

TOTALITY OF THE CIRCUMSTANCES: FACTORS AFFECTING
COMPETENCE TO WAIVE MIRANDA RIGHTS

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Valid waivers of Miranda rights are vulnerable to cognitive and psychological impairments, interpersonal characteristics, and demands of the situation. Courts rely on the “totality of the circumstances” approach to decision rules in determining the validity of Miranda waivers. This approach involves a discretionary determination based on the particular circumstances of each case. Traditionally, Miranda-related competencies have been considered only in the context of developmental factors and cognitive impairment. The current study applies a broader perspective to the question of Miranda-related competencies, addressing comprehension deficits, psychopathology, cognitive impairment, and three interpersonal variables: suggestibility, compliance, and acquiescence. Defendants referred for competency restoration at North Texas State Hospital in Vernon, Texas served as participants. These participants reflect a broad range of cognitive impairment, educational deficits, and mental disorders. Results indicate that cognitive deficits are related to the “knowing” prong of Miranda comprehension, i.e., understanding the vocabulary and meaning of the warnings, while both cognitive and psychopathology-related variables affect the “intelligent” prong, i.e., reasoning about their waiver decisions. Implications for forensic assessment are discussed.

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CHAPTER 1

INTRODUCTION

Psychologists are frequently asked to provide opinions regarding the legal competence of individuals. These opinions and subsequent court decisions have significant and life-changing consequences for the individuals in question (Borum, Otto, & Golding, 1993). Across criminal and civil law, many different types of legal competencies must be considered. Predictably, the criteria for deciding competence, as well as the consequences for a finding of incompetence, vary widely across the types of legal proceedings. Despite these variations, Grisso (2003) observed that all legal competencies share four fundamental assumptions as legal concepts. First, legal competencies recognize the rights of individuals to make autonomous decisions. Second, the law recognizes that some people may lack the capacities necessary to make autonomous decisions. In some instances, individuals without these capacities may endanger themselves or others with their decisions. Third, the legal system provides standards and procedures for determining individual legal incompetence. Fourth and finally, the government bears responsibility for intervening to protect the individual who has been found legally incompetent.

Competencies in the area of civil law include the capacity to parent a child, to consent to medical or mental health care, to care for oneself, and to make a contract or will (Grisso, 2003). Issues of legal competency may arise during several phases of criminal proceedings. These issues include competence to waive Miranda rights, to stand trial, to plead guilty or represent oneself, to be sentenced, and to be executed (Rogers & Shuman, 2005). Several conceptual models (Bonnie, 1992; Appelbaum &

Grisso, 1988) provide a framework for organizing and evaluating competencies related to individuals' legal rights.

Bonnie (1992) presented a seminal conceptualization of legal competencies. A critical component of psycholegal abilities is the concept of contextualized decisional capacities. Despite its focus on competence to stand trial and related legal competencies, Bonnie's concept of decisional capacities is relevant to all legal competencies. In general, decision-making capacity involves conceptual abilities, cognitive skills, and capacities for rational thought (Bonnie, 1992). As previously mentioned, the level of capacity required depends on the type of legal competence in question.

Appelbaum and Grisso (1988) outlined four levels of criteria for conceptualizing decisional competencies. Originally applied to the competence to consent to medical treatment, these levels are also useful in considering the broad domain of legal competencies. The least demanding level of decisional competence is the ability to communicate and maintain a stable preference. This ability may be impaired by a thought disorder, problems with short-term memory, or extreme ambivalence. However, this basic capacity to express a choice, without any indication of comprehension of the consequences of the choice, is usually not considered a valid indication of autonomous decision-making. The second level of decisional capacity is the ability to understand relevant information about a specific decision. This level is the standard most often used in legal cases and statutes and involves memory and comprehension skills (Bonnie, 1992). The third level of decisional competence is the capacity to appreciate the significance of relevant information as it applies to one's own case. This capacity

may be compromised by limited cognitive capacity, delusions, or mood disorders.

Finally, the fourth level of decision-making involves the ability to assess rationally the pros and cons of various decisions. Applied to legal competencies, the individual must be able to weigh alternatives and consider their likely outcomes.

The particular level that is applied to the question of competence depends on the requirements and consequences of the specific decisions to be rendered (Bonnie, 1992). When a defendant first becomes involved in the criminal legal process, one of the initial decisions is whether to waive one's constitutional rights to silence and legal counsel. In custodial interrogations, police officers are required to administer a Miranda warning prior to the questioning of a suspect that could lead to a confession. "Miranda warnings" were enshrined in police procedure after the Supreme Court's decision in the case *Miranda v. Arizona* (1966). In this landmark case, the Court ruled that criminal suspects have rights to procedural justice that are protected under the Constitution. Namely, the Court decided that suspects' right to remain silent during interrogation is protected under the Fifth Amendment privilege against self-incrimination. The Court stated that before any police questioning occurs, a suspect must be warned, "in clear and unequivocal terms," that "prior to any questioning . . . he has a right to remain silent, that any statement he does make may be used as evidence against him, and that he has a right to the presence of an attorney, either retained or appointed" (*Miranda v. Arizona*, 1966, p. 467).

An estimated 40 to 50% of custodial suspects waive their Miranda rights and subsequently provide a confession to the police (Gudjonsson, 2003). Some of these defendants may later assert that their waivers were invalid. When questions are raised,

courts typically require a forensic evaluation to determine the capacities of defendants to understand their Miranda rights and to have waived them knowingly and intelligently prior to making a confession (Grisso, 2003).

For a Miranda waiver to be considered valid by the courts, it must have been made knowingly, intelligently, and voluntarily (*Miranda v. Arizona*, 1966; *Godinez v. Moran*, 1993; *Iowa v. Tovar*, 2004). These three constructs are vitally important for clinicians conducting competence-to-waive rights evaluations, and will be discussed in detail. Grisso (2003, p. 151) describes the “knowing” component as “a sum of suspects’ abilities to understand plus the manner in which they are informed.” The ability to knowingly waive one’s rights may be affected by the suspect’s lack of understanding of both the vocabulary and meaning of Miranda statements (Rogers & Shuman, 2005). Cognitive deficits, such as mental retardation or dementia, may affect a defendant’s ability to knowingly waive his or her rights. The suspect’s appreciation of his or her rights can also be affected by the manner in which the warning was given. For example, a clear, thorough explanation is more likely to be understood than a hasty, incomplete warning (Grisso, 2003). Another factor which may impact “knowingness” is the degree to which the suspect is assisted by others in understanding his or her rights (*West v. United States*, 1968). For example, a suspect who is provided access to an attorney, or in juvenile cases, a parent or guardian, may be given a more complete explanation of his or her rights.

