the sample and provide some context for interpretation of some of the more modest findings in the current study.

Consistent with the research literature, the current study found that verbal intelligence plays the largest role in Miranda abilities, especially comprehension. It was hypothesized that the
psychological symptoms are effecting participants’ verbal abilities, and this might be leading to the “wash out” effect seen with GAS providing no incremental predictive power. At best, the relationship of psychological symptoms and verbal intelligence has yielded inconsistent results within the research literature. To examine this possible “wash-out” effect, a multiple regression was run to see if psychological symptoms were impacting participants’ verbal abilities. No psychological symptoms (i.e., GAS score or the 4 SADS-C subscales) were significantly able to predict participants’ verbal abilities.

Supplementary Research Question 2: Will a larger percentage of participants with severe (i.e., “5” on the SADS-C) and extreme (i.e., “6” on the SADS-C) psychotic symptoms fall within the very impaired Miranda comprehension group when compared to participants with less intense psychotic symptoms (i.e., SADS-C scores ranging from 2 to 4 for psychotic symptoms)?

The current sample demonstrated lower levels of psychotic symptoms than predicted. The large majority of participants were not experiencing delusions (96.5%) or hallucinations (92.9%) at the severe and extreme levels. The subgroups for severe and extreme hallucinations (n = 7) and delusions (n = 6) were insufficient to conduct chi square analysis ANOVAS. Similarly, the groups were also insufficient to run the planned analyses for the Supplementary Research Question 3.

Supplementary Research Question 4: Does alcohol and drug abuse on the SADS-C predict impaired Miranda comprehension and reasoning?

A multinomial logistic regression was used to determine whether alcohol and drug abuse are significant predictors of impaired Miranda comprehension and reasoning. The results from the regression did not support the prediction that either type of substance use is necessarily a viable factor for helping predict comprehension or reasoning.
Table 11

Alcohol and Drug Abuse as Predictors of Miranda Comprehension

<table>
<thead>
<tr>
<th>Variables</th>
<th>Predictors</th>
<th>Odds Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>S.E.</td>
</tr>
<tr>
<td>Intercept (Constant)</td>
<td>0.19</td>
<td>0.46</td>
</tr>
<tr>
<td>Alcohol</td>
<td>0.07</td>
<td>0.14</td>
</tr>
<tr>
<td>Drugs</td>
<td>0.00</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Generally, most inpatients did not possess high levels of substance use. Though, participants showed higher rates of drug abuse as compared to alcohol abuse. Severe or extreme levels of drug abuse (i.e., prescription drugs, illicit substances, or combinations) was seen in a larger portion of the sample (i.e., 28.2%). For example, only 14.1% of participants reported severe or extreme alcohol (i.e., and associated daily impairment).

Table 12

Alcohol and Drug Abuse as Predictors of Miranda Reasoning

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Odds Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Very Impaired Reasoning</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.05</td>
</tr>
<tr>
<td>Alcohol</td>
<td>-0.20</td>
</tr>
<tr>
<td>Drugs</td>
<td>0.04</td>
</tr>
<tr>
<td>Impaired Reasoning</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.22</td>
</tr>
<tr>
<td>Alcohol</td>
<td>-0.16</td>
</tr>
<tr>
<td>Drugs</td>
<td>0.15</td>
</tr>
</tbody>
</table>
Participants with moderate, severe, and extreme symptoms (i.e., SADS-C ratings from 4 to 6) were separated to see if the severity level would play a role. Differentiation of severity level was important for distinguishing Mirada abilities in past research (Rogers & Drogin, 2014). Chi square analyses were examined whether the Miranda comprehension and reasoning groups were correctly classified based on the severity of their reported alcohol and drug abuse. None of the chi square analyses for alcohol and drug abuse were significant for Miranda comprehension ($\chi^2 = 2.96, p = .40$) or reasoning ($\chi^2 = .31, p = .97$). Though, this ancillary analysis failed to provide utility in the current study, it would be interesting to examine Miranda abilities within a clinical sample with more widespread, severe substance abuse.
CHAPTER 4
DISCUSSION

As affirmed by the United States Supreme Court, the Miranda warnings are intended to serve a cautionary function by informing suspects of their rights at the time of arrest. Though well-intended, the Court could not have forecasted the undeniable reality, as demonstrated by empirical research, that most custodial suspects do not have a good grasp of even the most basic and fundamental components of *Miranda* (Rogers et al., 2011). Through the years, *Miranda* has become part of house-hold language recognized by many Americans through repeated exposures to crime shows depicting arrestees being Mirandized. As underscored by Rogers (2011), frequent exposure to these partial or incomplete “Miranda warnings” in these TV programs does not lead to accurate knowledge or full understanding of the warning content. In fact, this assumption in wrongly believing in their Miranda knowledge can be quite dangerous for custodial suspects as it could lead them to “tune out when being Mirandized. They perceive the advisement as just an administrative formality rather than a productive communication result regarding procedural safeguards. Thus, these warnings are often perceived by defendants as an option or a choice, rather than a necessity in safeguarding their rights (Rogers et al., 2010).

