

DETECTING THE DIFFERENCES IN MIRANDA ABILITIES  
BETWEEN INDIVIDUALS WITH AND WITHOUT  
INTELLECTUAL DISABILITY

by

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## ABSTRACT

**Objective:** Although *Miranda v. Arizona* (1966) enacted safeguards for individuals entering custodial situations, existing research suggests that most individuals do not understand these protections. The purpose of this study was to evaluate the differences in *Miranda* abilities and response styles between a group of individuals with intellectual disability (ID) and a group without ID, which would clarify areas of vulnerability for individuals with ID. Additional goals were to determine if intelligence was an accurate predictor of these abilities, and to assess whether self-rated confidence was related to comprehension of *Miranda*. **Hypotheses:** The individuals without ID were expected to demonstrate significantly better *Miranda* abilities than the individuals with ID. Intelligence, specifically verbal intelligence, was expected to be an accurate predictor of knowledge, recall, acquiescence, and vocabulary. When comparing the two groups, it was hypothesized that confidence would relate to comprehension when controlling for the presence of ID. **Method:** Sixty-two individuals with ID and 23 individuals without ID completed the Wechsler Adult Intelligence Scale– 4th ed., the Standard Assessment of *Miranda* Abilities, and a background questionnaire. **Results:** The group without ID demonstrated better recall, knowledge, and vocabulary, whereas the ID group demonstrated more acquiescence. Analyses involving intelligence were limited, but intelligence was significantly related to recall, response style, and vocabulary with verbal intelligence demonstrating relationships with recall and vocabulary. Confidence was not related to *Miranda* knowledge. **Conclusions:** Individuals with ID are at a significant disadvantage in custodial situations due to poor *Miranda* abilities. Systematic modifications are recommended to rectify these vulnerabilities.

## DEDICATION

In memory of David and Viva Chaudoin

For welcoming me into your hearts and home and being a safe port to weather all the storms.

## LIST OF ABBREVIATIONS AND SYMBOLS

ADA	Americans with Disabilities Act of 1990
ID	Intellectual Disability
U.S.	United States
APA	American Psychiatric Association
AAIDD	American Association on Intellectual and Developmental Disorders
SAMA	Standardized Assessment of Miranda Abilities
IQ	Intelligence Quotient
FSIQ	Full-Scale Intelligence Quotient
WAIS-IV	Wechsler Adult Intelligence Scale – Fourth Edition
VCI	Verbal Comprehension Index
PRI	Perceptual Reasoning Index
WMI	Working Memory Index
PSI	Processing Speed Index
MQ	Miranda Quiz
MCT	Miranda Comprehension Template
MAQ	Miranda Acquiescence Questionnaire
MAQ CON	Miranda Acquiescence Questionnaire Content Congruency Scale
MAQ ACQ	Miranda Acquiescence Questionnaire Acquiescence Scale
MAQ NAY	Miranda Acquiescence Questionnaire Nay-Saying Scale
MVS	Miranda Vocabulary Scale

$\alpha$	Cronbach's index of internal consistency
$r$	Pearson correlation coefficient
$r_s$	Spearman rank-order correlation coefficient
$n$	Number of participants in a given group
$N$	Number of participants in a given sample
$M$	Mean: The sum of a set of values divided by the number of values in the set
$SD$	Standard deviation: Value of variation from the mean
$t$	T Statistic: Value determining whether sample means differ
$p$	Probability associated with the occurrence under the null hypothesis of a value extreme as or more extreme than the other observed value
$F$	F statistic: Value calculated by the ratio of two sample variances
CI	Confidence Interval
$df$	Degrees of Freedom
$U$	number of times observations in one sample precede observations in the other sample in the ranking
$z$	Standardized score statistic
$\chi^2$	Chi-square statistic: Value that defines the difference between observed counts and expected counts
$R^2$	Coefficient of determination and measure of how close data are to a fitted regression line
$\eta^2$	measure of effect size and percentage of variance in the dependent variable
<	Less than
=	Equal to

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## CHAPTER 1

### INTRODUCTION

As a society, the United States has taken many precautions to preclude inequality and inappropriate treatment of individuals with disabilities. For example, the Americans with Disabilities Act of 1990 (ADA) was enacted to prevent discrimination in the areas of access and employment based on disability. Similar protections are found in legal decisions made by the Supreme Court of the United States, where the goal was to ensure fairness and justice for individuals with disabilities who become involved in the legal system. These protections were driven by the recognition that people with disabilities, such as intellectual disability (ID), may be vulnerable in the legal system, and that their impairment may require specialized procedures. One such example of legal protection was established with the case of *Atkins v. Virginia* (2002), in which the Supreme Court ruled that the execution of individuals with intellectual disability (ID) was unconstitutional as it violated the premise of the Eighth Amendment. The Court considered individuals with ID to be less culpable when compared to the average criminal due to an impaired capacity to understand and process information, and to engage in logical decision-making processes (*Atkins v. Virginia*, 2002).

Although the Supreme Court recognized the need to safeguard individuals with ID against cruel and unusual punishment, there has been a general lack of consideration regarding protections during other criminal procedures. For example, protections have not been established to ensure the rights of individuals with ID are protected at all stages of criminal proceedings, including during custodial interrogations. The absence of these safeguards may serve as a

contributing factor to the over-representation of people with ID in the criminal justice system. Although the prevalence of intellectual disability (ID) is only one percent of the general population (Maulik et al., 2011), recent estimates indicate that 7-10% of the current United States prison population is comprised of individuals diagnosed with ID (Hellenbach et al., 2016). This disparate proportion of incarcerated individuals with ID compared to the prevalence rate in the community elucidates the concern that the current level of legal protections for these individuals is insufficient.

### ***Miranda v. Arizona (1966)***

In 1966, the Supreme Court ruled that more safeguards must be instituted to protect against the violation of the Fifth and Sixth Amendment during the process of arrest. In the majority opinion of *Miranda v. Arizona* (1966), former Chief Justice Warren wrote that “unless adequate preventive measures are taken to dispel the compulsion inherent in custodial surroundings, no statement obtained from the defendant can truly be the product of his free choice” (p. 437). The *Miranda* decision served to reinforce the protection against self-incrimination and the right to legal representation by requiring individuals to be informed of these rights upon entering a custodial situation. As per *Miranda* (1966), individuals must be informed of the following:

1. The right to remain silent;
2. Any statements can be used as evidence in a court of law;
3. The right to the presence of legal counsel;
4. The right to have legal counsel appointed if an individual is unable to afford one; and,
5. The preceding rights are exercisable at any time.

These five components are now commonly referred to as the *Miranda* rights. Although exact wording may vary by jurisdiction, the general information listed above must be provided to individuals during the reading of their rights.

Although the rights encompassed in the *Miranda* (1966) decision are guaranteed, an individual may choose to forego these protections, which is commonly referred to as a *Miranda* waiver. Former Chief Justice Warren noted in the majority opinion that an individual may utilize the *Miranda* waiver, but only if they do so in a knowing, intelligent, and willing manner. The Court did not provide guidelines or a standardized procedure for determining if a waiver has met these three requirements. Rather, the responsibility falls to the law enforcement officers involved in the proceedings to determine whether these criteria are met, or to the legal system if a claim of competency to waive *Miranda* rights is raised.

Subsequent rulings to *Miranda* (1966) added additional complexities to the process of invoking or waiving one's *Miranda* rights. For example, the Supreme Court ruled that without an explicit invocation of rights, an individual is offering an implied waiver (e.g., *Berghuis v. Thompkins*, 2010; *Salinas v. Texas*, 2013). These decisions now require individuals in custody to offer clear, unambiguous invocations in order to utilize the protections derived from *Miranda*. This is particularly problematic given the Court's prior judgment that law enforcement officers have no obligation to cease questioning suspects in custody if such individuals offer only equivocal statements regarding their rights (*Davis v. United States*, 1994). Furthermore, the *Davis* (1994) opinion stipulated officers are not required to clarify ambiguous statements related to *Miranda* made by individuals in custody. If an individual lacks an appropriate understanding of the process to invoke their rights, the protections those rights were intended to uphold (i.e., right to legal representation and protection from self-incrimination) are no longer safeguarded.

## ***Comprehension of Rights***

The *Miranda* (1966) ruling was directed at upholding the protections of the U.S. Constitution, but as many as 108 other international jurisdictions utilize similar cautions (Law Library of Congress, 2016). Some of these cautions are descended directly from the *Miranda* decision (e.g., legal protections provided by the European Union), while others were developed independently and contain similar components (e.g., police warnings from Canada, Scotland, and England). The information commonly found across most police warnings, including *Miranda*, is the right to silence and the right to legal counsel, although the specific nature of these protections may vary across jurisdiction. One commonality that is found across location is that individuals often demonstrated impaired understanding of the warnings.

A study conducted by Fenner et al. (2002) demonstrated that both jail detainees and community members could not provide a comprehensive explanation of their rights after hearing a police caution from England and Wales in its entirety. A three-sentence police caution was read to the participants, who were then asked to explain the meaning of the three components. The authors reported that none of the participants demonstrated comprehension of all three components. The component with the highest participant comprehension rate was understood by 40% of the jail detainees and 29.1% of the community sample, for an approximate average of 35% of the sample. Even more shocking was the recognition that the least understood component was only comprehended by 7.4% of the entire sample (Fenner et al., 2002).

Similar to the findings of Fenner and colleagues (2002), Cooke and Philip (1998) discovered that only 11% of a sample of young offenders demonstrated a complete understanding of the Scottish police caution. Critically, almost one-fourth of the sample did not exhibit even a partial understanding of the caution. The results of a study that utilized a sample

of adults from the community were nearly identical with only 13.8% demonstrating full comprehension of an English police warning when read in its entirety (Shepherd et al., 1995). Even with a modified presentation method (i.e., reading the warning one sentence at a time), less than half of the sample (i.e., 40%) was able to evidence a complete understanding (Shepherd et al., 1995).

Moore and Gagnier (2008) used four different cautions of the right to silence with a population of Canadian university students and found that only 43% of individuals fully understood the cautions, while 15% demonstrated a complete lack of comprehension. Another study conducted using Canadian university students showed that, despite the employment of varying versions of police cautions, participants were unable to understand approximately 70% of the information (Eastwood & Snook, 2010). This finding was replicated in a sample of convicted offenders where participants again failed to comprehend approximately 70% of the warning (Chaulk et al., 2014). Furthermore, participants consistently demonstrated significantly less understanding of the right to legal counsel when compared to the right to silence.

Due to the low rates of comprehension regarding police warnings, Davis et al. (2011) simplified a Canadian police caution to determine if such modification affected comprehension. The authors provided undergraduate students with either a standard Canadian police caution or a modified one that clarified the language and sentence structure and included additional explanations. The researchers ascertained those who received the modified caution demonstrated significantly higher rates of comprehension than those who heard a standard caution (Davis et al., 2011). Notably, even though the modification resulted in higher rates of comprehension, approximately 28% of the sample still evidenced difficulties understanding the caution. This

suggests that simplifying the language may have aided in the participants' understanding, but one-fourth of the participants still struggled to comprehend their rights.

More recently, a sample of undergraduate students and community members were asked to answer questions pertaining to the rights of individuals undergoing arrest in Canada. Participants demonstrated only a moderate level of understanding, as evidenced by an average of 62.5% of correct responses (Patry et al., 2017). Of particular concern to the researchers was the lack of significant differences between the undergraduate students who heard a warning, and those from the community who were not exposed to a police caution in the course of the research. The researchers posited that, despite beliefs that exposure equates to comprehension, the exposure in the study did not lead to a discernable difference. Patry and colleagues (2017) also utilized a separate sample of students and community members to test individuals' understanding of the application of their rights. The second sample demonstrated a lack of understanding of suspects' rights upon arrest, as measured by inaccurate responses to questions and scenarios pertaining to the application of one's rights.

Research specific to the understanding of *Miranda* rights indicates that people lack a comprehension of their rights, which is evidenced by pervasive misconceptions regarding the custodial processes. Rogers et al. (2013) examined misconceptions of members of the public regarding *Miranda* protections and found that, on average, 25% of participants held false beliefs regarding the protections and limitations of *Miranda*; however, substantially higher rates of incorrect beliefs were present when examining specific facets of *Miranda*. For example, over 60% of the sample incorrectly assumed ambiguous language would suffice to invoke their *Miranda* rights (Rogers et al., 2013). Similarly, approximately 70% of a separate sample of pre-

trial defendants endorsed inaccurate perceptions regarding the need for clear language in *Miranda* invocations (Rogers et al., 2010).

Studies dating back several decades all reach the same conclusion: people do not understand their rights within custodial settings. This implies these necessary safeguards are failing. Most notably is that these deficits in comprehension occur across diverse samples (e.g., offenders, college students, community members), which suggests that the problem is pervasive. To explain the reasons for the highly prevalent comprehension problems, researchers identified several factors that affect individuals' ability to understand and utilize legal protections.

**Recall ability.** As previously mentioned, research has consistently demonstrated substantial limitations in the comprehension of warnings, which some researchers propose is a function of low recall ability. For example, Chaulk and colleagues (2014) discovered that less than 12% of a sample of convicted offenders were able to correctly recall more than half of the information in a Canadian police warning that was provided to them verbally. The authors indicated the maximum amount of information that was correctly recalled by participants represented approximately 60% of the caution. Of interest, the most commonly recalled components of the caution were the right to remain silent and that anything said can be utilized as evidenced. Chaulk and colleagues (2014) posited that this finding was likely due to the prevalence of the *Miranda* warning in media, resulting in increased familiarity with these protections.