The “intelligent” prong of Miranda waivers addresses the degree to which the waiver was the result of rational reasoning. Grisso (2003) describes this component as an ability to “grasp the significance” of the specific Miranda warnings. According to

Rogers and Shuman (2005), the intelligent prong requires suspects to demonstrate functional abilities in three related cognitive abilities: identifying their alternatives, understanding the consequences of those alternatives, and apply reasoning to their decision. This interpretation of the “intelligent” requirement closely mirrors the “manipulating information rationally” level of decisional competence described by Appelbaum and Grisso (1988). Additionally, intelligent waivers require that defendants are not experiencing severe psychotic symptoms, such as paranoid delusions, that markedly impair the decisional process (Rogers & Shuman, 2005).

Voluntariness represents the third prong of a Miranda waiver. For a waiver to be considered voluntary, it must have been made as a result of the suspect’s determination, rather than coerciveness on the part of law enforcement officers (Grisso, 2003). In *Colorado v. Connelly* (1986), the Court ruled that Miranda waivers are considered voluntary unless they are the result of police coercion. Based on this ruling, psychotic symptoms, such as delusions and hallucinations, do not render confessions involuntary. This ruling significantly limited defendants’ grounds for asserting that a waiver was involuntary (Rogers & Shuman, 2005). Based on the *Connelly* decision, forensic experts may only address the voluntariness prong as it relates to police coercion (Rogers & Shuman, 2005). However, circumstances may occur in which the interaction of police conduct and the defendant’s specific vulnerabilities must be examined. For example, circumstances of interrogations that would not necessarily be perceived as coercive with most defendants may be highly coercive with some populations. Juvenile suspects and mentally retarded defendants may be especially vulnerable to police interrogation tactics (Grisso, 2003). A Supreme Court ruling the

same year as *Connelly* (*Moran v. Burbine*, 1986) elaborated on the full analysis to be used in deciding the voluntariness of a waiver. A waiver is considered voluntary if: (a) it was a product of a free and deliberate choice rather than intimidation, coercion, or deception, and (b) the waiver was made with a full awareness of both the nature of the right being abandoned and the consequences of the decision to abandon it.

The “totality of the circumstances” approach to decision rules is utilized by the courts in determining the validity of a Miranda waiver (*Miranda v. Arizona*, 1966; *Fare v. Michael C.*, 1979; *Dickerson v. U.S.*, 2000). This approach involves a discretionary determination based on the particular circumstances of each case (Grisso, 2003). “Totality of the circumstances” precludes the use of any specific fact, characteristic of the defendant, or circumstance as sufficient evidence by itself to invalidate a waiver (Frumkin, 2000). However, certain defendant characteristics are frequently considered by the courts in examining the “totality of the circumstances.” These variables include IQ, age, level of education, language ability, and mental illness that are coupled with previous experiences in the criminal justice system, including prior waivers and confessions (Fulero & Everington, 2004; Oberlander & Goldstein, 2001). According to Gudjonsson (2003), other factors that may affect a decision to waive one’s rights include reactions to the interrogation, stress, intoxication, physical illness, and personality characteristics such as suggestibility, compliance, and acquiescence.

Measurement of Miranda Comprehension

Forensic assessments of defendants’ competence to waive their Miranda rights may be especially difficult, due to their retrospective nature and the lack of standardized

measures (Rogers & Shuman, 2005). Grisso (2003) described several functional capacities that should be evaluated in determining the ability to waive rights to silence and legal counsel: (a) understanding of the rights presented in the Miranda warnings, (b) perceptions of the intended functions of the rights, and (c) capacities to reason about the probable consequences of waiver decisions. The first functional capacity parallels the “knowing” requirement of Miranda waivers, while the second and third capacities parallel the “intelligent” requirement. These cognitive capacities will be discussed in more detail.

The most basic capacity involved in Miranda-related decision making involves understanding the warnings themselves. This capacity may be assessed through an evaluation of a defendant’s understanding of the specific words and phrases used in Miranda warnings (Grisso, 2003). For example, if a defendant does not understand the meaning of the words “prosecution” and “evidence” or does not understand the phrase “may be used against you,” he or she is unlikely to understand the totality of the warning.

The second capacity pertinent to Miranda waivers is the suspect’s understanding of the intended functions of the Miranda rights. A defendant may be able to understand the words and phrases used in Miranda rights, but may not understand the function of those rights. Three content areas subsumed under this capacity are: (a) an accurate perception of the adversarial nature of interrogation, (b) an accurate perception of the advocacy nature of the attorney-client relationship, and (c) an accurate perception of the constitutional protection against self-incrimination (Grisso, 2003).

The third function, the defendant's capacity to reason about the probable consequences of waiver or nonwaiver decisions, requires the ability to process information and weigh possible outcomes. Valid waivers should be the result of a consideration of short- and long-term consequences and the generation of optional responses. Prior research (Everington & Fulero, 1999; Grisso, 1981) suggested that mentally retarded defendants and juvenile suspects may be at particular risk for impairment in this functional capacity.

Grisso's (1998) Miranda measures were developed to assess systematically these three functional capacities. These four instruments are comprised of the Comprehension of Miranda Rights (CMR), Comprehension of Miranda Rights-Recognition (CMR-R), Comprehension of Miranda Vocabulary (CMV), and Function of Rights in Interrogation (FRI). The CMR consists of four items that assess the defendant's ability to paraphrase Miranda statements. The CMR-R involves the defendant's ability to correctly recognize the meaning of Miranda statements. The CMV assesses examinees' understanding of specific words commonly used in Miranda warnings. Finally, the FRI was designed to evaluate the defendant's perceptions of the function and significance of rights, using a hypothetical situation. The FRI is organized into three content areas: Nature of Interrogation, Right to Counsel, and Right to Silence. Grisso's Miranda measures are based solely on the Miranda warning used in St. Louis County during the 1970s. This fact severely limits the utility of the measures in other jurisdictions, whose Miranda warnings may be substantially different. These measures are also limited by the lack of reliability data and criterion-related validity (Rogers, Jordan, & Harrison, 2004).

Greenfield, Dougherty, Jackson, and Zimmerman (2000) developed the Miranda Checklist Inventory (MCI) as a framework for guiding evaluators in their assessments of Miranda waivers. The MCI is not a psychological instrument per se, but a list of relevant clinical and forensic factors associated with Miranda-related abilities. The MCI has not been standardized, but may represent a useful method by which psychologists can organize their Miranda evaluations.

New Developments in Assessing Miranda Comprehension

Rogers (2005) recently developed two measures for assessing Miranda comprehension and reasoning abilities. The Miranda Statements Scale (MSS) addresses the “knowing” prong of Miranda waivers by assessing defendants’ abilities to understand the words and meanings of Miranda statements. The MSS consists of two parallel forms: MSS-A and MSS-B. Each form is composed of five representative Miranda warnings of increasing levels of reading difficulty (i.e., < Grade 6, 6.0-7.9, 8-9.9, 10-11.9, and ≥ 12). Interviewees are asked to read each component and paraphrase it in their own words. The categories for scoring the MSS were established from content analysis of a national sample of Miranda warnings from 560 jurisdictions. These “Miranda components” are based on common characteristics to define a component or category (Krippendorf, 2004). Rogers et al. (2007) reported good interrater reliability for the components (M kappa = .88; range from .82 to .96).