Regardless its wording, decades of research have made clear that suspects do not understand their Miranda rights as well as they or the courts might believe they do. Difficulty in comprehending Miranda have been repeatedly observed within a wide variety of populations ranging from undergraduate college students (with very little first-hand exposure to Miranda) to “frequent flyers” with dozens of arrests (Rogers & Drogin, 2015). Appellate courts have surmised that repeat offenders may accumulate knowledge leading to a better understanding of their rights. On the other hand, it could be assumed that higher levels of education would
improve Miranda comprehension. Contradicting both assumptions, previous research has consistently highlighted profound decrements in Miranda comprehension, regardless of sample characteristics (Gillard et al., 2014; Rogers, Steadham, & Drogin, 2011). Large proportions of pre-trial defendants were failing to comprehend even the most basic of Miranda components such as the “right to counsel.” For undergraduates, Rogers and his colleagues (2010) found marked decrements regardless of whether they received oral or written advisements, with the college sample recalling less than 50% of the warning material, on average. These findings emphasize the major conclusion that Miranda comprehension difficulties have been documented across samples, not just in specialized populations.

A commonly recurring theme is that participants on average, recall less than half of the Miranda warning content, regardless of their background. For “upper-bound” studies (i.e., research with college students in relatively un-stressful circumstances), undergraduate participants (Gillard et al., 2014) recalled nearly half (i.e., $M = 49.0\%$) of the warning content. This finding was true even within the control group, who had no situational stressors and were given the option to read magazines before being tested on Miranda comprehension. This benchmark of recalling less than 50% raises huge concerns. Suspects recalling over half of the warning could be still missing some very key Miranda components that could affect their decision-making. As a comparison, the current inpatients showed even greater decrements in their recall of the Miranda warning content. Such a dismal recall in the 30-40% range would suggest that current study inpatients are missing very integral components in the Miranda warning. On this point, inpatients recalled less than one-third of the warning (i.e., $M = 27.3\%$), a level of understanding which would be highly unlikely to lead to a knowing and intelligent waiver decision.
Methodologically, an important distinction that should be drawn when comparing Miranda research on the MRCI (CMR-II; Goldstein et al., 2012) versus the SAMA (Rogers et al., 2012). According to the authors, the Comprehension of Miranda Rights-II or the CMR-II examines the ability to paraphrase. The CMR-II tests one component at a time and uses querying and clarifications to obtain the best possible score. According to Rogers, Sharf, Carter, Winningham, and Sternad (2016), this optimized approach is not considered to be as ecologically valid as the free-recall approach. Convergently, the SAMA tests comprehension via the MCT through an open-ended format with no queuing. In addition, recall is tested in its entirety rather than component by component. This major distinction between the two measurements can best be described by Haist, Shimimaura, and Squire (1992) who explained that recall is more difficult than recognition because it requires the person to have more “extensive reinstatement” of the material or event.

Major differences in measurement methods are highlighted by the findings from Cooper and Zapf’s (2007) inpatient study. Their MRCI investigation contributed to the very sparse literature on Miranda abilities of inpatient populations. Chiefly, their research found that 60.0% of inpatients did not understand at least one of the Miranda components as measured by the CMR. This finding reflects inpatients’ deficits in paraphrasing the Miranda components in their own words when presented both verbally and in writing. Even with this simple cognitive task, comprehension continued to be problematic, enforcing the idea that psychiatric symptoms are negatively related to the capability to comprehend Miranda even when given an easier method of comprehension.

An important question with practical implications to attorneys and law enforcement involves the following. Do inpatients benefit from oral administration of the warning? To
answer this question, Miranda warning comprehension was compared to baseline knowledge. This comparison helps to determine whether suspects are actually remembering the Miranda warning as it was verbally presented or if suspects are just depending on their pre-existing knowledge of Miranda based on past experience or exposure in popular media. In previous research on legally-involved juveniles, Rogers and his colleagues (2014), demonstrated marked increases in Miranda comprehension. For instance, juveniles’ recall in the middle maturity group markedly increased from baseline (11.8%) to immediate recall (32.8%). Turning to the current study, a negligible increase of 6% was seen in Miranda recall from an average baseline of 21.3%. This small improvement still left the majority of inpatients (58.8%) within the severely impaired range. Although a statistically significant increase, this is not necessarily meaningful for large gains in overall Miranda recall.

Comparison of baseline to immediate recall at the subcomponent level highlights areas of improvement and stagnation. For example, inpatients benefited from being informed about when they could speak with counsel. Regarding baseline knowledge, none of the inpatients recalled that they could speak to an attorney before they were questioned, whereas, nearly one-quarter (24.7%) recalled this subcomponent after being Mirandized. For asserting their rights at any time, virtually no inpatients (i.e., 1.2%) knew this during baseline. Not a single inpatient recalled that their silence could be used against them at baseline, and there was essentially no change in recall after being Mirandized (3.5%). While some increases are seen in recall of certain subcomponents, being Mirandized did not seem to effect inpatients’ recall more globally.
Miranda Abilities across Three Clinically-Relevant Investigations

This section focuses on comparing data from the current study with the only two investigations have looked at Miranda abilities within clinically relevant samples. They include a non-forensic, adult inpatient sample (Cooper & Zapf, 2007) and an inpatient sample of mentally-disordered defendants (Rogers, 2008; Rogers et al., 2012). Cooper and Zapf’s (2007) investigation of Miranda abilities with adult inpatients used the MRCI, making cross comparisons much more difficult with the current study, involving the SAMA. The investigation of mentally-disordered offenders (Rogers, 2008) was collected at Vernon State Hospital (Competency Restoration Unit);² for simplicity, it is now referred to as the “Vernon sample.” Importantly, the SAMA was incorporated as part of the research design for the Vernon sample, allowing for systematic comparisons to the current sample.