Rogers and colleagues (2013) examined the free recall abilities (i.e., without provision of a warning) of a sample of community members summoned for jury duty. The researchers reported that over half of the participants correctly recalled the first four components of the *Miranda* rights when prompted; however, approximately 10% of the sample was unable to recall

even one of the first four components (Rogers et al., 2013). Additionally, 97% of the sample failed to recall the fifth component of *Miranda* (i.e., the ability to exercise one's rights at any time).

Rogers et al. (2011) previously reported that individuals' ability to recall information from *Miranda* warnings was directly influenced by the complexity of the information included within the warning. This same pattern was evidenced in a sample of undergraduate students who, after hearing a simplified police warning, provided more accurate recall of the ideas included in the police warning than those who received a standard warning (Davis et al., 2011). Existing literature suggests that an individual's ability to recall police warnings may vary from low recall to high recall. Recall may improve with simplified warnings, but remembering information contained in police warnings does not automatically equate to comprehending that information.

**Wording of the warning.** Police warnings across the world are rarely standardized. As established by *Miranda* case law (e.g., see *Miranda v. Arizona*, 1966; *California v. Prysock*, 1981), the Supreme Court has upheld the decision to not require a nationwide standardized warning. These rulings allow individual jurisdictions to provide different versions of warnings as long as general ideas regarding the relevant information are included. Such flexibility results in warnings that vary in length and complexity.

An examination of *Miranda* warnings across the United States revealed that length of complete *Miranda* warnings ranged from 49 words to 547 words (Rogers et al., 2007). Eastwood et al. (2010) evaluated 38 cautions for the right to silence and for the right to legal counsel across Canada and found the length of the right to silence cautions ranged from 17 to 76 words, whereas the right to legal counsel cautions ranged from 28 words to 133 words. As noted by Rogers and

colleagues (2007), lengthy warnings do not lend themselves to increased recall or comprehension due to the strain on working memory.

In addition to the length of warnings, literature has shown that the reading level of warnings can create additional barriers to understanding rights. Eastwood and colleagues (2010) reported that right to silence cautions ranged from a 4.0 grade level to 8.4 with an average of 5.39, as measured by the Flesch-Kincaid formula (Flesch, 1950). The right to legal counsel cautions demonstrated slightly higher reading levels, which ranged from 4.30 to 8.50 with an average reading level of 6.45. Rogers et al. (2007) evaluated reading levels of 560 *Miranda* warnings and discovered that the average Flesch-Kincaid reading level across the five components ranged from 3.15 (i.e., right to silence) to 10.22 (i.e., right to free legal services). The researchers further reported the average reading level of the warnings in their entirety was 7.16.

To further examine the influence of language on comprehension, researchers have evaluated the reading levels of individual words included in the warning. An analysis of 975 *Miranda* warnings revealed that a reading level equivalent to a 10<sup>th</sup> grade education was necessary to comprehend 60 words commonly found in the warnings (Rogers et al., 2008). Similarly, Eastwood and colleagues (2010) found that approximately 81.5% (i.e., 31 of 38) cautions of the right to silence and 100% of the right to legal counsel warnings included words that required a 10<sup>th</sup> grade reading level or higher. If an individual's reading capabilities were at a grade level lower than the 10<sup>th</sup> grade, they may be at an increased disadvantage to understand their rights. The most recent estimation of literacy indicated that approximately 70% of individuals incarcerated in the United States perform at or below a level two literacy (Hogan et al., 2016). In other words, only 28% of the prison population sample was able to simultaneously

evaluate and interpret more than two pieces of information, perform higher level inferences, and identify broad meanings across multiple pieces of text (Organisation for Economic Cooperation and Development [OECD], 2013).

In conjunction with requiring higher reading abilities, approximately 40% of the 60 difficult words identified by Rogers and colleagues (2008) are used very infrequently (i.e., less than one time per 100,000,000 words). When using a less stringent definition of infrequent words (i.e., less than one time per 1,000,000 words), Eastwood and colleagues (2010) found that only one right to silence caution included an infrequent word in the 38 Canadian cautions; conversely, approximately 32 of the 38 right to legal counsel cautions included infrequent words. Beyond problems of advanced and infrequent vocabulary in warnings, words may have specialized meanings when used in that specific context. For example, the word ‘right’ has multiple definitions and meanings that are generally determined by the context (e.g., direction, acceptableness, or legal protection). Difficulty understanding certain words, particularly words with specific legal meanings, is problematic because it may influence an individual’s interpretation and comprehension of a component of a warning, the entire warning, or the application of a waiver (Rogers et al., 2008). Taken together, the research suggests that the characteristics of warnings, including the length, reading level, and word difficulty, may result in additional barriers to comprehension.

**Method of presentation.** The method in which warnings are presented has also been shown to affect comprehension. To determine the impact of presentation method, Eastwood and Snook (2010) first verbally provided Canadian police cautions, and then read the warning a second time while supplying the warning in a written format to a sample of university students. Presenting information in a verbal format resulted in minimal understanding, as evidenced by

findings that only 13% of the sample understood more than half of the caution of the right to silence. Conversely, when the warning was provided in both verbal and written formats, approximately 63% of the sample displayed comprehension of more than half of the information (Eastwood & Snook, 2010). The authors noted that the provision of written warnings increased the percentage of individuals who fully comprehended the right to silence portion of the warning by 45%, and the right to legal counsel portion by 25%. Of note, Eastwood and Snook's study utilized a within-subjects design, which created the possibility that improvements in understanding may have also been partially due to additional exposure rather than the presentation method.

Another study conducted to detect differences in presentation style used a between-subjects design to compare performances of participants matched on education level (i.e., low and high) who received one mode of presentation of a Scottish caution: (a) oral; (b) written format; or (c) both oral and written (Hughes et al., 2012). The results revealed that participants in the oral mode only group produced significantly lower comprehension scores on the right to silence caution when compared to the other two groups. Further, only 5% of this group demonstrated a complete understanding of the caution. In stark contrast, between 35% to 40% of participants in the groups who received the warning in a written format (with or without the verbal component) exhibited complete comprehension (Hughes et al., 2012). Significant differences were not present between the written and combined written and oral groups, suggesting that the increased rates of comprehension were a result of participants having the ability to read and process the warning in their own time.

In addition to the method of delivery of the warning (e.g., written or verbal), researchers have established that presenting warnings one sentence at a time can significantly improve

comprehension (Cooke & Philip, 1998; Eastwood & Snook, 2010; Fenner et al., 2002; Hughes et al., 2012; Shepherd et al., 1995). For example, Cooke and Philip (1998) found that offenders demonstrated significantly improved levels of understanding when a Scottish police caution was presented to individuals in a sentence-by-sentence format as opposed to the caution presented in its entirety. A similar finding was reported by Fenner et al. (2002) who noted that comprehension improved for both jail detainees and community members when a police caution was presented one sentence at a time.

Eastwood and Snook (2010) reported that approximately half (i.e., 48.2%) of the participants demonstrated complete understanding after receiving a written caution of the right to silence that was also read aloud in a sentence-by-sentence format. This value was substantially higher than the percentage of participants who exhibited full comprehension after initially only hearing the caution in its entirety (i.e., 3.6%). Additionally, only 7.1% of participants displayed full knowledge of the right to legal caution after hearing it verbally, compared to 32.1% of the sample after getting the caution one sentence at a time (Eastwood & Snook, 2010). Despite these findings that comprehension of written warnings is significantly higher than warnings presented orally, the majority of *Miranda* warnings are presented verbally (Kassin, et. al, 2007), which may increase the likelihood that someone will struggle to understand their rights.

**Prior exposure.** There is an assumption made by many members of the public, including police officers, that repeated exposure to warnings increases comprehension (Payne & Guastafarro, 2009; Rogers et al., 2007; Rogers et al., 2011); however, research has demonstrated that even those with regular exposure do not exhibit increased understanding of these rights. For example, a study by Clare et al. (1998) revealed that only 50% of police officers demonstrated complete comprehension of the caution used in their jurisdiction. These findings were similar to

Cooke and Philip's (1998) study that discovered prior experience with the legal system was not significantly correlated with overall comprehension of the Scottish police caution for a sample of offenders. Of import, participants in this study had been read their rights an average of 40 times during the process of arrest or interrogation. More recently, Eastwood and Snook (2010) found there was not a significant difference in comprehension capabilities between participants who endorsed prior exposure to police cautions and those who did not. Existing studies conclude that prior exposure is not correlated with comprehension (Cooke & Philip, 1998; Eastwood & Snook, 2010; Grisso, 1981), but rather that the determinant factors of comprehension rely more on cognitive ability.

**Confidence in comprehension.** Another problematic factor regarding decisions of exercising rights is that many individuals demonstrate a misplaced confidence in their knowledge of police warnings. Indeed, the extant literature indicates that an individual's level of confidence of their comprehension is not significantly related to their actual understanding of police warnings (Cooke & Philip, 1998; Eastwood & Snook, 2010; Fenner et al., 2002; Shepherd et al., 1995). In a sample of convicted offenders, Cooke and Philip (1998) found that only 11% of offenders fully understood the Scotland police caution, despite 89% self-appraising themselves to have a comprehensive understanding. In a mixed sample of individuals from the general population and individuals detained for police questioning, 96.3% endorsed an understanding of their rights; however, none of the sample correctly comprehended the warning (Fenner et al., 2002).

Similar findings to Fenner et al. (2002) were reported by Rogers et al. (2010) in a study using pretrial defendants. Although the defendants generally rated their understanding as "good," they failed to comprehend more than 20% of certain components of the *Miranda* rights (Rogers

et al., 2010). This pattern is also evidenced in community members who are not actively involved with the legal system. Rogers and colleagues (2013) discovered that jury pool members were unable to identify over one-fourth of incorrect assumptions related to *Miranda* warnings, despite previously endorsing beliefs that their knowledge ranged from medium to high levels. As stipulated by Fenner et al. (2002), it is likely that individuals who encounter the justice system assume they understand their rights because the warning sounds familiar and recognizable, despite evidence that suggests the average person does not fully comprehend their entitled protections.

In addition to individuals displaying misplaced self-confidence about their rights, it is possible that law enforcement officers may also have an inaccurate confidence of the comprehension abilities of suspects in custody. Patry and colleagues (2017) compared beliefs of attorneys and law enforcement officers and found that law enforcement officers were more likely to believe individuals understood their custodial rights. For example, although 61% of law enforcement officers believed individuals understand the protections offered through police cautions, only 7% of the sample of lawyers endorsed this same belief. Snook et al. (2010) evaluated recordings of police interviews and reported that, in approximately 98% of cases, the individual in custody affirmed they understood their right to silence when directly asked by the police officer. Similarly, approximately 94% of those who were asked indicated they understood their right to legal counsel. According to the authors, the officers rarely investigated whether these affirmative responses by interviewees were accurate, as evidenced by the absence of follow up questions to ensure understanding (Snook et al., 2010). This finding insinuates that law enforcement officers may not actively search for signs of difficulties with comprehension due to

pre-existing notions that individuals understand their rights, which is contrary to available research.

### **Intellectual Disability (ID)**

As defined in the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013) and the American Association on Intellectual and Developmental Disorders (AAIDD, 2010), intellectual disability (ID) is a neurodevelopmental disorder characterized by intellectual and adaptive behavior deficits manifesting during the developmental period. Adaptive behavior deficits are evidenced by the individuals need for support to perform daily life activities. Although the AAIDD does not identify severity via levels of ID, the APA (2013) utilizes severity specifiers that are based on the individual's level of adaptive functioning (i.e., mild, moderate, severe, and profound). According to estimates, 80% to 90% of who are diagnosed with ID are classified as having mild ID (Snell et al., 2009).

### ***Intellectual Disability and the Legal System***

As aforementioned, the disparate proportion of individuals diagnosed with ID in the general population when compared to the prison population (e.g., 1% versus 7-10%; Hellenbach et al., 2016; Maulik et al., 2011) indicates these individuals are falling through the cracks in the legal system due to inadequate protections. Although the *Atkins v. Virginia* (2002) ruling prevented the rendering of capital punishment to individuals with ID, this protection encompasses only a small percentage of individuals with ID who are encountering the legal system. Additionally, this safeguard is applied late in the judicial process and influences only sentencing decisions. One of the most important points in time where the justice system fails individuals with ID occurs during the first

contact with law enforcement. This period is of paramount importance because decisions made at the entry point directly impacts one's trajectory through the legal process (e.g., confessions, plea choices, and trials). Without additional safeguards in place prior to sentencing decisions, individuals with ID are at risk to enter into a criminal justice system that is ill-equipped to provide services that meet the needs of these individuals (Barron et al., 2004).

Individuals with ID are likely to demonstrate several characteristics that cause disadvantages and impairments when navigating the adversarial system. For example, individuals with ID are more likely to exhibit susceptibility to police tactics designed to elicit confessions (Clare & Gudjonsson, 1995; Fulero & Everington, 1995; Hayes, 1996; Perske, 2005). They are more likely to fail to recognize the nuances of leading questions and are therefore more vulnerable to falling prey to such questions (Everington & Fulero, 1999; O'Connell et al., 2005). For example, when asked a question such as, "What did you do after you stabbed the bellhop," the majority of individuals with intellectual impairment would fail to realize that offering a response to this question insinuates culpability for the stabbing. Additionally, these individuals are more likely to alter their responses based on feedback from the person who is asking them questions (Gudjonsson, 2003; O'Connell et al., 2005), which is often driven by a common desire to appease authority figures (Fulero & Everington, 1995; Sigelman et al., 1982).