The Miranda Rights Scale (MRS; Rogers, 2005) is a 15-item interview-based questionnaire that asks participants to address the possible advantages and disadvantages of four Miranda-related issues: (a) waiving their right to silence, (b)

asserting their right to silence, (c) waiving their right to an attorney, and (d) asserting their right to an attorney. The MRS addresses the “intelligent” prong of Miranda waivers through an assessment of defendants’ abilities to identify alternatives, understand consequences of those alternatives, and apply reasoning to their own case. Responses are scored as a “1” for the presence of one or more coherent, nonpsychotic reason or a “0” for the absence of such a reason. Each of the four categories (i.e., exercise-silence, exercise-counsel, waive-silence, and waive-counsel) consists of two questions, with possible category scores ranging from 0 to 2. Preliminary interrater reliability data is good, with a mean kappa of .84 (range from .68 to .95; Rogers et al., 2007).

Populations at Risk for Poor Comprehension of Miranda Rights

Defendants with mental retardation and juvenile suspects may be at an increased risk for providing invalid Miranda waivers due to their inability to comprehend their rights (Everington & Fulero, 1999; Grisso, 2003). Researchers have focused their efforts primarily on these two groups. Other populations may also be vulnerable during police interrogation, such as those persons with psychotic disorders or dementia; these diagnoses have received much less attention in the research literature.

Individuals with mental retardation may represent an increased risk for not understanding their legal rights, acceding to police pressure, and providing false confessions. Everington and Fulero (1999) compared mentally retarded probationers with non-mentally retarded probationers on Grisso’s Comprehension of Miranda Rights, Comprehension of Miranda Rights-Recognition, and Comprehension of Miranda Vocabulary. Mentally retarded probationers scored significantly lower than their

average-intelligence counterparts on all three measures. Additionally, mentally retarded probationers were significantly more likely to receive a score of zero (i.e., inadequate understanding) on the CMR. Specifically, 66.7% of probationers with mental retardation received at least one score of zero versus 16.7% of the control group. These findings are especially troubling since the probationers in the study had already been adjudicated in the criminal justice system (i.e., placed on probation).

Research has also examined the Miranda comprehension and reasoning of mentally retarded individuals not involved in the criminal justice system. Clare and Gudjonsson (1995) found that only 52% of individuals with mental retardation believed that a hypothetical suspect should have legal advice at the start of a police interview. In contrast, almost all (90%) persons of the average intellectual ability believed that legal advice would be needed. Also, persons with mental retardation did not appreciate the permanence of any statement to police. Instead, they assumed that any statement could be credibly retracted and would not be considered as evidence of guilt if presented in court. Clare and Gudjonsson suggested that this finding might be explained by learned helplessness. Specifically, individuals with intellectual disabilities may have had many experiences which taught them that they are people of limited credibility, so they are not used to having their statements (true or not) be believed unless supported by a more powerful person (Perlman et al., 1994). Therefore, self-incriminating statements would be of little significance and the outcome would depend on the evidence and decisions of “competent” others who would somehow know the truth of the situation.

Fulero and Everington (2004) elaborated on the relationship between personality characteristics, repeated failures, and the increased tendency to offer confessions among persons with mental retardation (MR). They posited that the majority of individuals with mental retardation have experienced frequent and repeated failures throughout their life in social and school settings. These continuing failures result in a loss of confidence in problem-solving situations, failure expectancy, and learned helplessness. When a mentally retarded individual is presented with a difficult situation, he or she has a stronger tendency to rely on external cues (verbal and nonverbal) provided by others. Therefore, a person with MR may be less sure of his or her answers, more easily influenced by others, and more apt to look to the interviewer for “correct” answers. Research has consistently found that it is easier to elicit a confession (true or false) from a person with mental retardation than from an individual of average abilities (Perske, 2000).

Developmental abilities are a primary element in the evaluation of Miranda waivers of youthful defendants. Grisso’s (1981) initial research into juveniles’ comprehension of Miranda rights revealed that understanding of the warnings was related significantly to both age and IQ scores. Juveniles’ prior experience with Miranda warnings increased their comprehension; however, this finding was only significant for European American juveniles. In a more recent study of basic understanding of the meaning of Miranda warnings, Goldstein, Condie, Kalbeitzer, Osman, and Geier (2003) found that adolescents’ comprehension of Miranda warnings has not significantly improved since the 1970s, when Grisso’s measures were first developed. They hypothesized that the level of comprehension required for this purpose may be a

developmental skill beyond the capacity of young adolescents. Age and intelligence remain the primary predictors of Miranda comprehension in juveniles.

The Miranda-related abilities of mentally disordered defendants have been virtually ignored in the literature. Cooper, Zapf, and Griffin (2003) examined the ability of inpatients with Axis I disorders to appreciate the significance of Miranda rights in the legal process, using Grisso's (1998) Function of Rights in Interrogation (FRI) instrument. They found that these inpatients performed worse on the FRI than both adults and juveniles in Grisso's normative sample.

In response to the dearth of research on the impact of psychopathology on Miranda rights comprehension, Rogers (2004) recently proposed a model to guide both research designs and clinical methods. His integrated-impairment model applies a multidimensional framework for understanding problems with Miranda comprehension. This model incorporates diagnostic findings, developmental issues, and psychosocial stressors in evaluating Miranda-related competencies. Specifically, the model addresses: (a) specific deficits in comprehension, (b) psychological impairment resulting from mental disorders, and (c) cognitive impairment resulting from limitations in specific intellectual abilities. This model applies a broader perspective to the question of Miranda-related competencies, which have generally been considered only in the context of cognitive impairment.

False Confessions

Suspects who do not understand that they have a right to silence and the right to legal counsel may be at increased risk for providing false confessions during police

interrogations. Kassin and Wrightsman (1985) conceptualized three psychologically distinct types of false confessions. “Voluntary false” confessions are offered in the absence of any coercion or even interrogation. Individuals providing voluntary false confessions are typically motivated by the desire for notoriety, a need to alleviate unwarranted guilt, a desire to protect the real criminal, or symptoms of a mental illness. The second type of false confession is “coerced-compliant,” which is usually the result of extreme methods of interrogation. The suspect publicly professes guilt to the offense despite knowing privately that he/she is truly innocent. The third kind of false confession, “coerced-internalized,” typically occurs as the result of fatigue, continued pressure, and suggestiveness of the interrogation process. With coerced-internalized confessions, the suspect comes to believe that he or she actually committed the offense. Gudjonsson and MacKeith (1990) hypothesized that coerced-compliant confessions are more easily elicited through aggressive interviewing techniques, while coerced-internalized confessions are achieved through gentle but persistent persuasion.