The current sample and the Vernon sample differed on the nature and severity of psychopathology. Countering expectations, the current sample evidenced much lower psychotic symptoms than expected based on previous research (Rogers, 2008; Rogers et al., 2012, Wooley, 2013). Current inpatients were experiencing much fewer psychotic symptoms with an average of 5.33 on the SADS-C Psychosis subscale (i.e., indicating subclinical levels of psychotic symptoms, on average.) In comparison, Vernon inpatients had much higher psychotic symptoms, on average, as indicated by the mean subscale score of 13.11 on the same SADS-C subscale. Part of these differences can be accounted for by the nature of each facility the data was collected from. Adult inpatients in the current study had a higher number of severely depressed and actively suicidal inpatients who are hospitalized for much shorter durations (i.e., one to two weeks). Contrastingly, Vernon inpatients typically stayed for months on the competency-to-

² The name was subsequently changed to North Texas State Hospital, Vernon campus.
stand-trial restoration unit and tended to have a history of chronic mental disorders. As a result of this longer treatment duration, the Vernon sample may be more stabilized, which could help explain their higher GAS scores. An explanation in the opposite direction, higher levels of depression in the current sample could help partially explain the worse impairment in daily functioning.

These two SAMA investigations evaluated “measured abilities” for knowledge of Miranda vocabulary and Miranda comprehension. This vital emphasis on measured abilities derived from classical test theory (Novick, 1966) highlights the issue that these observed abilities include some amount of error. Also, these observed abilities do not account for what participants’ Miranda abilities might be like when they are not engaged in intensive psychological treatment. As seen with the observed abilities, current inpatients had much higher underlying verbal abilities than the Vernon sample (Rogers, 2008; Rogers et al., 2012). The current inpatients demonstrated in-tact verbal abilities considered to be within the normal range of functioning, while the Vernon sample had verbal abilities within the borderline range. These verbal abilities have been shown to be predictors of measured Miranda abilities (Rogers et al., 2011). Given that relationship, it is unsurprising that the current sample showed remarkably better performance on their Miranda vocabulary. The current sample performed much closer to “representative” offenders from the general population than to the Vernon sample on their Miranda vocabulary ability.

Problematic Miranda comprehension was widespread with both the current study and Vernon inpatients, despite their notably higher verbal abilities. Paradoxically, the current sample demonstrated worse comprehension than that of the Vernon sample (Rogers, 2008; Rogers et al., 2012). This is regardless of the fact that the Vernon sample were tested on their recall
component-by-component, and the current sample was tested with more difficult free-recall. About 10% of the mentally disordered defendants in the Vernon sample had “good understanding” (i.e., recalling 70% or more of the Miranda warning; Rogers et al., 2007). In contrast, the current sample had remarkably impaired Miranda comprehension, with no inpatients demonstrating “good understanding” even with the representative warning that was used having an Flesch-Kinkaid estimate of 7.8th reading grade level. The current samples’ presenting symptoms and overall level of functional impairment are likely contributing to their dismal recall of the Miranda components. To summarize, the pervasive issue of free recall is prominent in both samples; however, it is much more exaggerated in the current inpatient sample.

Conceptualizations of Miranda Reasoning

As summarized in the introduction, Miranda waivers must be made knowingly, intelligently, and voluntarily as emphasized in the Miranda ruling (*Miranda v. Arizona*, 1966). The current study focused on the knowing and intelligent prongs because these directly align with Miranda abilities that can be measured and studied. However, the voluntary prong was not a focus of the investigation because it falls mostly within the realm of law enforcement. To delineate the differences between knowing and intelligent prongs, Rogers and Drogin (2015) applied a very apt chess-game metaphor. The knowing prong is simply understanding how the individual chess pieces move. This chess metaphor could be taken a step further to say that the intelligent prong would be like knowing how all of the pieces work together and understanding what the opponent might do as a result of your moves on the board. For this more complex prong
of decision-making to occur, the foundational knowledge of the individual pieces must be there first.

Within the realm of case law, federal and state courts have not been in agreement as to whether a Miranda waiver must just the knowing prong or whether it must meet the intelligent prong as well. With the Miranda decision (*Miranda v. Arizona*, 1966), the United States Supreme Court required the higher-level standard. Two decades later, in *Moran v. Burbine* (1986) decision, the Court emphasized that a suspect must understand the potential outcomes of a waiver decision, which goes beyond just a factual understanding of the rights. Contrastingly, some appellate courts at the state level have determined that a simple understanding of the rights (i.e., representing the knowing prong; *People v. Daoud*, 2000) would satisfy the requirements for a valid Miranda waiver. Other state courts have required a higher standard (*People v. Young*, 2006) where suspects must have an appreciation for the ramifications of their decisions, which parallels the aforementioned federal court rulings.

Miranda reasoning, which aligns with the intelligent prong, represents a complex process that has been examined through different methods across the last several decades. For instance, Grisso (1997) provided an extensive explanation regarding the levels of rational decision-making involved in a waiver decision. The most basic level requires merely thinking of potential consequences and their alternatives. For example, suspects might know their basic choices; that they can either decide to answer police questions or remain silent. Moving up the decisional ladder involves higher-level processes such as understanding the potential chance of those consequences actually happening. Moving to the last stages of the decisional process, Grisso stated that suspects must be able to weight the desirability of each consequence and comparing them to come to a final decision. Similarly, as emphasized by Rogers and Drogin (2014),
suspects must at least have knowledge of possible decisions and their consequences to have even a low level of rational thinking when it comes to Miranda waiver decisions.

As another way of conceptualizing Miranda reasoning, Rogers and his colleagues (2007) adopted a fine-grained approach to understand decision-making for either exercising or waiving one’s rights. Essentially, they examined specific reasons for either exercising or waiving the right to silence and the right to an attorney. A distinction must be made in this approach to investigating rational Miranda waiver decision-making. Namely, defendants were asked to think about their own case when explaining their reasoning for exercising or waiving their Miranda rights.