Prior research has established a significant relationship with intelligence and suggestibility (Gudjonsson, 2003). Compared to individuals without intellectual impairment, persons with ID are generally more vulnerable to suggestibility and more likely to confabulate (Clare & Gudjonsson, 1993; Everington & Fulero, 1999). These findings suggest a negative relationship

such that as intellect increases, suggestibility decreases. Henry and Gudjonsson (1999) reasoned that the characterological presentations of individuals with ID, particularly low levels of assertiveness and a desire to please, may contribute to this increased suggestibility. Furthermore, individuals with ID often display poor social judgment that increases their vulnerability in the legal system (Snell et al., 2009), and their gullibility may cause them to make decisions without understanding the potential consequences (Patton & Keyes, 2006). The combination of eagerness to please others and gullibility in individuals with ID inherently increases their vulnerability (Greenspan, Loughlin, & Black, 2001).

An additional disadvantage for these individuals is the tendency to acquiesce or agree. Acquiescence has been defined as a mindless tendency to agree (McGee, 1967), or a tendency to offer affirmative answers regardless of the question (Gudjonsson, 2003). Individuals with ID are particularly at risk to engage in acquiescence when the questions or statements are posed by authority figures (Carlin et al., 2008; Fulero & Everington, 1995; Gudjonsson & Young, 2011; Sigelman et al., 1982). Such a desire to garner the approval of others may lead an individual to engage in behaviors that are risky or inappropriate (Snell et al., 2009), or even in behaviors that the individuals does not like to prevent being disliked (Petersilia, 2000). Because these individuals are more suggestible, they are more likely to acquiesce to requests or accept information from others regardless of potential risk (Snell et al., 2009). Acquiescence may also occur if an individual is attempting to respond in a perceived desirable manner (Goldsmith & Skirton, 2015), or if they are struggling to comprehend something and may not want to acknowledge their difficulty (Herrington & Roberts, 2012; Sigelman et al., 1982).

Further factors that may lead to increased acquiescence include awareness to the situation. Scherr et al. (2018) reported that individuals who are less cognizant of their present

situation are more likely to engage in acquiescence. As individuals with ID often struggle with attention problems and cognitive inflexibility (Salekin et al., 2010), it is likely that these characterological factors lend themselves to even more acquiescence. These patterns of susceptibility render individuals with ID more likely to provide affirmative answers to police questions, including questions regarding guilt and the desire to waive their rights.

The common characteristics of ID noted above place individuals with ID at increased risk in custodial situations. A desire to please authority figures (e.g., law enforcement officers) and a tendency to acquiesce or shift answers are likely further compounded by the stressful atmosphere of interrogation or custodial settings. Furthermore, individuals with ID are particularly susceptible of offering false confessions (Cloud et al., 2002; Drizin & Leo, 2003). In fact, the Supreme Court noted individuals with ID were likely to “unwittingly confess” to crimes they did not commit due to cognitive limitations (p. 321, *Atkins v. Virginia*, 2002), alluding to concerns that individuals with ID may not comprehend different proceedings at various levels of the justice system.

**ID and comprehension of rights.** At present, there are few empirical studies regarding the comprehension of *Miranda* rights and individuals with ID. Additionally, many of these studies are dated with only two occurring in the past 15 years. Although the studies are few in number, the conclusions remain the same: Individuals with ID demonstrate substantial deficits in comprehension of their rights and consequences of waiving those rights.

To study differences in perceived consequences for a mock-suspect who waived or invoked his rights, Clare and Gudjonsson (1995) compared a group of individuals with ID to a group without ID. Participants were asked to select the most likely outcome of several scenarios

related to criminal proceedings. As compared to the group without ID, significantly more of those with ID believed the suspect would not be sent to prison after confessing to the alleged crime (Clare & Gudjonsson, 1995). Additionally, 38% of individuals with ID reported they believed the suspect could return home until a trial occurred. One important difference between the groups related to the perceived need for legal counsel, regardless of guilt. Clare and Gudjonsson (1995) reported that although 90% of the group without ID reported the suspect should seek legal counsel regardless of guilt or innocence, only 52% of the group with ID endorsed the need for a lawyer. The authors reported some of those in the ID group who did not indicate a need for legal counsel endorsed beliefs that lawyers were not necessary for innocent individuals.

Using the Comprehension of Miranda Rights tests created by Grisso (1981), Fulero and Everington (1995) found that approximately 90% of a community sample of individuals with ID did not comprehend the *Miranda* warning in its entirety. In a second sample of probationers with ID, approximately 68% of individuals failed to understand the *Miranda* rights. This indicates that 17 of the 25 adults who had reached conviction status in the legal system were incapable of detailing the specific protections available to them when they first encountered law enforcement (Fulero & Everington, 1995). Overall, this study suggested individuals with ID, both with and without exposure to the justice system, display substantial deficits in their understanding.

Everington and Fulero (1999) replicated their 1995 study using a sample of defendants with and without ID and found similar results. As compared to defendants without ID, those with ID produced significantly lower scores on measures of *Miranda* comprehension and vocabulary. Specifically, close to 67% of the ID sample failed to comprehend at least one component of the *Miranda* rights, as measured by Grisso's Comprehension of Miranda Rights test (CMR; Grisso,

1981), compared to only 17% of the sample without ID (Everington & Fulero, 1999). The defendants without ID were also able to, on average, correctly define 78% of the vocabulary words associated with *Miranda*, while defendants with ID correctly defined an average of 31% of words. These results highlight the discrepant abilities related to *Miranda* comprehension between samples with ID and those without ID, which exemplifies the need for additional safeguards for those with ID when in custodial situations.

In a later study, O'Connell et al. (2005) measured the level of understanding of *Miranda* rights in individuals with intellectual disability by using a revised version of Grisso's (1998) Instruments for Assessing Understanding and Appreciation of Miranda Rights. O'Connell and colleagues found that, in a sample of 60 individuals diagnosed with mild ID who were recruited from agencies serving individuals with developmental disabilities, 50% of the individuals (i.e., 30 participants) were unable to demonstrate comprehension for any of the five components of *Miranda*. On a task that required recognition of information that was semantically identical to the *Miranda* components, only 2% (i.e., 1 participant) performed above chance level. Although the authors did not include a sample without ID in the study, comparisons were drawn against findings by Grisso (1998). Grisso reported that, in the general population, less than 1% produced scores of zero for all the *Miranda* rights, and that at least three-fourths of the general population performed above chance. O'Connell et al. concluded that individuals with ID demonstrated poor comprehension of *Miranda* rights.

In the past 15 years, there has been a dearth of research that details differences in *Miranda* abilities between individuals with and without ID. Further, two standardized measures of *Miranda* abilities have been released in the intervening time: The Standardized Assessment of Miranda Abilities (SAMA; Rogers et al., 2012) and the Miranda Rights Comprehension

Instruments (MRCI; Goldstein et al., 2012, which served as a revision of the Instruments for Assessing Understanding and Appreciation of Miranda Rights (IAUAMR; Grisso, 1981). In order to address the gap in the literature, Erickson et al. (2020) conducted a study that was similar in design to that of Everington and Fulero (1999). A sample of individuals diagnosed with ID residing in the community ( $n = 62$ ) were administered the SAMA (Rogers et al., 2012). Erickson et al. (2020) found that their sample demonstrated poor free recall of the *Miranda* rights with approximately 85% of the participants not able to recall one component. Even after hearing a *Miranda* warning, approximately 35.5% of the sample remained unable to recall any part of the warning. Participants demonstrated minimal knowledge of *Miranda* vocabulary and significant acquiescent tendencies. Compared to the normative sample of the SAMA, the sample performed significantly worse on a measure designed to detect misconceptions about *Miranda* rights.

More recently, Rendall and colleagues (2020) sought to determine if simplifying a Scottish police caution would result in higher rates of comprehension in a sample of individuals with ID. The final sample included a total of 30 participants with ID, half of which heard a standard police caution, and the other half who heard a modified caution. Rendall et al. (2020) found that there were not significant differences in comprehension between groups, primarily because both groups evidenced poor comprehension. Specifically, the authors noted that 80% of the entire sample demonstrated zero comprehension, despite reporting that they did understand the information. Although participants demonstrated improved comprehension when presented with components individually rather than the full warning, none of the participants displayed adequate comprehension of all four components (Rendall, et al., 2020). Ultimately, the modifications that had provided an improvement in comprehension with typically developed individuals (e.g., Davis et al., 2011) did not result in an improvement in a sample with ID.

## **Intelligence and *Miranda* Abilities**

Prior research has established that intelligence has a significant correlation with one's ability to comprehend *Miranda* rights (Grisso, 1981; O'Connell et al., 2005; Rogers et al., 2007). For individuals both with intellectual deficits and those without, lower levels of intelligence often relate to lower levels of comprehension of *Miranda* and a decreased ability to rationalize relevant decisions related to employing one's rights (Cooke & Philip, 1998; Everington & Fulero 1999; Fulero & Everington). Using a sample of 100 young offenders, Cooke and Philip (1998) found that IQ scores had a significant positive correlation (i.e.,  $r = 0.58$ ) with comprehension of the Scottish police caution. The authors evaluated the relationship between both verbal IQ and performance IQ with comprehension and, though both facets were significantly correlated, verbal IQ rendered a stronger correlation. Using data collected during forensic evaluations over a 17-year period, Frumkin et al., (2012) utilized verbal intelligence scores to predict comprehension of *Miranda* rights in a sample of adults, as well as an individual's ability to appreciate the functionality of the warning and waivers. The authors found significant relationships between verbal intelligence and both comprehension of the rights and the appreciation of how the rights can be used and why they are important ( $r_s = 0.51$  and  $0.50$ , respectively).

Chaulk and colleagues (2014) utilized a sample of 60 individuals convicted of a criminal offense to assess the relationship between cognitive abilities and understanding of rights. Specifically, the authors utilized subtests of the Wechsler Adult Intelligence Scale – Fourth edition (WAIS-IV; Wechsler, 2008) related to working memory and vocabulary knowledge, as well as a subtest from the Woodcock-Johnson – Test of Achievement (WJ-III; Woodcock et al., 2001) related to listening comprehension. In contrast to the Cooke and Philip's (1998) study,

Chaulk et al. found that these three indicators of cognitive ability did not account for any of the variance in comprehension of police cautions. However, there were small, significant correlations between participants' vocabulary and listening comprehension abilities and free recall of police cautions (i.e.,  $r = 0.28$  and  $r = 0.22$ , respectively).

Although there are few studies available, the relationship between intellect and *Miranda* rights comprehension in populations with ID has also been evaluated. Everington and Fulero (1999) examined the relationship of IQ with performance on various measures of *Miranda* abilities in a sample with ID. The IQ scores of defendants with ID were significantly correlated with their performance on the Comprehension of Miranda Rights measure and Comprehension of Miranda Vocabulary measure (i.e.,  $r_s = 0.62$  and  $0.50$ , respectively). Utilizing a sample of individuals with ID, Rendall et al. (2020) discovered that vocabulary abilities, as measured by the Vocabulary subtest of the Wechsler Abbreviated Scale of Intelligence (Second Edition, WASI-II) Two-Subtest Version (Wechsler, 2011), was significantly correlated with rates of comprehension of a Scottish police caution. Although Rendall et al. also evaluated the relationship between both working memory and perceptual reasoning and comprehension, there was no significant association between these cognitive abilities and understanding of the caution.

In addition to studying the relationship between intelligence and comprehension, Erickson et al. (2020) examined the utility of intelligence in predicting performance on other various *Miranda*-relevant tasks (e.g., recall, acquiescence, etc.). The full-scale IQ (FSIQ) score was found to be a significant predictor of both *Miranda* recall ability and *Miranda* vocabulary knowledge (Erickson et al., 2020). When examined on a composite level, it was discovered the verbal comprehension was the best predictor of someone's ability to recall information. Regarding *Miranda* vocabulary knowledge, the Verbal

Comprehension Index emerged as the only significant predictor. Of note, IQ scores did not predict acquiescent response styles. Although the study illuminated the poor performance of individuals with ID on *Miranda* measures, there was not a matched comparison group of individuals without ID that could be used to detect the differences in performance between these groups. Such a comparison group would be crucial to determining the specific areas of vulnerability for individuals with ID.

### **The Current Study**

The current study was an extension (i.e., phase two) of a previous and ongoing project designed to study the level of *Miranda* abilities exhibited by a population with ID (i.e., Erickson et al., 2020). As described above, phase one of the study included administering a battery of tests designed to measure *Miranda* abilities (e.g., knowledge, recall, response style, and vocabulary) and an assessment of intelligence. The purpose of phase one was to determine the areas of impairment for individuals with ID regarding *Miranda* abilities, and to determine if intelligence was an accurate predictor of these abilities. Phase two was a replication of the Erickson et al. (2020) study using individuals without ID for the purposes of collecting a representative sample pulled from a similar demographic (e.g., Alabama). By utilizing the second sample from phase two, it was intended that comparisons between the two groups could be made in order to identify specific areas of deficit that were present for those with ID when compared to those without ID with regard to *Miranda* abilities. Further, phase two was purposed to determine if intelligence remained an accurate predictor of *Miranda* abilities, as was found in phase one (Erickson et al., 2020).