Several studies have investigated the psychological and personality characteristics of false confessors. Ofshe (1989) hypothesized three personality vulnerability factors that likely contribute to a “coerced-internalized” false confession: unwavering trust of people in authority, lack of self-confidence, and increased suggestibility. In a study of prisoners who alleged that they had falsely confessed, Gudjonsson (1990) found that these false confessors demonstrated significantly lower IQ scores than those not claiming a false confession. Additionally, the false confessors exhibited significantly higher degrees of suggestibility, acquiescence, and compliance. The significance of these three psychological characteristics supports Ofshe’s (1989)

theory of personality vulnerabilities as relevant factors in coerced-internalized false confessions. Going beyond criminal suspects, Gudjonsson, Sigurdsson, Bragason, Einarsson, and Valdimarsdottir (2004) assessed 1,080 university students in Iceland. They found that 10% had made a false confession to teachers or parents in the past. Interestingly, false confessions tended to occur among those who acknowledged delinquency, impulsivity, and antisocial personality characteristics. In addition, 1% reported making a false confession to the police; the most frequently cited explanation was to protect somebody else from prosecution.

Individual Characteristics Affecting Miranda Comprehension and Waiver

As described earlier, courts examine the “totality of the circumstances” when considering the validity of a Miranda waiver. Characteristics of the defendant that may be considered include age, IQ, education, presence of a mental disorder, and previous experience with the criminal justice system. Gudjonsson (1990) asserts that the five most psychologically relevant factors when addressing the legal issues of “admissibility” and “reliability” of confession evidence are: intellectual skills, educational attainment, suggestibility, compliance and the ability to cope with pressure, and acquiescence. The concepts of suggestibility, compliance, and acquiescence, and their relevance to Miranda rights and custodial interrogations, will be described in detail in the following sections.

Interrogative Suggestibility

Gudjonsson and Clark (1986) defined interrogative suggestibility as “the extent to

which, within a closed social interaction, people come to accept messages communicated during formal questioning, as a result of which their subsequent behavioral response is affected” (p. 84). Essentially, the construct of interrogative suggestibility involves an interpersonal vulnerability that causes individuals to believe that their own information may not be factual. Gudjonsson (2003) emphasized that this definition consists of five interrelated components: (a) a social interaction, (b) a questioning procedure, (c) a suggestive stimulus, (d) acceptance of the stimulus, and (e) a behavioral response. Gudjonsson and Clark (1986) posited that witnesses and suspects will be especially vulnerable to interrogative suggestibility under three conditions: (a) when they are uncertain about the details of the event, (b) when they trust their interviewer’s intentions, and (c) when they believe that they should be able to recall what is being asked of them. Uncertainty may arise when the interviewee does not know the correct answer to a question, often due to an incomplete memory of the event at issue. This uncertainty may lead the interviewee to conform to leading questions, knowing that the information is incorrect, because they are either eager to please the interrogator or are reluctant to disagree. This behavioral response would be described as “compliant” rather than “suggestible.” Interviewees who internally accept the misleading information would be considered “suggestible” (Gudjonsson, 2003). The second condition under which suggestibility often occurs is when the interviewee trusts the interrogator. Interviewees who are suspicious of the interrogator’s intentions are more reluctant to accept misleading information, while those who are trusting will more easily accept suggested information (Gudjonsson, 2003). Expectation of success is the third prerequisite for suggestible responses. Often, individuals are reluctant to admit

their uncertainty because they believe that they should know and be able to provide a definite answer to the question (Gudjonsson, 2003).

A debate has emerged in the literature on whether interrogative suggestibility is best conceptualized as a trait or a state. Schooler and Loftus (1986, 1993) described these two approaches respectively as “individual differences” and “experimental.” The individual differences approach hypothesizes that the level of suggestibility depends on the coping strategies a person can generate and implement when confronted with the uncertainties and expectations of the interrogative situation (Gudjonsson, 2003).

Coping strategies associated with low suggestibility involve a critical analysis of the situation and a facilitative problem-solving action, while a suggestible coping strategy involves “cognitive avoidance” (e.g., denial or mental disengagement) and a lack of facilitative problem-solving action (Gudjonsson, 1988). A typical coping strategy of highly suggestible people is to give answers that seem plausible and consistent with the available external cues rather than critically evaluating each question and only giving definite answers to questions they clearly remember.

In contrast to the individual differences approach, the experimental approach emphasizes the memory conditions under which leading questions are likely to affect an individual’s verbal account. Powers, Andriks, and Loftus (1979) provide an alternative definition for interrogative suggestibility: “the extent to which they come to accept a piece of post-event information and incorporate it into their recollection” (p. 339). This definition highlights the importance of memory processing, which is key to the experimental approach. As Gudjonsson (2003) argued, this definition is faulty because it has not been proven that people actually incorporate the suggested information into

their recollection. Of the two models of suggestibility, the individual differences approach to suggestibility, which emphasizes the importance of social pressure, is most relevant to police interrogation.

Gudjonsson Suggestibility Scale

Gudjonsson (1983) developed the Gudjonsson Suggestibility Scale (GSS) for both clinical and research purposes. The primary clinical application of the GSS is to identify individuals who are susceptible to providing erroneous accounts of events when subjected to questioning during the course of a criminal investigation (Gudjonsson, 1997). In terms of research, Gudjonsson was also interested in validating a measure to investigate the process of suggestibility and its associated factors. The GSS remains the only published, validated measure for assessing interrogative suggestibility in adults, although researchers have recently developed measures for evaluating suggestibility in children, e.g., the Video Suggestibility Scale for Children (VSSC; Scullin & Ceci, 2001) and the Book Suggestibility Scale for Children (BSSC; Melinder, Scullin, Gunnerod, & Nyborg, 2005). The GSS is commonly used in research investigating suggestibility. Therefore, this measure will be explained in detail in order to provide a context for the research findings that follow.

The GSS 1 is a measure designed to assess an interviewee's susceptibility to suggestions and consists of a brief narrative read aloud to the participant. A parallel form of the GSS 1, the GSS 2, consists of a story of different content but similar in terms of length and number of major components. For both the GSS 1 and GSS 2, the participant gives free immediate and delayed recall of the story's elements. The

delayed recall occurs approximately 50 minutes after the immediate recall. The number of story components correctly recalled is computed for both immediate and delayed recall. Also computed is a Confabulation score, which refers to incorrect information that is added to the story (“fabrications”) and major alterations in the story’s content (“distortions”). The participant is then asked 20 questions, 15 of which are misleading. The degree to which interviewees capitulate to the leading questions constitutes their “Yield 1” score. The participant is then given negative feedback regarding his or her performance on the questions, and the questions are repeated with the instruction to “try to be more accurate.” The number of leading questions to which the interviewee capitulates during the second phase of questioning is labeled “Yield 2.” The extent to which they change their answers after the negative feedback is referred to as “Shift.” In summary, the following scores are obtained from the GSS: Immediate Recall, Delayed Recall, Yield 1, Yield 2, Shift, Total Suggestibility (Yield 1 + Shift), and Confabulation.