With this approach (Rogers et al., 2007), nearly one fifth of the Vernon inpatients (i.e., 17.8%) reasoned that it would be beneficial to waive their right to silence in order to prove their innocence. This type of error in reasoning can lead to detrimental outcomes and goes directly against the Miranda protection that tells suspects that any statements made can be used as evidence of guilt. Conversely, a large majority (i.e., 63.6%) of defendants explained that exercising their right to silence would help them avoid incrimination. Most defendants were able to reason about this first and most recalled Miranda protection.

For the right to attorney component, Rogers and his colleagues (2007) found that most defendants appropriately reasoned that exercising their right to legal counsel would help them in their case (i.e., 83.2%). However, nearly one-fifth of defendants (i.e., 19.6%) thought they should waive their right to an attorney in order to handle the case themselves, which is likely to be a poor appraisal of their abilities. Nearly the same proportion of defendants (i.e., 17.8%) inaccurately reasoned that lacking the financial means would be a good reason to waive their right to legal counsel. Seen at much smaller percentages, a few defendants thought another good
reason to waive this right would be because they did not trust attorneys or did not think that the attorney would be really invested in their case. This fine-grain approach provided relevant insight into the deeper thought process and content that defendants might engage in while making a waiver decision. Later research on the MRM (Sharf, Rogers, & Williams, 2016) used an alternative scoring system which was based on Grisso’s scoring system used for the WEI (Grisso, 1981). Sharf and her colleagues created “content” and “consequence” scores for the legally-involved juveniles, and they found that those who focused on short-term reasons were twelve times more likely to confess than juveniles with more intact reasoning.

The two major Miranda assessment tools have examined aspects of the “intelligent prong” of valid Miranda waiver decisions. Although, Goldstein, Zelle, and Grisso (2012) emphasize that the key aim of the MRCI is to measure Miranda comprehension, it also goes beyond to appreciation for their rights in interrogation. Namely, the Function of Rights in Interrogation (FRI) tests not just a basic understanding, but also suspects’ appreciation for their rights in the interrogation situation (Frumkin & Sellbom, 2013).

In comparison, the SAMA (Rogers et al., 2012) goes further than just an appreciation of rights and delves deeper into examining the rational decision-making process (i.e., via the MRM) suspects engage in to make a waiver decision. Realistically, both of these forensic assessment instruments map onto the “intelligent prong,” though, they are measuring subtly different parts of the same prong. The MRCI provides information about the beginning stages of making an “intelligent” waiver decision; whereas, the SAMA provides a picture of the fuller extent of that decisional process. Even with further measurement of the decisional process, research has shown (Blackwood et al., 2005) that this process is relatively simplistic for suspects, and that their considerations of pros and cons does not have major implications for their final waiver decision.
As a key strength of the SAMA, Blackwood and her colleagues (2015) recognized that the Miranda Reasoning Measure (MRM) from the SAMA can look at suspects’ ability to weigh pros and cons of various waiver decisions. Though, they also acknowledged that this does not necessarily address the complete scope of higher-order decisional tiers described by Grisso (1997). Creatively, their study asked pretrial defendants to consider the likelihood and desirability of waiver decision consequences, which were then combined to represent “appraisal scores.” This study established three groups based on the appraisal scores which consisted of (a) defendants who thought waiving was the best option, (b) participants who thought exercising was the best, and (c) participants who thought both were equally beneficial. As a positive finding, over half (i.e., 55.0%) of suspects reasoned that the choice to exercise their Miranda rights represented the best decision. In contrast, about one-third (i.e., 33.0%) determined that their best option was to waive their rights. The remaining equally valued both options.

Blackwood and her colleagues (2015) found that suspects’ final waiver decisions did not necessarily align with their evaluation of consequences as measured by the augmented scoring on the MRM. To illustrate, nearly half of the defendants who provided more rationale for exercising their Miranda rights subsequently elected to relinquish their rights. What this really shows is that there is no guarantee of a final rational Miranda waiver decision, even when suspects’ appraisal of benefits of exercising their rights seems intact, and there is a possibility that emotion could be over-riding the underlying reasoning process during a custodial interrogation.

The current study investigated Miranda reasoning using a different approach that focuses on short and long-term consequences. The Court assumed (Berghuis v. Tompkins, 2010) that criminal suspects know they can invoke their rights at any time and that this knowledge would
allow for them to consider long-term consequences. With that particular piece of the Court’s
decision, several assumptions were made that have been studied in the empirical literature. For
example, this assumes that suspects are able to function at a capacity that would allow them to
actively recall the warning and reason about waiver decisions. The current study’s broad,
temporally-focused approach to reasoning helps better understand if defendants take a future-
oriented thinking style when engaging in rational-decision making about Miranda waivers. In the
current study, Miranda reasoning was conceptualized based on levels of impairment. With this
approach, specific problems with Miranda reasoning cannot be ascertained as it has been in
previous research (Blackwood et al., 2015).

With this temporal approach, the current study showed that a majority of current
inpatients were thinking about short-term rather than long-term consequences when reasoning
about the Miranda rights. When asked about the possible problems of talking to police (i.e.,
without having an attorney present), over half of inpatients (i.e., 55.3%) were thinking about
short term consequences like ending the interview or needing an ally. Whereas, only 38.8% of
inpatients were thinking of long-term consequences like self-incrimination in a future trial and
sentencing outcomes. In comparison to the current inpatients, Blackwood and her colleagues
(2015) showed that about half of offenders provided reasons based on future consequences (i.e.,
51.3%). This could be a result of having more experience in the justice system and knowing
anecdotally the adversarial nature of arrest and interrogation procedures.