The overall goal of the study was to determine if there were specific aspects of *Miranda* abilities that were similar or dissimilar between individuals with and without ID, and what role

intelligence serves with regard to *Miranda* abilities. There were three areas of interest in the current study. First, the study examined the differences in performance on various measures of *Miranda* knowledge and abilities between groups of individuals with and without ID. Specifically, the two groups' performances were compared with regard to *Miranda* knowledge, recall of the *Miranda* rights, response style (e.g., acquiescence, nay-saying, and congruent responses to paired items), and comprehension of *Miranda* vocabulary. Secondly, the utility of intelligence to predict the various *Miranda* abilities was evaluated. The relationship between intelligence and *Miranda* abilities was assessed using both overall intelligence (i.e., FSIQ), as well as the individual facets of intelligence (i.e., verbal comprehension, perceptual reasoning, working memory, and processing speed). Lastly, the study investigated if an individual's self-rated level of confidence in their *Miranda* knowledge was an accurate predictor of that knowledge. There were a number of hypotheses associated with these goals:

1. Group differences were expected between the two groups of participants (i.e., ID group and non-ID group) with regard to intelligence and performance on the measures of the SAMA. Specifically, it was expected that the non-ID group would demonstrate significantly higher FSIQ scores, recall more components of the *Miranda* warning post-exposure, correctly identify more misconceptions, and evidence significantly higher levels of *Miranda* vocabulary skills. With regard to response style, it was anticipated that the ID group would demonstrate significantly higher rates of acquiescence and nay-saying, and significantly lower rates of responding consistently to inversely paired items.
2. With regard to free recall, the non-ID group was expected to demonstrate significantly higher recall of the *Miranda* rights than the ID group. These significant differences were anticipated to occur for the number of overall remembered components, as well as on

each individual component level for the first four components. Based on previous research indicating the majority of individuals do not recall the fifth *Miranda* component (e.g., Rogers et al., 2013), no significant differences were expected in recall between groups on this component.

3. Prior exposure was hypothesized to have a strong association with the ability to freely recall at least a portion of the *Miranda* warning. Additionally, it was expected that group membership would have an interactional effect such that prior exposure would relate to recall for the non-ID group, but not for the ID group.
4. Group differences on tested recall were expected only on the second and fourth component of *Miranda* based on findings from Erickson et al. (2020) that showed individuals with ID show improved recall on the first and third components post-warning.
5. FSIQ was hypothesized to be a significant predictor of performance on the four SAMA measures regarding identifying *Miranda* misconceptions, recalling the *Miranda* rights post-warning, response style, and *Miranda* vocabulary ability.
6. With regard to the specific indices of intelligence, it was expected that verbal abilities would significantly predict participants' *Miranda* knowledge, tested recall, and knowledge of *Miranda* vocabulary. Based on Erickson et al. (2020), none of the indices were expected to have a significant relationship with response style.
7. The effect of confidence on *Miranda* knowledge was anticipated to differ based on group membership.

## CHAPTER 2

### METHODOLOGY

#### **COVID-19**

Due to the coronavirus pandemic, active recruitment was impeded beginning in March 2020. The Office for Research and Economic Development of the University of Alabama offered guidelines for research to be carried out safely during the COVID-19 pandemic with three prohibitions: (a) bringing non-University affiliated individuals to campus; (b) bringing study participants to campus without a direct treatment benefit to said participants; and (c) requiring University-affiliated individuals to meet face-to-face with study participants at off-campus locations. As the present study required face-to-face interactions in close quarters with shared, manipulable testing materials between University- and non-University-affiliated individuals, it was considered prohibited research by The University of Alabama. Due to the prohibition of the present research as well as an inability to safely mitigate the risks posed by the nature of the study, data collection was halted in March 2020. Active recruitment was not resumed due to the ongoing pandemic and its associated risks as well as the continued moratorium on in-person research. Analyses were thus conducted on the existing data that was collected prior to the start of the pandemic.

#### **Participants**

Participants for the current study were recruited within the state of Alabama. To be eligible for participation, participants were required to be over the age of 18, have no vision or auditory difficulties that would prevent their ability to complete assessments, and retain motor

skills such that they could manipulate a writing utensil and small items. There were ultimately two participant groups: one with intellectual disability (i.e., ID group) and one without intellectual disability (non-ID group). Inclusion criteria for the ID group required a diagnosis of ID, whereas exclusion criteria for the non-ID group was a history of ID.

Table 1  
*Demographic Characteristics of Participants*

Variable	ID group ( <i>n</i> = 62)	Non-ID group ( <i>n</i> = 23)
Age (years)		
<i>M</i>	35.27	35.52
<i>SD</i>	12.22	15.31
Education (years)		
<i>M</i>	11.17	16.00
<i>SD</i>	2.63	2.13
Gender		
Male (%)	54.8	39.1
Female (%)	45.2	60.9
Race		
White (%)	56.5	82.6
Hispanic (%)	0.0	4.3
Black (%)	38.7	8.7
Biracial (%)	4.8	4.3
History of Interaction with Legal System (%)	17.7	73.9
Arrest History (%)	8.1	26.1
Misdemeanor History (%)	1.7	8.7
Felony History (%)	0.0	0.0
History of Imprisonment (%)	6.5	0.0
Prior Exposure to <i>Miranda</i> Rights (%)	41.9	100.0

\**Note.* % refers to percentage of sample who endorsed the demographic variable.

Participants in the ID group were part of a previously published study (i.e., Erickson et al., 2020). Demographic data for both participant groups can be found in Table 1. The final combined sample used in the present study consisted of 85 individuals.

**Background Questionnaire.** Participants completed a demographic questionnaire (see Appendix A) in a semi-structured interview format with questions pertaining to participant age, race, gender, educational level, previous exposure to the legal system, among other demographic factors. At the end of this questionnaire, participants were prompted to freely recall the components of *Miranda* warning to determine their existing knowledge of the warning.

**Wechsler Adult Intelligence Scale -IV (WAIS-IV).** The WAIS-IV (Wechsler, 2008) is a standardized measure of intelligence composed of 10 subtests which load onto four indices: Verbal Comprehension (VCI), Perceptual Reasoning (PRI), Working Memory (WMI), and Processing Speed (PSI). These four indices produce a Full-Scale Intelligence Quotient (FSIQ) when combined. These various scores provide information regarding the cognitive abilities of the participant in comparison to their relevant age group. The WAIS-IV has high validity and reliability with reliability coefficients greater than 0.90 on each subtest (Wechsler, 2008). The WAIS-IV has a high correlation with another standardized measure of intelligence, the Stanford-Binet IV test (0.88), among others. Although the WAIS-IV was normed on the general population, the standardization sample also included individuals diagnosed with ID.

**Standardized Assessment of Miranda Abilities (SAMA).** The SAMA (Rogers et al., 2012) is a battery of assessments developed to measure comprehension of *Miranda* and relevant reasoning ability. The SAMA is composed of five tests, but for the purposes of this study, only the following four tests were administered:

***Miranda Quiz (MQ)***. The MQ (Rogers et al., 2012) is a 25-item true-false questionnaire designed to assess common misconceptions about *Miranda* rights. Within this measure, participants were also asked to assign a confidence rating to their knowledge of *Miranda* rights ranging between poor, average, and excellent.

***Miranda Comprehension Template (MCT)***. The MCT (Rogers et al., 2012) is a scoring protocol of the participant's ability to recall the various components of the *Miranda* rights. The MCT provides a standardized format to determine the level of recall depending on a specific *Miranda* warning employed. In other words, it is adaptable to a variety of warnings because an examiner can determine which specific subcomponents are present in the warning of interest and score an individual's recall of that warning based on those identified areas.

In order to determine which of the subcomponents of the MCT would need to be scored in the present study, five raters independently evaluated the *Miranda* warning that was read to participants. The five raters had perfect agreement and identified 13 unique items of content included in the warning. Thus, for the current study, the MCT total score was comprised of 13 subcomponents across the five *Miranda* rights. The warning used in the study is the *Miranda* advisement that is used in Tuscaloosa County in Alabama. It is 82 words long and is of a 6.7<sup>th</sup> grade reading level. The warning is provided below:

You have the right to remain silent. Anything you say can and will be used against you in a court of law. You have the right to talk to a lawyer and have him present with you while you are being questioned. If you cannot afford to hire a lawyer, one will be appointed to represent you before any questioning, if you wish. You can decide at any time to exercise these rights and not answer any questions or make any statements.

***Miranda Acquiescence Questionnaire (MAQ)***. The MAQ (Rogers et al., 2012) is designed to measure a participant's tendency to acquiesce or nay-say using questions that are relevant to *Miranda*. Additionally, as the questions pertain to the legal system, the MAQ also examines participants' perceptions of legal counsel, law enforcement officers, and interrogation situations and issues. The MAQ produces three subscales: Content Congruency (CON), Acquiescence (ACQ), and Nay-saying (NAY). According to Rogers et al. (2012), acceptable content validity is exhibited by the NAY scale, and convergent and discriminant validity are acceptable for the ACQ scale.

***Miranda Vocabulary Scale (MVS)***. The MVS (Rogers et al., 2012) was created to evaluate an individual's level of comprehension of 36 key terms in *Miranda* warnings. This assessment is given to participants in a semi-structured interview format. There is strong interrater reliability ( $r = 0.92$ ), and excellent internal consistency ( $\alpha = 0.90$ ) (Rogers et al., 2012). The MVS is also highly correlated with similar measures of reading comprehension with strong convergent correlations with the Wechsler Abbreviated Scale of Intelligence (WASI) verbal abilities ( $r = 0.72$ ) (Rogers et al., 2012).

## **Procedure**

The current study was an extension of a previous project that currently has approval from the Institutional Review Board at The University of Alabama. In phase one of the study, participants diagnosed with ID were recruited from the community via service providers, including day rehabilitation facilities and advocacy groups. For this process, the researcher first contacted appropriate personnel (e.g., director of facility or organization) and provided information regarding the study. Inclusionary and exclusionary requirements were explained to

the person in charge of the facility. Specifically, participants were required to have a diagnosis of ID, be able to communicate verbally, and have motor control of their hands.

ID status was determined via several methods. First, participants were referred for inclusion in the study via personnel who knew the diagnoses of the individual due to their access to protected health information. These mental health professionals referred only those who met criteria for the study (i.e., previously diagnosed with ID). Another method of confirming ID status for individuals placed in the ID group followed the methods used by Clare and Gudjonsson (1995). In their study, the sample of participants with ID was determined by the combination of IQ score (i.e., 75 or below) and the fact they required support to manage their daily functioning. The need for support was evidenced in two ways: (1) Individuals were impaired to the degree that they had a legal guardian and (2) all participants required the provision of support from family members or from an agency on a day-to-day basis. Lastly, these procedures were utilized due to the necessity to maintain identical procedures for a sample without ID where the researcher would not have access to protected health information to confirm the absence of ID.

In phase two, participants without ID were recruited from the community using flyers and brochures that were posted and/or handed out at various locations across the state of Alabama. Individuals expressed interest in participating in the study by contacting the researcher via phone or email. After potential participants had initiated contact with the primary researcher, the purpose of the study was explained and those who wished to participate were scheduled for an appointment.

The process of consent was identical across groups for those who maintained legal guardianship of themselves. For those individuals, the consent form was read to every participant

and a copy was given to them. Individuals indicated whether or not they wanted to continue by signing the consent form. For those with ID who did not retain legal guardianship of themselves, consent was first obtained by their legally authorized representative. Next, the individual was read an assent form and given a copy. The assent document provided information regarding the study. If participants chose to join the study, they signed the assent form. As part of the consent/assent process, eligible participants were informed all study information was de-identified and they would receive no information regarding results of the testing.

At the conclusion of the consent/assent process, a background questionnaire was verbally administered by the researcher to the participants. Following the administration of the background questionnaire, a measure of intellectual functioning (i.e., WAIS-IV) was administered, followed by the four tests of the SAMA. The average administration time was between approximately one hour to 90 minutes for the ID group and between two to three hours for the non-ID group.

Participants were compensated \$10 per test (e.g., WAIS-IV and SAMA) they completed, for a possible total of \$20. All participants completed all measures included in the study. All testing across both groups took place in quiet, private rooms with access to table and chairs. Upon request, participants were provided breaks and were permitted to spread testing over multiple days. Fifty-eight of the participants in the ID group completed their testing over a period of two days, and all 23 participants in the non-ID group completed testing in one sitting. One individual with ID had consent from their guardian to participate and assented to complete the study; however, the individual became visibly distressed during the background interview. The researcher discontinued this person's participation and their data was not included in the study.

## CHAPTER 3

### RESULTS

#### **Descriptive Statistics**

Descriptive statistics of both samples' performances on the WAIS-IV and SAMA are provided in Table 2. Data from the WAIS-IV include the overall Full-Scale IQ (FSIQ) score, as well as the four index scores. The descriptive data from the participants' performances on the four measures of the SAMA are also included in the table.

The data collected from the non-ID group was compared to data from the normative sample of the SAMA (see Rogers et al., 2012) to provide insight into the similarities between the two samples. Normative data from the four representative samples in the SAMA manual were combined to create an overall comparison group. Normative means were only provided for the MQ, the ACQ and NAY scales of the MAQ, and the MVS, and a series of one-sample t-tests were used to compare the non-ID group against these normative means.

Preliminary analyses were conducted to determine if the data met the assumptions of normality or contained outliers. The assumption of normal distribution was violated for the MAQ ACQ scores as indicated by a significant Shapiro-Wilk's test (i.e.,  $p = .002$ ). A square root transformation was utilized for ACQ scores due to some participants producing scores of zero (Bartlett, 1947); however, the resultant analysis still violated the assumption of normality as assessed by Shapiro-Wilk's test (i.e.,  $p = .007$ ). Although a non-parametric test such as the one-sample Wilcoxon signed-rank test can replace a one-sample t-test when normality is violated, there was a lack of literature suggesting an appropriate median to use as the comparison. As such, a

comparison analysis between the non-ID group and the normative sample of the SAMA was not completed on the MAQ ACQ.