Gudjonsson’s theory of interrogative suggestibility and the GSS are based on the hypothesis that suggestibility and memory are highly related. Gudjonsson and Clare (1995) argue that the poorer the individual’s memory, the more suggestible he or she is likely to be. However, Beail (2002) has criticized the GSS for its lack of ecological validity in terms of memory functioning. He argued that being read a narrative passage, recalling it, and answering questions about it is very different from actually experiencing an event, as a victim, witness, or perpetrator, and recalling the relevant information. According to Beail, the GSS makes demands on one memory subsystem (semantic memory) whereas a police interview makes demands on another (episodic memory). It is important, therefore, to consider high suggestibility scores in the context of additional

factors in a given case (Gudjonsson & Henry, 2003). Based on their findings with a sample with mental retardation, White and Willner (2005) also concluded that the GSS is confounded by memory artifacts. They found that the GSS tends to overestimate how suggestible a person is likely to be when the event in question is personally meaningful. Using a measure modeled after the format and procedure of the GSS, White and Willner (2005) assessed suggestibility for an event that actually occurred. In comparing familiar and recent material to unfamiliar material (as found in the GSS), suggestibility was decreased by two thirds. While these are legitimate concerns regarding the GSS, the use of a validated, standardized measure precludes the use of personally significant events as test stimuli. As Gudjonsson and Henry (2003) cautioned, other characteristics of the individual and the situation must be taken into account when drawing conclusions about the effect of interrogative suggestibility.

Some researchers (Hammond, 1995; Leavitt, 1997) have advocated the clinical use of the GSS opposite to its original intention. They argue that a low GSS score indicates that a client's memories are not the product of suggestion and can be considered reliable. However, the GSS was not constructed for this purpose; interpreting high GSS scores as suggestible does not imply that low GSS scores indicate veridicality (Rassin & Merckelbach, 1999). Therefore, GSS scores are designed to be interpreted in only one direction, namely high suggestibility.

Individual and Interpersonal Correlates of Suggestibility

Suggestibility is hypothesized to represent a reasonably stable personality construct because of the cognitive and personality characteristics that mediate

suggestibility (Gudjonsson, 2003). These cognitive and personality correlates are discussed in more detail.

Several studies have examined the relationship of interrogative suggestibility and intelligence. Gudjonsson and Clark (1986) hypothesized that suggestibility and intelligence should be negatively correlated for two reasons. First, they argue that suggestibility is related to uncertainty, which relies to a certain extent on memory capacity. Memory, in turn, is significantly correlated with intelligence. Second, suggestibility is believed to be affected by a person's ability to cope with the uncertainty, expectations of others, and the pressure associated with interrogation. Individuals of low intelligence would have limited intellectual resources to help them cope with a stressful and unfamiliar situation, such as interrogation.

The majority of research on suggestibility and intelligence has supported Gudjonsson and Clark's hypothesis of a negative relationship (Tully & Cahill, 1984; Gudjonsson, 1988b; Gudjonsson, 1990b; Gudjonsson & Clare, 1995). Gudjonsson (1990b) found an overall correlation of -0.44 between WAIS-R Full Scale IQ and total suggestibility in a sample of forensic referrals. The subtests with the strongest correlations with suggestibility were Picture Arrangement ($r = -0.48$), Similarities ($r = -0.43$), and Comprehension ($r = -0.40$). Therefore, in terms of intellectual capacities, suggestibility appears to be most closely related to logical reasoning, sequential thought, and social awareness. Components of both verbal and nonverbal intelligence appear to affect suggestibility; no research has demonstrated a significantly stronger correlation between Verbal IQ or Performance IQ and suggestibility.

Understandably, the relationship between intelligence and suggestibility appears to be influenced by range effects. Generally, evidence has shown that in samples with average or above average IQ scores, no significant correlation is found between intelligence and suggestibility. For example, Tata (1983) found no significant correlation between IQ and suggestibility scores in a sample of subjects whose IQs ranged from 106 to 125 ($M\text{ IQ} = 117$). Therefore, studies that include only participants with average-range IQ are unlikely to find a significant relationship between intelligence and suggestibility.

Compared with the general population, individuals with intellectual disabilities tend to be more suggestible. Research has consistently shown that individuals with impaired intellectual functioning tend to have higher Yield scores than individuals of average intellectual functioning (Everington & Fulero, 1999; Gudjonsson, 1990). Using an idiosyncratic classification, Gudjonsson and Henry (2003) administered the GSS to three groups of adults: (a) normal IQ (above 75), (b) mild mental retardation (IQ between 55 and 75), and (c) moderate mental retardation (IQ of 54 or below). The moderate mental retardation group had significantly lower scores than the other groups on Immediate Recall and Delayed Recall. This group also displayed significantly higher scores on Yield 1, Yield 2, and Total Suggestibility. Some disagreement exists concerning differences in Shift scores between individuals with mental retardation and average intelligence. Milne, Clare, and Bull (2002) and Gudjonsson and Henry (2003) found that people with mental retardation do not respond differently to negative feedback than people of average intelligence, as indicated by their Shift scores. However, Everington and Fulero (1999) reported that probationers with mental

retardation did have a significantly higher mean Shift score than their non-impaired counterparts.

Suggestibility has also been examined in relation to symptoms of mental disorders, particularly anxiety, depression, and dissociation. Suggestibility appears to be significantly mediated by anxiety processes (Gudjonsson, 2003). In general, state anxiety has consistently been shown to correlate at a moderate level with suggestibility (Gudjonsson, 1988; Smith & Gudjonsson, 1995). However, evidence indicates that only a weak relationship occurs between suggestibility and trait anxiety (Gudjonsson, 1983; Gudjonsson, 1988; Haraldsson, 1985). These findings indicate that specific anxiety during the interrogation is more likely than a generalized proneness to anxiety to be associated with suggestible responses. In contrast, Ridley, Clifford, and Keogh (2002) found that state anxiety was negatively related to suggestibility in nine- and ten-year-old children. In a later study with adults, Ridley and Clifford (2004) reported that increasing the participants' anxiety actually reduced suggestibility.

The relationship between depression and suggestibility has been investigated in only two studies. MacFarland and Morris (1998) examined the effect of depressive symptoms on suggestibility. Participants classified as "dysphoric" by the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) had significantly higher scores than nondysphoric patients on both Yield and Shift on the GSS 2. In contrast, Horselenberg, Merckelbach, Van Breukelen, and Wessel (2004) found no relationship between the BDI and the GSS. One major difference between these two studies was the level at which suggestibility was analyzed. MacFarland and Morris examined individual GSS scales (i.e., Yield and Shift) in relation to depression, whereas

Horselenberg et al. only investigated the relationship between Total Suggestibility and depression. Neither study investigated suggestibility in a criminal or forensic setting, so their results may have limited generalizability. Therefore, the relationship between suggestibility and depression in the context of custodial interrogations remains unexamined.