Suspects may hear on the surface level that they have the “right to silence,” but this
component does not necessarily communicate specifically that it is a Constitutionally protected
safeguard. This might explain why so many of the current inpatients (i.e., 43.5%) mistakenly
reasoned that their silence can be used against them in court proceedings. The idea of protected
silence is not a universal standard when looking across other countries that inform suspects of due process protections, however. This proportion of inpatients would be correct in their belief if they were being detained and interrogated in parts of the UK or Australia (Skinnider, & Gordon, 2001; Daly, 2014). Comparing current inpatients’ difficulty on the right to silence component with “upper-bound” undergraduates shows greater levels of impairment in the current study. For example, only 21.0% of undergraduates failed to consider the long-term consequences of waiving the protection of silence (Rogers et al., 2012). In contrast, well over half (62.9%) of the current inpatients failed to recognize long-term consequences for giving up their silence. Regardless of impairment level, this finding points to the idea that this component requires more than just a surface-level understanding in order to understand the implications of giving up the right to silence.

On the second Miranda component for the right to legal counsel, current inpatients were demonstrating more short-term reasoning as opposed to being focused on the longer-term implications of exercising this safeguard. For instance, nearly sixty percent (i.e., 58.8%) of inpatients were citing present considerations such as wanting an ally in the interrogation. Compared to the current sample, an even larger proportion (83.2%) of the Vernon inpatients from Roger and his colleagues (2007) stated they “wanted assistance with their case” as a short-term reason for exercising their right to silence. Recognition of short-term consequences such as having an ally present in the interrogation is salient and a benefit of which was directly recognized in the U.S. Supreme Court’s Miranda decision. Specifically, the Court’s decision maintained that the presence of a lawyer would likely help decrease police coercion and “help to guarantee that the accused gives a fully accurate statement to the police, and that the statement is rightly reported by the prosecution at trial.” (Miranda v. Arizona, 1966, p. 470).
Conversely, inpatients tended to focus less on the long-term consequences of their decisions about the right to counsel. Just over one third of inpatients (i.e., 36.5%) gave reasons with long-term outcomes in mind, such as protecting against self-incrimination to be used in a future trial to prove their guilt. On the lower end of the reasoning spectrum, about one-tenth of inpatients (10.6%) thought that asking for an attorney would be used against them at trial. Even though this is a relatively small percentage, this belief could be enough of a deterrent for suspects that they would not even bother to ask for an attorney when arrested and interrogated.

People with serious mental disorders have significant Miranda reasoning impairment that is influenced by specific symptoms domains (Rogers & Drogin, 2014). Past research has shown this to be especially true for individuals experiencing psychotic or manic symptoms (Cooper & Zapf, 2008; Rogers et al., 2007). With the current inpatient sample, Dysphoric symptoms differentiated between two levels of impaired reasoning. Inpatients with slightly lower levels of dysphoria demonstrated the most severe impairment in Miranda reasoning. At the item level, the VI Reasoning group showed the lowest levels of Guilt and Worthlessness. These items could be decreasing these inpatients’ involvement and motivation when engaging in Miranda reasoning. The current findings also suggest the Insomnia subscale might play a role, but this is much harder to interpret because insomnia is a symptom that is common to many mental disorders. The framework provided by Rogers and Drogin (2014) helps to bring clarity to the current findings by emphasizing that it is not just the severity psychological symptoms, alone, that matter. Rather, it is the blend of severity and symptom content taken together that increases the likelihood of Miranda reasoning impairment.

The process of Miranda reasoning is far from simplistic or straightforward, even with such high levels of impairment seen in the current sample. The intricacies of such a complex
process can be illustrated in several ways. For example, even if some inpatients demonstrated Likely Adequate reasoning, this would not necessarily equate to the ability to have fully adequate reasoning abilities. The term “adequate reasoning” was used by Rogers and his colleagues (2012) in the SAMA manual to identify participants who had all scores of “2” or greater on the MRM. The current study made a slight, but relevant wording change to term these participants as having “Likely Adequate” reasoning (Rogers & Drogin, 2014). This is intended to highlight the nuances and complexity of Miranda reasoning in waiver decisions. Even inpatients who were thinking of the long-term benefits for exercising one component could have damaging reasoning on a different Miranda component. For example, suspects might correctly reason that they have the right to an attorney and realize they would benefit from having counsel present. Though, they erroneously reason about another piece of Miranda by believing that they cannot afford a lawyer. Hence, the added term “likely” indicates the possibility that reasoning is probably adequate, but recognizes no guarantee by avoiding the use of unequivocal language.

Final Waiver Decisions

Beyond inpatients’ reasoning, the current study was interested in the proportion of inpatients who ultimately chose to exercise or waive their rights. Not surprisingly, about half (50.3%) chose to waive their rights at the beginning of the interrogation. Current inpatients also had the option to exercise their rights even after they had started talking in the interrogation. This safeguard is enshrined in the fifth component of Miranda which allows for assertion of rights at any time (Rogers et al., 2008). Nearly one quarter (24.7%) of inpatients followed this route of waiving, then exercising their Miranda rights. For these inpatients, eventual exercising of rights is better than not exercising at all because it stops further self-incrimination. This change in
response style to the interrogation could reduce the amount of damage done if they chose to keep talking. Interestingly, the proportion of inpatients choosing to exercise their rights is much higher than the rates seen in a recent study with legally-involved juveniles. Much higher proportions of juveniles (Sharf, Rogers, & Williams, 2016) chose to waive (i.e., 86.2%) as opposed to exercising their Miranda rights (i.e., 13.8%). What this indicates is that even with the severity of symptoms present, inpatients are still making the beneficial choice of putting their Constitutional safeguards to use.