Table 2  
*Means and Standard Deviations of Measures*

Variable	ID Group ( <i>n</i> = 62)		Non-ID group ( <i>n</i> = 23)		(Range) <sup>a</sup>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
WAIS-IV (Standard Scores)					
FSIQ	50.90	8.06	116.09	15.06	40-160
VCI	58.69	7.87	118.00	15.32	50-150
PRI	58.60	8.23	117.65	22.20	50-150
WMI	55.58	8.15	110.39	15.34	50-150
PSI	56.24	9.22	108.57	15.31	50-150
SAMA (Standard Scores)					
MQ	7.23	3.65	12.09	1.88	0-15
MCT	1.13	1.08	7.87	1.89	0-13
MAQ CON	9.63	4.12	19.70	2.62	0-24
MAQ ACQ	9.66	6.79	1.83	1.97	0-24
MAQ NAY	4.69	5.03	2.48	1.53	0-24
MVS	19.23	15.23	112.35	17.42	0-144

\**Note.* <sup>a</sup> Range refers to the possible range of scores for each measure. FSIQ=Full Scale IQ; VCI=Verbal Comprehension Index; PRI=Perceptual Reasoning Index; WMI=Working Memory Index; PSI=Processing Speed Index; MQ=Miranda Quiz; MCT=Miranda Comprehension Template; MAQ CON= Congruent Content on Miranda Acquiescence Questionnaire (MAQ); MAQ ACQ= Acquiescence on MAQ; MAQ NAY=Nay-saying on MAQ; MVS=Miranda Vocabulary Scale.

The MAQ NAY scale met all assumptions for a one-sample t-test. For the MQ, one participant produced a score that was considered an outlier as assessed by a box plot. As the data point appeared to be a genuinely unusual data point and not one driven by error, it remained in the analysis. The box plot of the MVS scores of the non-ID group also resulted in an outlier, which was left in the analysis. Both of these outliers were the lowest scores among the group. The MQ and the MVS met the assumption of normality. As evidenced in Table 3, the non-ID

group performed similarly to the normative sample with regard to identifying misconceptions regarding *Miranda* (i.e., MQ scores) and practicing a nay-saying response style (i.e., MAQ NAY scale). However, the non-ID group performed significantly better when completing a task of defining *Miranda*-relevant vocabulary (i.e., MVS).

Table 3  
*Differences between Non-ID Group and Normative Sample of the SAMA*

Variable	Means		<i>t</i>	<i>df</i>	95% C.I.		<i>d</i>	<i>p</i>
	Non-ID group ( <i>n</i> = 23)	Normative Sample ( <i>n</i> = 738)			Lower	Upper		
MQ	12.09	11.32 <sup>a</sup>	1.96	22	-0.05	1.58	0.41	0.06
MAQ NAY	2.48	2.61	-0.41	22	-0.79	0.53	0.09	0.68
MVS	112.35	92.21	5.54	22	12.60	27.67	1.16	<.001

Note. <sup>a</sup>*n* = 513.

### Group Differences of Intelligence and *Miranda* Abilities

The non-ID group was expected to demonstrate significantly higher FSIQ scores, perform better with regard to recall, identify more misconceptions about *Miranda*, and show higher *Miranda*-relevant vocabulary skills. The ID group was expected to demonstrate a decreased ability to identify inversely-paired items but stronger tendencies to acquiesce and naysay than the non-ID group. To evaluate these differences, a series of independent sample t-tests were planned. However, the FSIQ scores, MCT scores, MAQ ACQ, MAQ CON, MAQ NAY, and MVS all violated the assumption of normality as indicated by statistically significant (i.e.,  $p < .05$ ) Shapiro-Wilk's tests. As the data for these outcomes were not normally distributed, a series of Mann-Whitney U tests (i.e., a nonparametric test) was alternately employed to determine if there were differences between these two groups. An inspection of population pyramid graphs revealed that the distributions of the ID group and the non-ID group on all six of these variables were not similar. As such, mean ranks were compared between groups.

As expected, the non-ID group produced significantly higher FSIQ scores than the group with ID as expected (see Table 4). The non-ID group performed significantly better on tasks requiring the identification of misconceptions related to *Miranda* rights (i.e., MQ scores), recalled more components of the *Miranda* warning after hearing it (i.e., MCT scores), and correctly defined more *Miranda*-relevant vocabulary words (i.e., MVS scores). With regard to response styles, as measured by the MAQ, the non-ID group demonstrated a significantly increased ability to provide consistent answers to inversely paired questions (i.e., MAQ CON scores), whereas the ID group showed significantly increased tendencies to acquiesce (i.e., MAQ ACQ scores). Although the ID group utilized nay-saying (i.e., MAQ NAY) at a higher rate than the non-ID group, this difference was not significant.

Table 4  
*Mann-Whitney U Tests*

Outcome	Mean Rank (Group with ID)	Mean Rank (Group without ID)	<i>U</i> statistic	<i>z</i> -score	<i>p</i> -value
FSIQ	31.50	74.00	1426.00	7.07	<.001
MCT	31.72	73.41	1412.5	7.02	<.001
MAQ CON	31.93	72.85	1399.50	6.81	<.001
MAQ ACQ	51.74	19.43	171.00	-5.38	<.001
MAQ NAY	44.77	38.22	603.00	-1.10	0.27
MVS	31.03	72.91	1401.00	7.02	<.001

A modified t-test, a Welch's t-test (Welch, 1947), was conducted to detect group differences on MQ scores due to a violation of the assumption of homogeneity of variances as assessed by Levene's test for equality of variance ( $p = .002$ ). A visual inspection of a boxplot revealed one outlier in the group without ID. Analyses that included and excluded the outlier did not vary significantly from each other and both produced significant results. Due to the small sample size and a non-appreciable effect on the results, the outlier remained in the analysis. The

mean MQ score of the ID group ( $M = 7.23$ ,  $SD = 3.65$ ) was lower than the non-ID group ( $M = 12.09$ ,  $SD = 1.88$ ). This was a statistically significant difference with the ID group scoring, on average, 4.86 points lower than the non-ID group on the MQ,  $t(74.13) = -8.01$ ,  $p < .001$ ,  $d = 1.48$ , 95% CI [-6.07, -3.65].

### **Ability to Recall the *Miranda* Rights**

#### ***Free Recall***

Participants freely recalled as many components as possible of the five *Miranda* rights (i.e., existing knowledge of the *Miranda* warning) during the initial part of the study. Consistent with hypotheses, the non-ID group recalled more of the five rights ( $M = 3.22$ ;  $SD = 0.79$ ) than did the ID group ( $M = 0.24$ ;  $SD = 0.64$ ). An independent samples t-test was planned to evaluate if these group differences reached a level of statistical significance; however, due to skewed distribution and a significant number of outliers in the ID group, the data did not meet the assumptions necessary for a t-test. As such, a Mann-Whitney U test was run to determine if there were differences in recall between groups. Distributions of free recall scores for the ID group and non-ID group were not similar, as assessed by visual inspection. Recall of the non-ID group (mean rank = 73.17) was significantly higher than the recall of the ID group (mean rank = 31.81),  $U = 1407$ ,  $z = 7.91$ ,  $p < .001$ .

It was further expected that the non-ID group would demonstrate higher recall on each of the first four individual *Miranda* components. To assess these differences for each component, a series of chi-square tests of homogeneity were utilized. This resulted in a total of four chi-square tests, as no participants from either group freely recalled the fifth component. As evidenced in Table 5, the majority of the ID group did not recall any of the components. A significantly higher

proportion of the non-ID group freely recalled each of the first four components of *Miranda* as compared to the ID group.

Next, prior exposure was hypothesized to have an association with the ability to freely recall *Miranda* rights. For this analysis, a dichotomous score of free recall was created to demarcate whether or not participants recalled at least one component of the *Miranda* warning. If at least one component was recalled, the participant was coded as producing a score of one, and if no components were recalled, the participant was given a score of zero. Then, a chi-square test for association was conducted between the dichotomous free recall score (i.e., yes or no recalled at least one *Miranda* right) and *Miranda* exposure (i.e., yes or no to hearing *Miranda* rights before). All expected cell frequencies were greater than five. There was a statistically significant association between hearing *Miranda* rights before and recalling at least one of the five components,  $\chi^2(1) = 36.92, p < .001$ . There was a strong association between exposure to *Miranda* rights and the ability to recall at least one component of the *Miranda* warning,  $\phi = 0.66, p < .001$ .

Table 5  
*Group Differences in Free Recall of Miranda Rights*

Component	ID group (n = 62)		Non-ID group (n = 23)		$\chi^2$	p-value
	n	Percentage of Sample <sup>a</sup>	n	Percentage of sample		
Right to Silence	8	12.9%	22	95.7%	50.30	<.001
Statements Used as Evidence	5	8.1%	23	100%	64.19	<.001
Right to Attorney	1	1.6%	19	82.6%	61.17	< .001
Right to Provided Attorney If Indigent	1	1.6%	10	43.5%	26.09	<.001 <sup>b</sup>

\*Note. <sup>a</sup>= The percentage of sample that correctly recalled the *Miranda* component. <sup>b</sup> = The reported p-value is from a Fisher's exact test due to small sample size (i.e., cell count less than five; Blalock, 1972).

A binomial logistic regression was performed to ascertain the effects of exposure to the *Miranda* warning and group membership (i.e., ID vs. non-ID) on the likelihood that participants would freely recall at least one component of the *Miranda* rights. However, the model failed to converge due to separation of the data (i.e., explanatory variable perfectly predicting dichotomous outcome). This was substantiated by the presence of large values for the estimated standard errors (Kumari, 2008). When separation occurs, finite maximum likelihood estimates cease to exist, meaning that the computations for logistic regression are erroneous (Rainey, 2016). As such, the logistic regression is not reported. Although a loglinear analysis may have been an alternative with the three dichotomous variables, this was not possible as four of the cells produced a count of zero (i.e., a sampling zero; Agresti, 2007).

### ***Tested Recall***

As part of the SAMA, participants completed the MCT. The researchers read a *Miranda* warning to the participants, who were asked to recall as much information as possible (i.e., tested recall). It was hypothesized that individuals would demonstrate improved recall after hearing the *Miranda* warning when compared to their free recall scores, and that the non-ID group would continue to exhibit higher recall ability. As aforementioned, a group of five raters identified 13 unique subcomponents present in the warning used in the current study, which served as the total score of the MCT. In order to create a dichotomous score for each of the five components of *Miranda*, the 13 subcomponents were collapsed within their respective categories. For example, the subcomponents of inability to afford an attorney and an attorney being provided were collapsed into the fourth *Miranda* component. Next, the five main components were coded dichotomously as either recalled or not recalled. If a participant recalled at least one subcomponent of a main component, the component was coded as recalled. Thus, if a main

component had three subcomponents included in the warning, a participant would be deemed to correctly recall the main component if they recalled at least one of the three subcomponents. This coding schema was used in place of requiring full recall of all subcomponents because of the minimal recall of the ID group; if complete recall was the standard, none of the ID participants would have been scored as recalling any of the main components.

Table 6  
*Group Differences in Tested Recall of Miranda Rights*

Component	ID group (n = 62)		Non-ID group (n = 23)		$\chi^2$	p-value
	n	Percentage of Sample <sup>a</sup>	n	Percentage of sample		
Right to Silence	23	37.1%	23	100%	26.73	<.001
Statements Used as Evidence	13	21%	22	95.7%	38.63	<.001
Right to Attorney	24	38.7%	21	91.3%	18.63	<.001
Right to Provided Attorney If Indigent	10	16.1%	22	95.7%	41.19	<.001
Ability to Assert Rights at Any Time	0	0%	14	60.9%	45.18	<.001 <sup>b</sup>

\*Note. <sup>a</sup> = The percentage of sample that correctly recalled the *Miranda* component. <sup>b</sup> = The reported p-value is from a Fisher's exact test due to small sample size (Blalock, 1972).

As seen in Table 6, the non-ID group recalled significantly more subcomponents of the *Miranda* warning than the ID group. Similar to the procedure utilized with free recall scores, a series of chi-square tests of homogeneity were used to detect group differences on each component. Following the same trend as free recall, a significantly higher proportion of the non-ID group recalled each of the five *Miranda* components (see Table 5).

The original data analysis plan included a series of five logit tests to determine if tested recall scores reflected a true improvement in recall, or if individuals who were able to freely recall the *Miranda* rights at the outset of the study were able to do so a second time, regardless of

exposure to a *Miranda* warning. It was also expected that there would be group differences with regard to this; specifically, that the ID group would demonstrate improved recall and the non-ID group would not.

Due to small sample size and the skewed nature of the participants' performances, the expected cell counts did not meet the assumption of all cells being greater than one and 80% of the cells having an expected count greater than five. Across the five components, a significant number of expected cell counts were sparse (i.e., small) and some had sampling zeros (i.e., count of zero) (Agresti, 2007). The presence of sampling zeros or sparse counts can lead to increased bias in the estimators of odds ratios (Agresti, 2007). One method of reducing this bias and correcting for the presence of sampling zeros is to collapse across the levels of a factor (Stevens, 2009). Group membership appeared to be the likely contributor to the sparse counts and sampling zeros. Specifically, the two groups demonstrated inverse performances at the extremes with the non-ID group recalling the *Miranda* rights at significantly high rates and the ID group evidencing extremely minimal recall. Due to the removal of the group variable, the analysis consisted of only two dichotomous variables, which no longer necessitated a loglinear analysis. As such, it was determined that a series of McNemar's tests (McNemar, 1947) would be used to detect if there were significant differences in recall of the five components between pre-exposure (i.e., free recall) and post-exposure (i.e., post-warning on the MCT).