Proneness to dissociative experiences may also affect suggestibility. Two studies investigated the relationship between dissociation, using the Dissociative Experiences Scale (DES) and the GSS. Worlfradt and Meyer (1998) found highly significant correlations between dissociation and Yield 1 ($r = 0.66$), although no significant relationship was found between Shift and dissociation. A replication study yielded significant correlations between dissociation and Yield 1 ($r = 0.29$) and Total Suggestibility, ($r = 0.37$), although the relationship with Yield 1 was weaker in the latter study (Merckelbach, Muris, Wessel, & Van Koppen, 1998). The relationship of self-reported dissociative experiences to Yield scores, but not Shift scores, suggests that the relationship between suggestibility and dissociation is partly mediated by perceptions of memory failures and lack of confidence in one's memory.

Research across the lifespan has demonstrated a curvilinear relationship between age and suggestibility. Specifically, children and adolescents tend to be more suggestible than younger adults, who are less suggestible than older adults.

Richardson, Gudjonsson, and Kelly (1995) examined differences in suggestibility between juvenile and adult offenders. They found that juvenile offenders scored significantly higher on Shift than adult offenders, even when matched for IQ and GSS memory capacity. This finding suggests that young offenders may be particularly more

vulnerable to suggestibility in the form of interpersonal pressure and negative feedback than adult offenders.

While juveniles' increased suggestibility appears to be related to interpersonal factors, such as negative evaluation by others, suggestibility in older adults is likely related to decreased memory ability. Polczyk et al. (2004) compared young and older adults (M ages = 22.3 years and 64.1 years, respectively) on the GSS. Older adults scored significantly lower than young adults on the memory indices (Immediate Recall and Delayed Recall) and significantly higher on Yield 1, Yield 2, and Total Suggestibility than the young adults. No significant differences between younger and older adults were demonstrated in Shift scores. The researchers posited that the relationship between memory performance and suggestibility might have a threshold effect. Specifically, when memory ability is above a certain level, suggestibility is not likely to be affected. However, if memory ability is below this threshold, increased suggestibility is likely.

Other factors that may affect suggestibility include subjects' response styles and interviewer behavior. Only a few studies have examined the vulnerability of the GSS to response styles. Smith and Gudjonsson (1986) examined differences on GSS scores between two groups: "fakers," a group of professionals of above average intelligence (M IQ = 121) and "non-fakers," a group of manual laborers with an average IQ of 90. Participants in the faking condition were instructed to "pretend that you are not functioning on as high a level as is usual for you. In fact, fake to a level substantially below your usual standard. It is important that you try to fake the tests in a way you think is not going to be detected" (p. 68). The faking group performed significantly

worse than the honest group on Immediate Recall, Delayed Recall, and Confabulation—Delayed Recall. Interestingly, no significant differences were found between the groups on Yield, Shift, or Total Suggestibility. In a similar study, Baxter and Bain (2002) examined the ability of participants to feign suggestibility. Using a simulation design, participants in the faking condition were told to convince the interviewer that they were gullible or susceptible to pressure and likely to accept whatever is said to them. Results indicated that the faking group achieved higher scores than the honest group on Yield 1 on both the GSS 1 ($F = 5.6, p < .05$) and GSS 2 ($F = 4.1, p < .05$). However, no significant differences were observed on Yield 2, Shift, or Total Suggestibility. Additionally, faking participants scored significantly above the established norms for the GSS on Yield 1. The findings from these studies suggest that it may be more difficult to fake vulnerability to interpersonal pressure (i.e., Shift) than to feign memory impairment (Immediate and Delayed Recall) or susceptibility to leading questions (i.e., Yield).

A few studies have manipulated the effect of interviewer behavior on suggestibility scores. The GSS manual offers instructions for administering negative feedback to interviewees. Specifically, interviewees are to be told, “clearly and firmly”: “You have made a number of errors. It is therefore necessary to go through the questions once more, and this time try to be more accurate.” Two studies have manipulated the degree of “firmness” expressed by the examiner to determine the effect on participants’ suggestibility. Baxter and Boon (2000) had researchers assume the role of either a “friendly,” “firm,” or “stern” interviewer. Results indicated no differences for total suggestibility scores, but found participants in the “stern” condition had higher

scores on Yield 2 and Shift. In another study, Bain and Baxter (2000) assigned participants to either the “friendly” or “abrupt” condition. Interviewers assumed these demeanors throughout the entire administration of the GSS. Significant differences were found between the groups for Shift and Total Suggestibility, with participants in the abrupt condition exhibiting greater suggestibility. These findings suggest that interviewer behavior may have a direct effect on suggestibility, particularly the Shift component.

Relationship between Suggestibility and Miranda-Related Competencies

The construct of suggestibility is clearly relevant to Miranda-related competencies. Suspects who easily yield to misleading questions or shift their answers in response to negative feedback or interpersonal pressure may be more likely to waive their Miranda rights and provide a confession during interrogation. However, only two published studies have investigated this important relationship. Everington and Fulero (1999) administered Grisso’s Comprehension of Miranda Rights, Comprehension of Miranda Rights-True/False (the original name of Comprehension of Miranda Rights-Recognition [CMR-R]), Comprehension of Miranda Vocabulary, and the GSS to probationers with and without mental retardation. Moderate correlations were found between all three Miranda measures and components of suggestibility. Specifically, the correlations between the Miranda instruments and GSS-Free Recall ranged from .44 to .54. All three Miranda instruments had moderately high negative correlations with Yield scores ($r_s = -.60, -.64, \text{ and } -.54$). Finally, correlations ranged from $-.50$ to $-.54$ for GSS-

Total Suggestibility and the Miranda measures. In contrast, scores on the Miranda measures were only marginally related to the Shift scores (r s range from $-.18$ to $-.25$).

Redlich, Silverman, and Steiner (2003) examined the relationship between suggestibility and Miranda comprehension in a juvenile sample, using the GSS and Grisso's Understanding and Appreciation of Miranda Rights. They found that suggestibility was a significant predictor of Miranda competence, but that Yield and Shift affected understanding in different directions. Specifically, higher Yield scores were associated with higher Miranda recognition and comprehension scores. However, higher Shift scores were related with lower Miranda comprehension, recognition, and vocabulary scores. While the negative correlation between Shift and Miranda comprehension was expected, the authors were unable to explain the positive correlation between Yield and Miranda measures. They reported that the correlation between Yield and Miranda total scores was negligible ($r = .06$). The researchers hypothesized that Yield scores may have performed a suppressing function in terms of variance not accounted for by the dependent variable.

In summary, interrogative suggestibility refers to the degree to which an individual accepts formally communicated messages and alters his or her behavior as a result. Suggestibility has been shown to be related to a number of cognitive, personality, and interpersonal characteristics. However, the relationship between suggestibility and Miranda-related competencies remains unclear. A characteristic closely associated with suggestibility is compliance, which is examined in the next section.