Inpatients who chose to waive their rights did this in a number of ways, such as breaking their silence to deny the crime, which few inpatients chose to do (i.e., 9.4%). Other inpatients (i.e., 47.1%) provided an outright confession based on their perceived guilt or wanting to be forthcoming. A majority (i.e., 64.7%) of inpatients provided an explicit confession at some point during the interrogation, even after being Mirandized and warned of the perils of doing so. A salient point worth noting is that the “interrogation” in the current study lasted for around three to five minutes, but a real-life interrogation could last any number of hours, increasing the likelihood of confessions. To support this point, previous research (Leo, 1996; Thomas, 1996) has estimated that 76-80% of custodial suspects end up confessing.

Even with the high rate of impairment in comprehension and reasoning, nearly one quarter of inpatients (24.7%) decided to exercise their rights in the interrogation. It is intriguing that these inpatients decided to remain silent or asked for an attorney, despite the level of impairment already highlighted in the sample. Most of the inpatients who chose to give a full confession were considered to have impaired Miranda reasoning, either Impaired or Very Impaired. As discussed, the underlying reasoning process does not always reflect what the final waiver decision and outcome will be (Blackwood et al, 2015). With the current inpatient sample,
overall impairment in Miranda abilities was reflected in the majority of inpatients’ final choice to admit to committing the crime in the given scenario. Comparison of the current inpatient sample to pre-trial detainees (Blackwood et al., 2015) showed that the current inpatients’ reasoning and final waiver decisions were even more discrepant than that of the detainees. Of those pre-trial defendants who said that exercising their rights was the best choice, only 54.5% of those participants ended up exercising their rights during interrogation. These findings have serious implications for arrestees with high levels of functional impairment who will likely struggle with understanding even the most basic Miranda components and will not be likely to logically reason through a Miranda waiver decision.

Miranda Misconceptions

Misconceptions about Miranda can exist on many different levels. Suspects can have false beliefs regarding the content of the Miranda warning itself, which was first recognized in Grisso’s (1981) seminal investigations with offender samples. For example, some suspects may falsely believe their silence can be used against them. More broadly, suspects can also have misconceptions regarding their own knowledge of the Miranda rights. This has been termed meta-knowledge; but given the findings of pervasive misconceptions, it could be more accurately termed “meta-ignorance” (Rogers, 2008). Meta-knowledge refers to having awareness of one’s own knowledge; whereas, meta-ignorance refers to awareness of one’s lack of knowledge.

Furthermore, courts frequently make the assumption that if a Miranda warning is read, then this must equate to a suspect being adequately informed of these vital protections. As an extension of this false assumption of the courts, Rogers (2011) has proposed the professional
neglect hypothesis which suggests that professionals within the legal system are not likely think about how impairments in Miranda abilities effect suspects’ waivers and legal-decision making.

As a parallel to the Miranda literature, eye-witness testimony research has shown that people are typically over-confident in their self-appraised knowledge and accuracy of their memory (Kassin, Tubb, Hosch, & Memon, 2001). As noted, the literature has shown that experience with the justice system and repeated exposure to Miranda through arrests does not increase understanding of the warnings (Rogers et al., 2013). However, it does increase detainees’ belief in the accuracy of their recall (Rogers et al., 2013). This pattern of overconfidence was also reflected with the current inpatients, where their self-appraisals were much higher than their demonstrated abilities. Most of the current inpatients (i.e., 60.0%) appraised their Miranda knowledge to be within the “average range,” which is slightly lower than detainees’ self-appraisals (i.e., 66.3%; Rogers et al., 2013). While clearly an over-estimation of Miranda knowledge, the “average” appraisals were not nearly as discrepant as the inpatients who believed they had “excellent understanding (i.e., 11.8%). The “excellent” appraisals are clearly missing the mark, as none of the inpatients had “Likely Adequate” understanding.

Beyond Miranda misconceptions per se, inpatients had many misunderstandings in the domain of police practices and knowing under what circumstances that Miranda applies (i.e., such as if they are detained by store security). Most inpatients thought that officers must be truthful during custodial interrogation. Just under half (47.1%) of current inpatients thought that they could retract their statement without hurting their case if police had lied to them. This false belief is undeniably perilous in the adversarial, unforgiving atmosphere of an interrogation (Rogers & Drogin, 2015). Though, the current inpatients performed extremely well on specific
MQ items such as knowing that a lack of money would not stop them from attaining legal counsel. This finding is greatly contrasted by findings about this particular item within juvenile and adolescent samples in the Miranda literature. Juveniles particularly struggle with the concept of free legal services and often believe that their family will be responsible for the fees (Rogers et al., 2014).

Given the range of inpatients misconceptions at baseline, it would be hoped exposure to the Miranda warning would help correct some of those erroneous beliefs. On average the current inpatients were getting approximately 70.0% of MQ items correct at baseline. It is important to remember that with the MQ true/false items (Rogers et al., 2012) the inpatients could score 50.0% correct just on chance alone. Unfortunately, the current study did not reflect any differences in misconceptions between baseline and after being Mirandized. For Miranda misconceptions, the current study supports previous findings (Rogers et al., 2013) which show that being Mirandized does not successfully rectify false ideas about the Miranda rights.