Five McNemar's tests using all the participants were run on each of the five components of the *Miranda* rights with free recall and tested recall serving as the two variables. Four of these tests reflected significant changes in proportions of participants who recalled the *Miranda* rights post-warning (i.e., post-MCT). Exact McNemar's tests were statistically significant (i.e.,  $p < .001$ ) for the right to remain silent, the provision of an attorney if indigent, and the ability to

assert rights at any time with significantly more of the sample recalling these rights after hearing a *Miranda* warning. A McNemar's test with continuity correction (Edwards, 1948) determined that the difference in the proportion of those who recalled the right to an attorney pre- and post-warning was also statistically significant,  $\chi^2(1) = 21.33, p < .001$ . There was no significant change in proportions of those who recalled the right for statements to be used as evidence in court (i.e.,  $p = .06$ ).

A second series of McNemar's tests were run on the same variables with each group individually. For the non-ID group, only the right to a provided attorney if indigent and the right to assert one's rights at any time showed significant changes in the proportion of those who recalled these rights after hearing a *Miranda* warning (i.e.,  $p < .001$  and  $p < .001$ , respectively). As evidenced in Table 5 and Table 6, the proportion of the non-ID sample who recalled the remaining three components did not vary significantly. In contrast, four exact McNemar's tests revealed significant changes in the proportion of participants who recalled the first four components of the *Miranda* warning: (1) the right to silence ( $p = .001$ ); (2) evidence can be used in court ( $p = .02$ ); (3) the right to an attorney ( $p < .001$ ); and an attorney is provided if indigent ( $p = .004$ ). As none of the participants in the ID group recalled the fifth component either freely or post-warning, a McNemar's test was not executed.

## **Relationship between Intelligence and *Miranda* Abilities**

### ***Predicting SAMA Outcomes using FSIQ Scores***

It was anticipated that FSIQ would serve as a significant predictor of all SAMA outcome variables. A series of simple regression analyses were planned to determine the relationship between overall intelligence (i.e., FSIQ scores) and performance on the various tests of *Miranda* abilities. Prior to the start of the regression analyses series, the variables were examined to

determine if they would meet the assumptions necessary to complete regression analyses. Particularly, if the independent and dependent variables evidenced linear and/or monotonic relationships. If nonlinearity was apparent between the individual and dependent variables, either a square root transformation or a logarithmic transformation was attempted depending on the presence of scores of zero (Bartlett, 1947).

**Miranda Quiz (MQ).** The relationship between FSIQ and scores on the MQ was not linear and it was not monotonic as evidenced through a visual inspection of a scatterplot. No attempt to transform MQ scores was made as it is not useful to attempt to linearize a non-monotonic relationship (Box & Cox, 1964). Due to the lack of a linear and monotonic relationship between the two variables, correlational analyses, as well as regression analyses are not appropriate.

**Miranda Comprehension Template (MCT).** A simple linear regression was run between FSIQ and tested recall (i.e., MCT scores). To assess linearity, a scatterplot of FSIQ against MCT scores was plotted. Visual inspection of these this plot indicated a linear relationship between the variables. There was homoscedasticity and normality of the residuals. One data point was considered an outlier, and upon closer inspection, it belonged to a participant in the ID group who demonstrated the highest recall during the MCT. As it was an unusual data point, but not due to error, it was left in the analysis. FSIQ significantly predicted MCT scores (i.e., tested recall),  $F(1, 83) = 260.57, p < .001$ , accounting for 75.8% of the variation (i.e.,  $R^2 = 0.76$ ) in recall post-warning, as assessed by the MCT.

**Miranda Acquiescence Questionnaire (MAQ).** The three scales of the MAQ were all examined separately. A visual inspection of a scatterplot revealed a nonlinear relationship between participants' FSIQ scores and scores on the CON scale of the MAQ. A logarithmic

transformation of the IQ scores did not improve the curvilinear nature of the data, and the scatterplot remained the same as the non-transformed variable. The nonlinear relationship was monotonic, and as such, a Spearman's rank-order correlation was conducted. There was a strong positive correlation between FSIQ scores and participants' CON scores,  $r_s(83) = 0.63, p < .001$ .

The scatterplot of FSIQ and ACQ scores appeared similar to that of the MQ, with a greater dispersion occurring in the lower end of FSIQ (i.e., ID group) than appeared in the non-ID group. The relationship between the two variables was not linear and not monotonic. As per Box and Cox's (1964) recommendation, a transformation was not conducted.

A scatterplot of NAY scores and FSIQ revealed that the relationship between the two variables was not linear. A square root transformation of the NAY scores did not improve linearity, nor did a logarithmic transformation of the FSIQ scores. The relationship between the non-transformed variables was monotonic, which allowed for a Spearman's rank-order correlational analysis. There was a small negative correlation between intelligence and nay-saying,  $r_s(83) = -0.27, p = 0.01$ .

**Miranda Vocabulary Scale (MVS).** A linear regression was run to detect if FSIQ scores could predict an individual's *Miranda* vocabulary knowledge. Preliminary analyses between FSIQ and MVS were conducted to determine if the data violated the assumptions of regression. Assumptions of linearity, independence of observations, homoscedasticity, and normality of the residuals were met. Although two participants produced data points that were considered outliers (i.e., produced standardized residuals greater than three), it appeared these points were unusual due to being the highest score for each of the respective groups. The data were not removed from the analysis. FSIQ scores significantly predicted MVS scores,  $F(1, 83) = 595.73, p < .001$ ,

accounting for 87.8% of the variation in *Miranda* vocabulary knowledge, as assessed by the MVS (i.e.,  $R^2 = 0.88$ ).

### ***Predicting SAMA Outcomes using WAIS-IV Indices***

Originally, a series of hierarchical multiple regressions were planned to determine how much variance in *Miranda* abilities could be accounted for by the difference facets of intelligence. Consistent with Erickson et al. (2020), the Verbal Comprehension Index (VCI) was expected to significantly predict *Miranda* knowledge, recall, and comprehension of *Miranda* vocabulary; none of the indices were expected to predict response style. During the preliminary analyses to determine whether the data met the assumptions of regression, multiple problems occurred. Notably, many of the independent and dependent variables lacked a linear relationship or had a nonlinear relationship, which were often not resolved with transformations of either the independent or dependent variable, or of both variables. Furthermore, due to the restricted range of performance of both groups, many of the scatterplots evidenced clusters of data. And as noted by Stevens (2009), “Any systematic pattern or clustering of the residuals suggests a model violation(s)” (pg. 90). In addition to problems with linearity, many of the regressions displayed heteroscedasticity.

***Miranda Quiz (MQ)***. Prior to running a hierarchical regression, preliminary analyses were conducted to determine if MQ scores and the four WAIS-IV index scores met the assumptions of regression. As evidenced by a visual inspection of the studentized residuals against the unstandardized predicted variables, the data did not meet the assumption of linearity. Further, an inspection of the partial regression plots revealed that none of the four indices demonstrated a linear relationship with MQ scores. Furthermore, none of these relationships were monotonic, which precluded the use of transformations (Box & Cox, 1964). As such, no

correlational or regression analyses were run using these variables as the data did not meet the assumptions of these statistical approaches.

***Miranda Comprehension Template (MCT)***. A hierarchical regression using the WAIS-IV indices to predict participants' tested recall, or MCT scores was planned. Preliminary analyses determined that the data did not meet the assumption of linearity, as assessed by a visual inspection of a scatterplot of the studentized residuals against the predicted values (Weisberg, 2014). Additionally, only the VCI indicated a clear linear relationship to MCT scores; the other three indices (i.e., PRI, WMI, and PSI) did not demonstrate linear relationships, as assessed by partial regression plots. A square root transformation was applied to the MCT variable, which did not improve the linearity of the overall residuals or the partial regression plots for the PRI, WMI, and PSI. In addition to linearity problems, the data was heteroscedastic and appeared to have a nonnormal distribution, as assessed via visual inspection. Although a weighted least squares regression can be used in cases of nonconstant variance, transformations of the dependent variable are more commonly used (Rawlings et al., 2001), and there should be empirical weights or theoretical justification for selecting weights to use a weighted regression (Weisberg, 2014).

As only the VCI demonstrated a linear relationship with MCT scores, a simple regression was conducted with VCI as the sole predictor. A scatterplot was used with VCI scores against MCT scores. Visual inspection of this plot indicated a linear relationship between the variables. There was homoscedasticity and normality of the residuals. The same two participants who were outliers in the FSIQ regression remained outliers in the present regression, and their data was left in the analysis. VCI scores significantly predicted MCT scores,  $F(1, 83) = 307.68, p < .001$ , accounting for 78.8% (i.e.,  $R^2 = 0.79$ ) of the variation in recall post-warning.

***Miranda Acquiescence Questionnaire (MAQ)***. Three hierarchical regressions were planned for the four WAIS-IV indices and the three scales of the MAQ (i.e., CON scale, ACQ scale, and NAY scale). Preliminary analyses and a visual inspection of a scatterplot of the studentized residuals against predicted values revealed that the data violated the assumption of linearity for all three regressions. Furthermore, partial regression plots for each regression indicated a lack of linear relationships between all four indices and the three MAQ scales. The indices and the three MAQ scales also did not exhibit monotonic relationships. As such, transformations were not utilized, and the data were not appropriate for correlational or regression analyses.

***Miranda Vocabulary Scale (MVS)***. A hierarchical regression using the WAIS-IV indices to predict participants' *Miranda* vocabulary knowledge, or MVS scores was planned. Preliminary analyses determined that the data did not meet the assumption of linearity, as assessed by a visual inspection of a scatterplot of the studentized residuals against the predicted values (Weisberg, 2014). Similar to the MCT analysis, only the VCI partial regression plot indicated a linear relationship with MVS scores. The other three indices (i.e., PRI, WMI, and PSI) did not demonstrate linear relationships with MVS scores. A square root transformation was applied to the MCT variable, which did not improve the linearity of the overall residuals or the linearity in the partial regression plots for the PRI, WMI, and PSI. In addition to linearity problems, the data was heteroscedastic, as assessed via visual inspection. Although a weighted least squares regression can be used in cases of nonconstant variance, transformations of the dependent variable are more commonly used (Rawlings et al., 2001). Additionally, practice usually dictates using empirically established weights or having theoretical justification for

selecting weights to use a weighted regression (Weisberg, 2014). As no such empirical weights or theoretical justification was established in the literature, this approach was not used.

As with the MCT analysis, the VCI demonstrated the only linear relationship with MVS scores. A simple regression was attempted; however, a scatterplot of the residuals indicated that the variables failed both the linearity and homoscedasticity assumptions. A square root transformation of the MVS scores, as well as a logarithmic transformation of the VCI scores did not significantly alter the distribution of the data such that it was linear. As the relationship between the non-transformed variables was monotonic, a Spearman's rank-order correlation was used. There was a strong positive correlation between VCI scores and participants' MVS scores,  $r_s(83) = 0.88, p < .001$ .

### **Confidence and *Miranda* Knowledge**

Although confidence has not been previously found to be a significant indicator of *Miranda* comprehension, it was hypothesized that the effect of confidence on knowledge may vary based on group membership. Thus, a two-way ANOVA was conducted to examine the effects of group membership and self-rated confidence in *Miranda* knowledge on ability to identify common misconceptions about *Miranda* rights. Residual analysis was performed to test for the assumptions of the two-way ANOVA. Outliers were assessed by inspection of the studentized residuals, normality was assessed using Shapiro-Wilk's normality test for each cell of the design, and homogeneity of variances was assessed by Levene's test. There were no outliers, and there was homogeneity of variances ( $p = .06$ ). The cell of participants without ID who labeled their confidence in their *Miranda* knowledge as "poor" violated the assumption of normality as evidenced by the Shapiro-Wilk's test (i.e.,  $p < .001$ ). As ANOVA analyses are often

robust to deviations from normality (Maxwell & Delaney, 2004), the analysis continued despite this violation.

There was no statistically significant interaction between group and self-rated confidence in one's *Miranda* abilities,  $F(2, 78) = 0.12, p = 0.89, \text{partial } \eta^2 = 0.003$ . There was no statistically significant main effect of confidence rating on *Miranda* knowledge,  $F(2, 78) = 0.004, p = 0.99, \text{partial } \eta^2 = 0.00$ . There was a significant main effect of group membership on *Miranda* knowledge,  $F(1, 78) = 25.76, p < .001, \text{partial } \eta^2 = 0.25$ ; however, this was already determined by a significant Mann-Whitney U test.

## CHAPTER 4

### DISCUSSION

The current results indicated that individuals with ID performed significantly worse than individuals without ID on measures designed to detect *Miranda* abilities. Overall, participants with ID demonstrated poor recall of the *Miranda* warning, had difficulty identifying common misconceptions regarding constitutional rights, and struggled to define words relevant to the *Miranda* rights. Participants with ID displayed significantly higher tendencies of acquiescence and nay-saying than did participants without ID. Although some analyses were not able to be completed regarding the predictive ability of *Miranda* knowledge and capability due to sampling problems, the analyses that were completed suggested relationships between IQ and recall, response style, and vocabulary knowledge. Specifically, verbal abilities were predictive of recall and vocabulary knowledge. These findings also substantiate the conclusion that someone with impaired verbal abilities would likely present with lower *Miranda* abilities. Taken together, the current study suggests that individuals with ID evidence significantly impaired *Miranda* abilities thereby increasing their vulnerability in the legal system.