Compliance

Compliance is defined as “the tendency of the individual to go along with propositions, requests, or instructions, for some immediate instrumental gain” (Gudjonsson, 1992). Clearly, suggestibility and compliance are related concepts; Gudjonsson (1989, 1992) conceptualizes them as overlapping personality characteristics rather than discrete constructs. The primary difference is that compliance is not associated with a personal acceptance of the request or idea, whereas suggestibility requires an internal acceptance. A compliant individual conforms to the request or agrees with the idea without accepting it as his or her own idea.

Gudjonsson (1989, 1997, 2003) conceptualized compliance as comprised of two major components: (a) eagerness to please and the desire to protect one’s self-esteem in the presence of others, and (b) avoidance of conflict and confrontation with people, particularly individuals in authority. These two components share the common goal of defusing uncomfortable interpersonal situations.

Compliance, like suggestibility, is generally conceptualized as a personality trait (Gudjonsson et al., 2002). However, a number of situational factors have been shown to influence compliance, including manipulation of self-esteem (Graf, 1971) and feelings of guilt (Konoske et al., 1979).

Personality characteristics that are commonly associated with increased compliance are poor self-esteem, neuroticism, and introversion. Gudjonsson et al. (2002) found a moderate correlation between self-esteem and compliance, indicating that individuals with poor self-regard may have less confidence to resist the demands and requests made upon them by others. Self-esteem may mediate other differences in

compliance. For example, Gudjonsson and Sigurdsson (2003) found that women had significantly higher compliance scores than men. The authors suggest that women's relatively lower self-esteem leads to more compliant behavior. An alternative explanation could be that repeated compliant behavior may result in decreased self-esteem. Other personality characteristics that may relate to compliance are neuroticism and introversion. The combination of neuroticism and introversion was found to significantly predict compliance in both prison inmates and university students (Gudjonsson et al., 2004). Individuals high on neuroticism and introversion may be especially uncomfortable in demanding interpersonal situations, and comply with requests in order to manage stress.

The relationship between mental disorders and compliance has not been extensively examined. However, a few studies have analyzed the relationship of compliance with symptoms of psychopathology and with mood states. Compliance has been shown to correlate positively with both state and trait anxiety (Gudjonsson et al., 2002). Gudjonsson (1992) explained that high anxiety is a "drive state," which may motivate the person to avoid conflict and confrontation. From this perspective, compliant behavior could operate as a coping strategy. Interestingly, research has also demonstrated that compliance correlates positively with paranoia and suspiciousness. Gudjonsson et al. (2002) found that the best predictors of compliance were interpersonal suspiciousness and hostility, behavioral reactions to provocation, and trait anxiety. The authors hypothesized that paranoia may activate avoidance behavior in individuals and make them focus on the immediate consequences of their behavior. For short-term gain, the strategy of compliance may be the most advantageous for these

individuals. Paranoid individuals may relieve their discomfort in the short term by complying with requests. In terms of mood states, Milberg and Clark (1988) reported that happiness increased compliance while angry moods decreased compliance. Not only did angry moods decrease compliance, a “boomerang” effect was found: participants behaved in the opposite direction of experimenter’s requests. This effect might be due to participants directing their anger at the experimenter by disobeying the requests to the fullest extent possible.

Measuring Compliance

Compliance is generally measured in one of two ways: behavioral observation and self-report. Milgram’s (1974) obedience studies are extreme examples of the behavioral observation approach. Two major problems arise when utilizing a behavioral observation approach to measuring compliance. First, ethical restraints limit the degree to which compliance can be elicited from participants. Second, the type of compliance elicited in research studies is often highly specific and not generalizable to other conditions. For example, some researchers may assess compliance by manipulating ways to induce a participant to express his or her preference for a certain product (e.g., pens versus notepads; Milberg & Clark, 1988). These types of conditions are probably not generalizable to “real world” situations in which compliant behaviors may have a more personally relevant impact.

Therefore, most researchers studying compliance use the self-report method to assess compliance across a broader range of circumstances. Gudjonsson (1989, 1997) developed the Gudjonsson Compliance Scale (GCS) to assess compliance as it relates

to police interrogation. This self-report measure consists of 20 true/false items. Factor analysis of the GCS revealed two main factors: (1) uneasiness or fear of people in authority and avoidance of conflict and confrontation, and (2) eagerness to please. These factors are relevant to interactions with the police, who to many suspects represent feared and powerful authority figures. The GCS asks participants to rate themselves based on their general behaviors and reactions in interpersonal situations. This more general assessment of compliance eliminates the problems of situationally-bound compliance evaluated by behavioral observation. However, one limitation of the GCS is that most of the items are keyed “true” for a compliance response, so its usefulness may be confounded by an acquiescent response (i.e., yea-saying).

In summary, compliance differs from suggestibility in that persons do not internally accept the idea or proposition but simply relent to external pressure. Compliance is generally conceptualized as a personality trait, although situational factors may affect the degree of compliant behavior. Compliance has not been as extensively studied as suggestibility, and many of the mechanisms associated with compliance have yet to be defined. No published studies have examined the role of compliance in waiver of Miranda rights. One purpose of the current study is to evaluate this potentially important relationship. Another characteristic commonly associated with both suggestibility and compliance is acquiescence, which will be examined in detail.

Acquiescence

Acquiescence, or yea-saying, refers to the tendency of the person to answer questions affirmatively regardless of content (Gudjonsson, 1990). This type of response

has been studied both as a state and a trait variable. Acquiescence occurs more often under the following three conditions (see Finlay & Lyons, 2002): (a) the answers are not known, (b) the questions are ambiguous, and (c) the individual has spent less time considering the question. Gudjonsson (1990) presented a three-stage framework for understanding how an acquiescent response occurs. First, the individual reads or listens to the question or statement. Factors such as attention, interest, and reading comprehension are important during this first stage. Second, the person must understand the words, concepts, and meaning of the question. At this stage, conceptual judgments, comprehension, and vocabulary skills are crucial. Third, the individual must decide how to answer a question when they are unsure of the answer. Specifically, he or she can refuse to give an answer, give a random answer, or give an answer he or she considers the most plausible. Selection of this last option, offering a plausible answer, may result in an acquiescent response.

Acquiescence is similar to suggestibility in that, when in doubt, individuals may give affirmative answers to questions. The important distinction between suggestibility and acquiescence is that, with regard to acquiescence, questions are not structured in such a way as to specifically suggest the wanted or expected answer, which is the case with suggestibility (Gudjonsson, 2003). The primary difference between compliance and acquiescence appears to be that highly acquiescent individuals are not necessarily seeking to comply or obey with requests. Rather, acquiescence is a response style characterized by replying in the affirmative to any inquiry, even absurd questions.

The first and second stages of Gudjonsson's (1990) acquiescent response framework involve reading comprehension and conceptual understanding. To examine

the effects of these variables, Gudjonsson (1986) compared two measures of acquiescence on a sample of average-IQ individuals. The first measure consisted of statements with simple vocabulary and easily understood content. The second measure was more complex in terms of content, vocabulary, and sentence length. The degree of acquiescence was significantly greater on the more complex measure. Gudjonsson (1990) posits that acquiescence serves to reduce uncertainty and restore self-esteem in ambiguous or stressful situations.