Methodological Considerations

Miranda studies vary in methodology from using written vignette approaches (i.e., less realistic involvement of participants; Grisso, 1981) to examining their own recent arrests (Rogers et al., 2007). These divergent methods, useful in their own right, offer different balances between ecological validity and scientific rigor. The three common research designs used are the written vignette, mock crime, and cheating/confrontation designs. As early as 1981, Grisso was conducting the first vignette studies of Miranda reasoning in juvenile detainees using the Waiver Expectancy Interview. The current study uses an augmented vignette method with a brief video-recording of the alleged offense. A major strength of the vignettes involves their scientific rigor,
in that every participant is being exposed to the exact same stimuli. Predictably, a drawback of this method is that the participants are being asked to imagine themselves in the perpetrator’s shoes, instead of being actively involved in being Mirandized and interrogated.

The “mock crime” research design (Rogers et al., 2010; Gillard et al., 2014) is the second design that has been extensively used in Miranda research. Providing much more ecological validity, participants are actively involved in the alleged crime. This is achieved through participants assuming the role of a perpetrator and attempting to steal a watch in a research lab environment. Though, with the mock crime scenario, there is much more chance of variation between participants due to their approach to stealing the watch and the duration before they are “caught.” Some really involved participants choose to unplugging lights and tampering with the siren equipment which can keep these from being activated when caught. These variations in participant experiences provide a more realistic experience, but makes it more difficult to ensure exact scenarios with high levels of precision. Variations of the “mock-crime” design has been used in other areas of criminal justice-related research. For example, Kassin, Kukucka, Lawson, & DeCarlo (2014) implemented a mock-crime scenario to investigating whether the use of video-recording would alter police interrogation behavior. Kassin and his colleagues (2014) provided even greater ecological validity by using real officers (i.e., for a portion of the sample) at a real police station. However, they noted that this kind of data collection poses greater difficulty in initiating collaboration from local police departments and then recruiting enough officers to participate.

Offering an alternative to the mock-crime design, the third paradigm is the cheating confrontation scenario originally created by Russano, Meissner, Narchet, and Kassin (2005). Students are placed in a setting and asked to perform a task. With this method, students are
randomly assigned to either an “innocent” group or “cheating” group. This approach differs in several ways from the mock crime, but the key element of this cheating design is that the students experience direct confrontation of their transgressions (Scherr & Madon, 2012). In the mock crime design, participants are indirectly confronted by a researcher coming into the room to promptly Mirandize and interrogate the participants. Scherr and Madon (2012) viewed the direct confrontation to have a greater influence on participants’ stress levels, as compared to a mock crime paradigm.

Comparisons between the mock-crime (Gillard et al., 2012; Rogers et al., 2010) and the cheating confrontation paradigms (Russano et al., 2005) revealed large differences in terms of effect sizes. To illustrate, the confrontation paradigm yielded much larger effect sizes for the Comprehension of Miranda Rights (CMR; $d = 1.14$) and the FRI ($d = 1.46$). For the mock-crime paradigm using the SAMA, effect sizes were more modest on comprehension ($d = 0.75$) and reasoning ($d = .58$). This disparity indicates that a direct confrontation (i.e., overt accusations of cheating) have larger effects than the mock crime scenario in which the participant is “caught” and read their rights before they are questioned. In this way, the mock-crime scenario is viewed by some researchers as a more indirect confrontation of wrong-doing. In summary, there is not necessarily a “best” research design, but there needs to be consideration for why one would choose one as opposed to the other available modalities. Each research design offers something unique that helps with striking the delicate balance between ecological validity and rigorous scientific design. All three designs are considered valuable to the Miranda literature and taken together, help to provide a very well-rounded literature in terms of methodology.
Limitations

Useful to both legal and mental health professionals, the current study added to the literature by providing a depth of information about Miranda abilities within an inpatient sample. However, the current study had some limitations which could be addressed by future research. One difficulty with the current study was recruiting participants and collecting detailed data in an inpatient psychiatric hospital. Aside from gaining facility access and scheduling logistics, it was not an easy undertaking to recruit inpatients to be fully engaged in a 1.5 to 2-hour long research study. The acute and severe symptomatology in an inpatient sample posed specific challenges resulting in a lower sample size than desired.

A second limitation of the lack of ethnic diversity in the current sample. However, the study could have been strengthened by greater representation of various ethnicities. The lack of diversity in the current sample was not a result of the recruitment technique, but rather a reflection of the population of the UBH adult inpatient unit. This makes it more difficult to generalize the current findings to ethnicities other than European Americans.

Although not necessarily a weakness of the current study, a note on diagnostic considerations should be made. The current study only collected data using the SADS-C semi-structured interview, with the attempt to balance depth of clinical data and placing reasonable demands on participants. This method provided severity ratings for key symptom areas. However, it did not provide specific diagnoses or a greater breadth of diagnostic information. The ability to have access to case files and previous psychological diagnoses would have been an excellent addition to this type of Miranda abilities study.

In addition, participants were only asked three questions about their substance use pertaining to alcohol, drugs, and the effects of those on their daily functioning. This area of
research would benefit from more in-depth information on specific substances and whether they have an impact on Miranda abilities. One option for measuring this would be the Adult Substance Abuse Subtle Screening Inventory – 4 (SASSI-4; Lazowski, Kimmell, & Baker, 2016). Importantly, the current study had a very small proportion of inpatients who were openly reporting severe and extreme symptomatology (i.e., scores of “5” and “6” on the SADS-C). This should not be taken to mean that there is no relationship between prior substance abuse and legal abilities. It means that the current study was simply not able to fully analyze this relationship due to the lack of heavy substance users in the sample.