#### ***Miranda* Abilities**

##### ***Recall***

Although recall is not equivalent to comprehension, it serves as an important foundation for being able to analyze information. If one cannot recall and manipulate information in memory stores, it is likely impossible to then utilize abstract reasoning to process such information. When current participants were asked to freely recall the *Miranda* warning, those

without ID evidenced significantly better recall for overall free recall and for each of the first four components. None of the participants freely remembered the fifth component, which was consistent with prior research (Rogers et al., 2013). Similar to Chaulk et al. (2014), both the ID group and non-ID group freely recalled the right to remain silent and that statements could be used as evidence at higher rates than the other components. However, it is noteworthy that although the right to silence had the highest level of recall in the ID group, only eight of the participants in the group remembered this component.

On average, the non-ID group recalled about three components whereas the ID group freely recalled less than one component (i.e.,  $M = 0.24$ ). Approximately 43% of the non-ID group recalled the first four components of the warning, which was generally consistent with a sample of people summoned for jury duty (Rogers et al., 2013). In contrast, 85.4% of the ID group failed to recall even one of the components of the *Miranda* warning. These stark differences illustrate the lack of existing knowledge that individuals with ID have when it comes to remembering police warnings.

Previous research has found that prior exposure to warnings regarding rights is not significantly related with comprehension (Clare et al., 1998; Cook & Philip, 1998; Eastwood & Snook, 2010). However, as prior experience is significantly related to recall abilities (Langer & Nicolich, 1981), it was expected that individuals who endorsed prior exposure to the *Miranda* warning would demonstrate better free recall. Indeed, there was a strong association between prior exposure to the *Miranda* rights, either via media or reality, and the ability to freely remember at least one component of *Miranda*. It is possible this association was driven by the non-ID group, who all endorsed hearing the warning before and who all, at minimum, recalled at

least two rights. In contrast, only 26 of the 62 participants with ID endorsed prior exposure, and of those, only nine remembered at least one of the components.

Following the expectation that prior exposure would facilitate higher recall, it was expected that recall would improve after hearing a *Miranda* warning. As with free recall, the non-ID group demonstrated significantly higher recall of all five of the *Miranda* components when read the warning. Approximately one-third of the participants with ID (i.e.,  $n = 22$ ) failed to recall any portion of the *Miranda* rights, even directly after having the warning read to them. However, it is notable that a significant increase in individuals recalling at least one right occurred between the free recall portion of the study and the tested recall. Specifically, it increased from nine individuals recalling at least one right to 40 individuals recalling at least one right.

When all participants were included in an analysis to determine if recall improved after hearing a *Miranda* warning in the study, there were significant increases in recall for all components except the right for statements to be used as evidence. Notably, all of the non-ID group freely recalled this component at the outset of the study, and actually demonstrated a slight decrease in recall as one participant did not recall this component during the MCT. When differences in free recall versus post-warning were examined by group, the non-ID group showed improvement only on two components: the right to an attorney if indigent and the ability to assert one's rights at any time. During the free recall task, these components evidenced the lowest likelihoods of being recalled (e.g., 43.5% and 0.0%, respectively). It is likely that there was little improvement evidenced in the other three components due to the high levels of free recall. In other words, the non-ID participants already knew these rights so hearing a warning did not significantly affect their ability to recall them.

An examination of recall improvement by group showed that the ID group evidenced significantly higher rates of recall post-warning on the first four components of *Miranda*; none of the ID group participants recalled the fifth component freely or post-warning. Although these results sound promising at first glance, the reality is that the average number of components recalled by the ID group post-warning was less than one. Similar to other studies with individuals with ID, approximately three-fourths of the information was not recalled (e.g., Clare & Gudjonsson, 1993; Everington & Fulero, 1999). Verbal working memory accounts for the ability to store and utilize verbal information (Just & Carpenter, 1992), but it has a limited capacity that decreases with more complex information (Marton et al., 2006). Given that individuals with ID demonstrate pronounced deficits with regard to working memory (Carretti et al., 2010; Lanfranchi et al., 2004), it is not surprising that the current participants with ID recalled so little of the warning.

Taken all together, the current findings suggest that individuals with ID have significantly impaired abilities to freely recall the components included in a *Miranda* warning. When considering all of the current participants, it was apparent that hearing a warning improves immediate recall for components that an individual does not already know, even if that individual has intellectual impairment. However, for those individuals with ID, the increases in recall lacked clinical significance as less than 25% of the information was recalled. Rogers et al. (2011) noted that the ability to remember *Miranda* was likely dependent on the complexity level of the information presented to individuals. Despite the warning in the current study being shorter and of a lower reading level than the national average (Rogers et al., 2007), the individuals with ID still evidenced significant limitations in recall. This suggests that recall would be even lower if the complexity of the warning were to increase. Some notable limitations

are that the current study did not assess for retained recall at a delayed point, and participants were not asked to explain the meaning of the rights they were able to recall.

### ***Miranda Knowledge***

Comprehension of protected rights greatly varies, but the bottom line remains that many people lack an understanding of their rights (e.g., Fenner et al., 2002; Moore & Gagnier, 2008; Rogers et al., 2013). These comprehension deficits are significantly more pronounced in populations with ID (e.g., Everington & Fulero, 1999; Fulero & Everington, 1995; O’Connell et al., 2005). In the present study, *Miranda* knowledge, as assessed by the ability to identify common misconceptions regarding constitutional rights, was significantly higher in individuals without ID. These participants, on average, correctly recognized approximately 80% of the misconceptions. In contrast, the participants with ID identified about only 48% of the misconceptions, which indicates that they were performing approximately at chance level, or the level that would occur if someone were to respond randomly to items. Specifically, 34 (i.e., 58.4%) of the participants with ID performed at or below chance level, whereas only one participant (i.e., 4.3%) in the non-ID group scored at a similar level.

Despite the significantly better performance of the non-ID group, as was consistent with prior research, there are several noteworthy caveats. Firstly, the measure used in the present study to measure *Miranda* knowledge (i.e., the *Miranda Quiz of the SAMA*) is a forced-choice measure, a format which is generally not recommended for individuals with ID because of the impact of response bias (Heal & Sigelman, 1995; Sigelman et al., 1981; 1982). As discussed in Erickson et al. (2020), the sample with ID evidenced significant correlations between response styles (e.g., acquiescence and nay-saying) and performance on the MQ. As such, it is unclear how accurately this measure reflects *Miranda* comprehension of people with ID as their response

style may either overestimate or underestimate their true comprehension. Therefore, while the MQ appears to perform as intended when completed by individuals without ID, evaluators should use caution when attempting to utilize the MQ as an assessment of comprehension if the individual has intellectual impairment. One way to mitigate the potential inaccurate measurement of comprehension may be to also use open-ended questions with the individual.

### *Acquiescence*

Individuals who are in custody may acquiesce to requests from law enforcement officers because they believe that is what expected of them (Leo, 1996). Although this phenomenon does not exclusively occur with individuals with ID, research has consistently established that rates of acquiescence are significantly higher in this population (e.g., Gudjonsson & Young, 2011; Sigelman et al., 1981; 1982). The current sample aligned with previous research as participants with ID acquiesced at significantly higher rates than those without ID. As a reference point, the ID group acquiesced at rates that were, on average, higher than 88% of a sample of pretrial defendants (Rogers et al., 2012). The non-ID group's average rates of acquiescence were close to the median and fell in the 55<sup>th</sup> percentile of the sample of defendants. The present findings further strengthen the concern that individuals with ID are at elevated risk for engaging in acquiescent responses in situations that may have serious consequences (e.g., being asked to waive their rights).

Common reasons that individuals acquiesce include a desire to please the questioner, avoid dislike, or avoid conflict (Couch & Keniston, 1960; Diers, 1964). This may be compounded by a hesitancy to object by saying 'no,' which results in people being more likely to say 'yes' and agree (Moum, 1988). This is particularly problematic considering many police warnings end with the question, "Do you understand these rights?" If an individual does not want

to cause conflict with a law enforcement officer or wants to offer what is perceived as the desired response, they might offer an affirmative answer. Additionally, research has indicated that people with ID may use affirmative responses when they do not understand the prompt or request (Clare & Gudjonsson, 1993), rather than voicing a lack of understanding. Mendall et al. (2020) exemplified these concepts in a sample of individuals with ID, who all affirmed that they understood the police caution they had heard; yet 80% of the sample demonstrated a complete lack of comprehension.

Acquiescence may be resultant from internal processes, but environmental factors can certainly increase the likelihood of such behaviors. For example, individuals with ID are more likely to acquiesce in situations that are uncomfortable to them, or in contexts where they may fear the potential loss of contact with others (Petersilia, 2000). Perske (2005) noted that situations that are stressful may also increase acquiescent tendencies in individuals with ID, especially if there is also a strong desire to please an authority figure. Additionally, these stressful situations (e.g., interrogative settings) may increase acquiescence due to fear, difficulty communicating, or a lack of experience navigating a novel situation (Snell et al., 2009). These contextual factors only serve to increase the likelihood that people with intellectual impairment would acquiesce in custodial situations, which can be uncomfortable, stressful, and confusing. Although the current study did not include measures of perceived and/or reported stress levels, it is reasonable to assume the setting was less stressful than would be an interrogative setting. Even in the absence of consequences and high stress, the current participants with ID acquiesced at significantly high rates, which may have further increased in settings with more pressure. Thus, affirmative statements garnered from persons with ID at the time of arrest should be viewed with

caution, as it is likely more representative of response style rather than a reflection of comprehension of the questions.

### ***Miranda Vocabulary***

Individuals with ID demonstrated significantly lower *Miranda* vocabulary abilities than the group without ID, which was consistent with prior findings (e.g., Erickson et al., 2020, Everington & Fulero, 1999). What is most notable about this difference between groups is how large the discrepancy in ability was, as measured by the *Miranda Vocabulary Scale (MVS)*. Specifically, the ID group only correctly defined 12% of words commonly found in warnings, whereas the non-ID group, on average, correctly defined 78% of the words. Perhaps more concerning is that 11% of the ID sample (i.e.,  $n = 7$ ) failed to even partially define one word. Although the non-ID group in the current sample performed significantly better on the MVS than the normative sample, the bottom line remains that individuals with ID demonstrate significantly impaired knowledge of the words involved in *Miranda* warnings.

The inability to comprehend *Miranda*-relevant vocabulary means that a person is missing the necessary foundation to comprehend a *Miranda* warning. It equates to the idea that you cannot reach a total sum without the parts. Essentially, the words of the *Miranda* warning are meaningless to individuals with ID because they do not understand the definitions of the words (Cloud, et al., 2002). Impaired lexical knowledge is characteristic of individuals with intellectual impairment (Roberts et al., 2007), and as police warnings can contain words that require a 10<sup>th</sup> grade reading level or higher (Eastwood et al., 2010; Rogers et al., 2008), markedly low vocabulary knowledge is not unanticipated.

Beyond the typical language delays that individuals with ID often demonstrate (Jones et al., 2006), a number of other factors related to the specific wording used in warnings likely

contributes to lower comprehension. For example, warnings provided by police often include words that are rarely used outside of legal contexts, or that may have multiple interpretations (Cooke & Philip, 1998; Rogers et al., 2007), which increases the likelihood that they are more difficult to understand (Whaley, 1978). Marks et al. (1974) found that, regardless of reading level, comprehension was significantly higher when materials used high-frequency words as opposed to low-frequency words. There is likely a compounded effect with warnings in that they not only include words that are not often used in everyday communication, but that there are nuanced meanings of the words as applies to legal rights. An initial solution to this problem may be to attempt to teach individuals with lower vocabulary abilities the definitions of relevant words. However, simply memorizing the definition of a word does not always lead to improved comprehension. Contextual information is important, as one must understand the meaning and significance of words in specific contexts to equate to true understanding (Stahl & Fairbanks, 1986).

### ***Relationship with Intelligence***

Intelligence, and more specifically verbal comprehension abilities, were expected to be significant predictors of individuals' *Miranda* abilities. When examined in isolation, the FSIQ scores and verbal comprehension of individuals with ID significantly predicted recall and vocabulary knowledge (Erickson et al., 2020). Intelligence was not a significant predictor of *Miranda* knowledge or acquiescence when utilized in the ID group. However, it was expected that when participants without ID were added to the sample, intelligence would become a significant predictor for all areas of *Miranda* abilities (e.g., recall, knowledge, response style, and vocabulary). Due to sampling problems resulting from the COVID-19 pandemic, a smaller sample size was collected of individuals without ID than was desired. The distribution of these

two samples (i.e., inverse restricted ranges of the lowest and highest ends of intelligence) resulted in certain analyses not being able to be completed, as the data was clustered.

Participants' FSIQ scores significantly predicted tested recall ability and level of *Miranda* vocabulary knowledge, which was consistent with findings when only using the group with ID (Erickson et al., 2020). As both of these abilities (i.e., remembering statements and defining words) are based in verbal knowledge, it was further expected that the verbal comprehension subtest would be a significant predictor. Indeed, verbal comprehension significantly predicted tested recall ability and performed similarly to the FSIQ score with regard to variance accounted for by the predictor; though the variance accounted for by FSIQ was slightly higher (e.g., 87.8% versus 78.8%). Regression analyses were not able to be completed for the MVS, but a correlational analysis evidenced a strong relationship between verbal comprehension and vocabulary knowledge.

Intelligence, as operationalized by FSIQ scores, demonstrated a small, negative relationship with individuals' tendency to nay-say. In other words, as intelligence increases, a person is less likely to engage in repetitive nay-saying. In contrast, as intelligence increases, so does a person's likelihood to respond consistent to reverse-paired items. Interestingly, these relationships between intelligence and response styles were not evident in just the ID sample (Erickson et al., 2020), which may have been due to the restricted range of IQ and acquiescence scores in this group. Unfortunately, due to the aforementioned problems with data distribution, analyses using the indices of intelligence were not able to be conducted to determine what facets of intelligence drive this relationship.

Although few analyses regarding the relationship between intelligence and *Miranda* abilities were able to be completed due to sampling problems, the available evidence suggests

that intelligence is important with regard to recall, response style, and vocabulary comprehension. Similar to Erickson et al., (2020), the full sample in the present study suggests that verbal abilities remain one of the most important and accurate indicators of a person's *Miranda* abilities. When putting this knowledge into practice, forensic evaluators could expect individuals with higher verbal intelligence to likely have better *Miranda* abilities.

### ***Confidence***

Confidence has not historically been found to be related to *Miranda* comprehension. In the current study, it was hypothesized that an interactional effect may occur such that confidence was related to comprehension when considering group membership. However, consistent with existing research, confidence was not significantly related to actual *Miranda* knowledge. People, regardless of intelligence, are not accurate estimators of their own legal knowledge and are likely to overestimate their understanding (e.g., Cooke & Philip, 1998; Fenner et al., 2002; Rendall et al., 2020). This misplaced confidence may render individuals more likely to make ill-informed decisions regarding their rights if they believe they have an adequate understanding. More concerning is that law enforcement officers are unlikely to question a suspect's statement that they do understand their rights (Snook et al., 2010) because law enforcement officers also exhibit overconfidence in others understanding their rights (Patry et al., 2017). In the context of individuals with ID, these factors may combine into a series of events that increase their vulnerability in the legal system. Specifically, a person with ID may overestimate their comprehension of their rights, may acquiesce to law enforcement officers' inquiries regarding whether they understand their rights, and law enforcement may accept these responses without questioning the validity of them.

## **Implications And Future Directions**

Knowing that individuals with ID have impaired *Miranda* abilities raises the practical question of what this means for these individuals in the legal system. First and foremost, the combination of poor comprehension and increased acquiescence leaves these individuals at increased risk for false confessions (Drizin & Leo, 2003). Cognitive impairment is one of the primary risk factors for individuals offering false confessions (Kassin et al., 2010), particularly because of suggestibility, acquiescence, and confabulations (Clare & Gudjonsson, 1993). Other potential reasons why individuals with ID might falsely confess to a crime include a desire to please authority figures, difficulties with language, and impaired judgement (Perske, 1994). With this in mind, a lack of understanding that one does not have to speak with law enforcement officers in combination with a desire to please authority figures sets the stage for troublesome interactions where individuals with ID unknowingly confess to crimes for which they may or may not be responsible. In essence, not only are there interactional characteristics that render individuals with ID at increased risk for false confessions, but impaired cognitive and legal abilities further compound their risk.

Another factor that may place individuals with ID at risk during custodial situations is that their disability status is often not recognized (Schatz, 2018). There are often no physical markers associated with intellectual deficits, which means that visual observations are not sufficient to determine whether someone has ID. In fact, one study showed that three-fourths of individuals who had ID were not identified as having ID at the time of arrest (Petersilia, 2000). Numerous factors may contribute to this inability to identify individuals who may be vulnerable, including a lack of screening procedures, stereotypical beliefs, and reluctance to disclose on the behalf of the individual. For example, perceptions such as believing persons with ID will appear

and behavior in a childlike manner may serve as a barrier to properly identifying individuals with limitations (Patton & Keyes, 2006). Additionally, many persons with ID will often not disclose their ID status and may attempt to overshadow any impairment they may experience (Perske, 2005; Snell et al., 2009), which may be driven by a desire to avoid stigma.

The reported prevalence of false confessions in individuals with ID has some variability. Specifically, Gross and colleagues (2005) found that approximately 69% of exonerated people had mental disabilities and had offered false confessions, which resulted in their conviction. A more recent estimation by Schatz (2018) showed that approximately 25% of exonerated individuals in the National Registry for Exonerations presented with indicators of intellectual disability. Because individuals with ID are not always accurately identified when they are in the criminal justice system, there may be possible gaps in the estimations. Regardless, the available numbers suggest that, at minimum, one in four individuals with ID may falsely confess.

The present study did not evaluate participants' appreciation of the *Miranda* rights, or the applicability of the rights by using a decision-making paradigm. Previous studies have suggested that people both with and without ID demonstrated faulty knowledge regarding potential consequences of waiving one's rights (e.g., Blackwood et al., 2015; Clare & Gudjonsson, 1995). As the present sample with ID did not demonstrate adequate *Miranda* abilities, it is probable that they would also demonstrate impaired reasoning with regard to *Miranda* waivers. The possibility of improper waivers is problematic for a couple of reasons. Firstly, a large proportion of individuals (i.e., 80%) waive their rights (Leo, 1996). And secondly, motions to exclude confessions based on improper *Miranda* procedures are rarely made (Rogers et al., 2010), and those motions that are made are rarely successful (Cassell, 1996). Ultimately, the bottom line

remains that individuals with ID are significantly disadvantaged in the criminal justice system, which creates a need to ameliorate these risks.

The most important change that needs to be made to the criminal justice system to potentially decrease some of the vulnerability of persons with ID is educating law enforcement personnel. The literature reflects a consensus that such trainings are essential (e.g., Gendle & Woodhams, 2005; Gulati et al., 2020; Perske, 1994), and some authors recommend these disability awareness trainings should be provided to all individuals who work in the criminal justice system (Ali et al., 2016). Gulati et al. (2020) recommended that trainings for law enforcement officers should focus on correcting stereotypes and misconceptions, providing information on the risks and barriers that individuals face within the legal system, and learning how to identify people who may have ID and are in need of support. Although limited information is available regarding existing training programs, existing attempts at educating law enforcement personnel has successfully mitigated negative attitudes (Bailey et al., 2001) and allowed for more protective procedures for persons with ID (Henshaw et al., 2018). These results are promising and suggest that future exploration into disability awareness training is both worthwhile and necessary.

Along with disability awareness training, it is suggested that law enforcement personnel receive appropriate education with regard to screening for intellectual disabilities or impairment. However, a confounding factor is that efficient screeners do not readily exist (Ali et al., 2016). Given that identification of those with ID is a crucial step to modifying the procedures used with such individuals, efforts should be directed at developing screening measures that can effectively be administered by law enforcement personnel.

In addition to providing training for those in law enforcement, existing literature suggests that attempts should be made to provide individuals with ID some legal knowledge. Additionally, it is recommended that individuals with ID are taught how to interact with law enforcement, particularly in custodial situations (Perske, 1994). Schatz (2018) further recommended that people with ID should be educated on how to invoke their rights, and of the tactics used in custodial situations and how to protect themselves. Future studies should include the development of such training programs for individuals with ID, as well as evaluations of the efficacy of such programs.

Although training the individuals involved in custodial situations may reduce the risk that individuals with ID incur, systematic changes are also necessary to implement constitutional safeguards for people with ID. One recommendation to mitigate risk that occurs during interrogations is for individuals with ID to have a caregiver or guardian present (Olley & Cox, 2021). In certain areas, such practices have already been implemented. For example, The Code of Practice of England recommends that individuals with a developmental disability have an appropriate adult (i.e., an individual who safeguards the welfare of a vulnerable person) with them in addition to legal representation. This additional person is purposed to aid with communication and ensure that the detained person understands their rights and potential consequences of foregoing those rights (Chester, 2018). As noted by Snell et al. (2009), oftentimes individuals with ID will only understand their rights if there is access to someone who is serving in an advocacy role. Taken together, the provision of training and changes to the systemic process of custodial situations are among the necessary steps to reduce the vulnerability of individuals with ID and ensuring that protections are in place at every stage of legal proceedings.

## **Limitations**

There were a few noteworthy limitations in the present study. As aforementioned, there were sampling problems. As part of the sample (i.e., the ID group) was chosen for a specific characteristic, these individuals were very similar and performed comparably across measures, which resulted in a restricted range and skewed data. Similarly, the non-ID group was comprised of individuals who had significant educational histories (e.g., doctoral or juris doctor degrees), and who generally evidenced above average intellectual abilities. This resulted in another skewed, clustered group of data, though it occurred at the opposite end of the spectrum compared to the ID group. Also, recruiting for the non-ID group was halted before its completion due to the COVID-19 pandemic, which resulted in a small sample thereby exacerbating the problem of skewed clusters. Other limitations include the generalizability of the data. As all participants were collected in Alabama, it is possible that it may not be an accurate depiction of individuals who reside in a different demographical area.

## **Conclusion**

The present study further supports the literature that individuals with ID are significantly disadvantaged during the custodial process due to their poor *Miranda* abilities. The current participants in the ID group demonstrated poor recall of *Miranda* rights and extremely low levels of *Miranda* vocabulary knowledge, which places them at risk to not remember their rights or understand warnings presented to them. Further, individuals with ID in the current sample evidenced significant tendencies to acquiesce to stimuli and fail to recognize nuanced language. In totality, individuals with ID will likely not understand the warnings provided by police, and the possibility of them offering affirmative responses to questions, regardless of content, elevates their vulnerability.

Intelligence demonstrated a significant relationship with recall, response style, and vocabulary knowledge. Of the facets of intelligence, verbal abilities remained important in the prediction of recall and vocabulary knowledge. This study suggests that intelligence is important when it comes to understanding *Miranda* rights, particularly verbal intelligence, and that individuals with higher verbal skills or who are more intelligent will likely have better *Miranda* abilities. Overall, individuals with ID evidenced significant impairment when compared to individuals without ID, which necessitates more safeguards in our criminal justice system to ensure that we are addressing the vulnerabilities of these individuals.

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APPENDICES

**Appendix A**

**Background Questionnaire**

1. What is your birthday? How old are you? \_\_\_\_\_
2. What is your gender? \_\_\_\_\_
3. What is your race? \_\_\_\_\_
4. Are you single, married, or divorced? \_\_\_\_\_
5. How far in school did you get? \_\_\_\_\_
6. Have you ever been tested for any intellectual or learning disabilities? \_\_\_\_\_  
If yes: How old were you when you were tested? \_\_\_\_\_
7. Were you ever in any Special Education programs? \_\_\_\_\_  
If yes:  
What age did you start SPED? \_\_\_\_\_  
Were you ever taken out of SPED? \_\_\_\_\_  
What type of SPED services did you receive? \_\_\_\_\_  
Did you have SPED services for every class, or specific subjects?  
\_\_\_\_\_  
Were you in a separate classroom from other students or in the same as those who were not getting SPED services? \_\_\_\_\_
8. Do you currently have a job? \_\_\_\_\_  
If yes: how long have you had this job? \_\_\_\_\_  
If no: how long has it been since your last job? \_\_\_\_\_
9. What's the name of your current/old job? \_\_\_\_\_
10. What kind of things did you do at your job?  
\_\_\_\_\_

11. Have you ever worked as a volunteer? \_\_\_\_\_

If yes:

What type of volunteer work?

\_\_\_\_\_

What kind of things did you do?

\_\_\_\_\_

12. Have you ever been involved with the police or a court? \_\_\_\_\_

If yes: How were you involved?

\_\_\_\_\_

\_\_\_\_\_

13. Have you ever been arrested by the police? \_\_\_\_\_

If yes:

How many times have you been arrested? \_\_\_\_\_

What were you arrested for?

\_\_\_\_\_

14. Have you ever been found guilty of a misdemeanor crime? (e.g., petty theft, Minor in Possession, public intoxication, simple assault, disorderly conduct, trespassing, vandalism, drug possession, reckless driving, etc.)

\_\_\_\_\_

If yes: What crime(s) were you found guilty of?

\_\_\_\_\_

\_\_\_\_\_

15. Have you ever been found guilty of a felony crime? (e.g., murder, robbery, rape, aggravated assault, burglary, financial fraud, possession of drugs with intent to distribute, aggravated stalking, possession of a weapon on a school campus, etc.)?

\_\_\_\_\_

If yes: What crime(s) were you found guilty of?

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16. Have you ever spent time in a youth detention center or juvie?

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If yes:

How long were you there? \_\_\_\_\_  
How many times have you gone? \_\_\_\_\_  
What were you in for?

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17. Have you ever served time in a prison? \_\_\_\_\_

If yes:

How long were you there? \_\_\_\_\_  
How many times have you gone? \_\_\_\_\_  
What were you in for?

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18. Have you ever served time in a jail? \_\_\_\_\_

If yes:

How long were you there? \_\_\_\_\_  
How many times have you gone? \_\_\_\_\_  
What were you in for?

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19. Do you ever watch any crime-related shows? (e.g. Criminal Minds, CSI, Law and Order)

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If yes:

What shows do you watch?

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How often do you watch these shows? \_\_\_\_\_

20. Have you ever heard the *Miranda* rights being read to someone?

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Tell me what you remember from the warning. What do the police say to someone who is being arrested?

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## Appendix B



June 22, 2020

Sydnee Erickson  
Department of Psychology  
College of Arts & Sciences  
Box 870348

Re: IRB Application #: 16-005-R4 (e-Protocol 19-02-2003) "Miranda Comprehension & Abilities in Individuals with Intellectual Disability"

Dear Sydnee Erickson:

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given approval according to 45 CFR part 46.

The approval for your application will lapse on June 17, 2021. If your research will continue beyond this date, please submit the Continuing Review to the IRB as required by University policy before the lapse. Please note, any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Please use reproductions of the IRB approved informed consent/assent form to obtain consent from your participants.

Good luck with your research,

Sincerely,

Joan Barth, PhD  
Chair, Non-Medical IRB

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