Future Directions

Careful thought about current Miranda paradigms reveals that the present methods do not adequately induce and assess the effects of situational stress on Miranda abilities and subsequent waiver decisions. The few studies have attempted to look at this (Gillard et al., 2014; Rogers et al., 2012) have used a brief self-report to measure state anxiety (i.e., situational stress). Future research studies should consider alternative ways of measuring situational stress as it relates to performance on Miranda measures and decision-making capacities. One option could be to measure stress physiologically with the use of a (i.e., FitBit or other health tracker). This would provide information about the heart-rate without being intrusive, and this method has been used successfully in other areas of psychological research (de Zambotti et al., 2016). This method would work the best within paradigms in which participants are physically active, such as the mock-crime or cheating-confrontation situations.

A second area of consideration for future research is the use of Virtual Reality (VR) technology, which could help to balance the needs for ecological validity and scientific rigor
(Parsons, 2015). The VR research paradigm could work similar to the mock crime design or the cheating scenario design. However, it would allow for easy manipulation of the research variables within the simulated situations, all while ensuring every participant is exposed to an identical virtual experience. This approach is more involved than the augmented video vignette approach, providing a more realistic experience for participants. Having three VR experiences of a mock-crime, arrest, and interrogation would make the paradigm more parallel to suspects real-life situations. The VR paradigm has been used for research involving police training experiences and other forensic psychology research (Moskaliuk, Bertram, & Cress, 2013). This technology has been used in past studies as part of exposure therapy to induce anxiety in participants (Page & Coxon, 2016; Seinfeld et al., 2016), which brings up the idea that VR could be used to address the notable gap in the literature for measuring anxiety as related to Miranda. This future avenue for Miranda research could be fruitful endeavor by expanding the current literature and addressing some of the shortcomings of the methodologies currently used in Miranda research.
APPENDIX

SUPPLEMENTARY TABLES
Table A.1

*Dysphoria Subscale Symptoms across the Three Miranda Reasoning Groups*

<table>
<thead>
<tr>
<th>SADS-C Item</th>
<th>Total ( n = 71 )</th>
<th>Q-Reas. ( n = 23 )</th>
<th>I-Reas. ( n = 30 )</th>
<th>VI-Reas. ( n = 18 )</th>
<th>( M )</th>
<th>SD</th>
<th>( M )</th>
<th>SD</th>
<th>( M )</th>
<th>SD</th>
<th>( M )</th>
<th>SD</th>
<th>F</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective</td>
<td>4.55</td>
<td>1.33</td>
<td>4.87</td>
<td>1.52</td>
<td>4.60</td>
<td>1.30</td>
<td>4.06</td>
<td>1.00</td>
<td>1.99</td>
<td>.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worrying</td>
<td>3.38</td>
<td>1.11</td>
<td>3.48</td>
<td>2.20</td>
<td>3.60</td>
<td>1.10</td>
<td>2.89</td>
<td>0.90</td>
<td>2.53</td>
<td>.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guilt</td>
<td>3.44</td>
<td>1.34</td>
<td>3.57(a)</td>
<td>1.38</td>
<td>3.37(a)</td>
<td>1.17</td>
<td>2.78(b)</td>
<td>1.40</td>
<td>3.21</td>
<td>.05*</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Worthlessness</td>
<td>3.51</td>
<td>1.35</td>
<td>3.87</td>
<td>1.14</td>
<td>3.73</td>
<td>1.26</td>
<td>2.67</td>
<td>1.46</td>
<td>5.31</td>
<td>&lt;.01**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hopelessness</td>
<td>2.89</td>
<td>1.27</td>
<td>3.04(a)</td>
<td>1.11</td>
<td>3.03(a)</td>
<td>1.35</td>
<td>2.33(b)</td>
<td>1.24</td>
<td>2.14</td>
<td>1.25</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Suicidal</td>
<td>3.70</td>
<td>2.19</td>
<td>3.13</td>
<td>2.07</td>
<td>4.27</td>
<td>2.13</td>
<td>3.50</td>
<td>2.31</td>
<td>1.91</td>
<td>.16</td>
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Table A.2

*Cohen’s d for Dysphoria Subscales across Three Miranda Reasoning Groups*

<table>
<thead>
<tr>
<th>SADS-C Item</th>
<th>$d_1$</th>
<th>$d_2$</th>
<th>$d_3$</th>
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</thead>
<tbody>
<tr>
<td>Subjective</td>
<td>0.19</td>
<td>0.61</td>
<td>0.45</td>
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<tr>
<td>Worrying</td>
<td>-0.07</td>
<td>0.34</td>
<td>0.69</td>
</tr>
<tr>
<td>Guilt</td>
<td>0.16</td>
<td>0.57</td>
<td>0.47</td>
</tr>
<tr>
<td>Worthlessness</td>
<td>0.12</td>
<td>0.93</td>
<td>0.79</td>
</tr>
<tr>
<td>Hopelessness</td>
<td>0.008</td>
<td>0.61</td>
<td>0.53</td>
</tr>
<tr>
<td>Suicidal</td>
<td>-0.54</td>
<td>-0.17</td>
<td>0.35</td>
</tr>
</tbody>
</table>

*Note.* $d_1$ is the comparison between Questionable and Impaired groups. $d_2$ is the comparison between Questionable and Very Impaired groups. Finally, $d_3$ is the comparison between Impaired and Very Impaired groups.
REFERENCES