Acquiescent responding has been consistently correlated with low intelligence (Gudjonsson, 1990; Shaw & Budd, 1982; Sigelman et al., 1981). Like suggestibility and compliance, acquiescence is significantly negatively correlated with both performance and verbal IQ (Gudjonsson, 1990). Individuals with mental retardation are particularly vulnerable to engage in acquiescent responding. Fulero and Everington (2004) concluded that people with mental retardation are more likely to have a strong desire to please others, especially those in authority. This desire to please may be due to a lack of certainty and confidence in their own abilities and because others, such as teachers and caregivers, exert greater control in the lives of persons with mental retardation. Sigelman, Winer, and Schoenrock (1982) found that when a person with mental retardation is asked a yes/no question, he or she is significantly more likely to answer in the affirmative, regardless of the appropriateness of that response. Sigelman et al. (1981) evaluated the likelihood of acquiescent responding in 42 adults with IQs in the mildly to severely mentally retarded range. On simply worded, personal opinion questions, 41.7% of the participants contradicted themselves on logically opposite yes/no questions. This same sample demonstrated acquiescence even on absurd

questions (e.g., “Do you know how to fly an airplane?”). The percentage of participants acquiescing to these types of questions ranged from 28% to 73%. The researchers found that participants were the least likely to provide affirmative answers to questions for which the necessary information was readily available (e.g., “Right now, is it raining outside?”). Sigelman et al. hypothesized that acquiescence may serve several functions for individuals with mental retardation. It may be a strategy for concealing ignorance about how to answer particular questions, or serve as an automatic and unthinking question-answering strategy. Alternatively, when the question is actually understood, acquiescence may provide a means of obtaining social approval when “yes” is assumed to be the socially desirable response.

Shaw and Budd (1982) interviewed 24 mentally retarded adults about types of behavior ranging from highly prohibited to desirable in their sheltered workshop. For each behavior, two questions were presented, i.e., “Is it against the rules ____” and “Are you allowed ____.” A response of “yes” on both items would indicate acquiescent responding. Participants with very low I.Q.s (range of 30 to 41) were more likely than participants with low I.Q.s (range of 45 to 77) to contradict themselves because of acquiescence. The authors theorized that both cognitive impairment and social desirability contribute to acquiescent responding in persons with mental retardation. Specifically, they posit that impaired cognitive development may predispose individuals to biased responding in general, and social desirability determines the direction of the bias (yea-saying or nay-saying).

In summary, acquiescence is conceptualized as a response style to gain social approval. Intelligence is the strongest predictor of acquiescence, with mentally retarded

individuals especially prone to acquiescent responding. Acquiescence has not been empirically examined as a specific factor in comprehension and waiver of Miranda rights. Based on available research, however, acquiescent individuals may be highly susceptible to answer affirmatively to common police questions such as “Do you want to waive your rights?”

Measuring Acquiescence

Finlay and Lyons (2001) describe four ways in which acquiescence can be measured: (a) asking nonsense or absurd questions where the correct answer should obviously be “no,” (b) asking pairs of questions with opposite meaning, (c) using pairs of questions which ask the same questions in different formats, and (d) comparing self-reports with collateral accounts by informants. According to Gudjonsson (2003), the most commonly used method of measuring acquiescence is by way of a matched pairs technique. This technique involves pairs of items with logically opposite or inconsistent content (e.g., “I am happy most of the time” and “I am sad most of the time”). A person providing affirmative answers to both statements would be considered to have an acquiescent response style. Several multiscale inventories, including the MMPI-2, MMPI-A, the Multidimensional Personality Questionnaire (MPQ), and the Millon Adolescent Clinical Inventory (MACI) utilize this technique in their True Response Inconsistency scales to provide evidence of acquiescent responding. The matched pairs method is also used in Winkler et al.’s (1982) measure, the Acquiescence Response Set (ARS), which is frequently used in research to control for acquiescence.

Relationship of Suggestibility, Compliance, and Acquiescence

Suggestibility, compliance, and acquiescence are clearly related constructs, although their specific relationships remain unclear. Gudjonsson (1986) assessed suggestibility and acquiescence in a sample of 30 male volunteers. Results indicated a low but significant correlation ($r = 0.33$) between GSS Total Suggestibility and acquiescence, as measured by Winkler et al.'s (1982) scale. Additionally, significant correlations were found between acquiescence and Yield 1 and Yield 2, but not between acquiescence and Shift. In a later study with forensic patients, however, Gudjonsson (1990) reported no significant relationship between acquiescence and suggestibility, or between acquiescence and compliance, as measured by the GCS. In a third study, Gudjonsson and Clare (1995) found significant correlations between acquiescence and GSS 2 Immediate Recall ($r = -0.37$), Delayed Recall ($r = -0.40$), Yield 1 ($r = 0.27$) and Yield 2 ($r = 0.21$). Again, no significant relationship was found between acquiescence and Shift. These findings indicate that acquiescence may have some relationship with certain components of suggestibility, i.e. Yield scores, but this relationship may vary depending on sample characteristics (e.g. intelligence scores).

Suggestibility, compliance, and acquiescence were examined in one factor analytic study (Gudjonsson, 1990) to explore latent constructs among the variables. Gudjonsson (1990) analyzed WAIS-R subtests, GSS 1 Total Suggestibility score, GCS, and acquiescence. Interestingly, acquiescence strongly loaded on the first two factors that addressed aspects of intelligence. Suggestibility and compliance loaded highly on the third factor.

These findings indicate that compliance and suggestibility are more closely related to each other than to acquiescence. It is hypothesized that suggestibility and compliance are trait characteristics, while acquiescence is more state-dependent (see Gudjonsson, 2003). According to Gudjonsson (2003), acquiescence is best construed as resulting from intellectual and educational factors rather than temperament or personality variables. Compliance, as measured by the GCS, is best conceptualized as a personality construct. Suggestibility is believed to fall between compliance and acquiescence, but is more closely related to compliance (Gudjonsson, 2003).

Purpose of the Current Study

Courts rely on an assessment of the totality of the circumstances in evaluating Miranda waivers, rather than a *per se* approach, which codifies the requirements for an automatic invalidation of waiver of rights (Grisso, 2003). Therefore, psychologists who conduct competency to confess evaluations must be aware of the relevant psychological variables that could affect the validity of a Miranda waiver. The standard for a valid waiver of the rights to silence and to legal representation must be made knowingly, intelligently, and voluntarily (*Miranda v. Arizona*, 1966). The “knowing” and “intelligent” prongs are usually the primary focus in a psychological evaluation of waiver validity and decisional capacities. Psychological variables that may affect the validity of waivers include demographic variables, cognitive abilities, psychopathology, and individual characteristics related to social interactions (i.e., suggestibility, compliance, and acquiescence).

The current study seeks to evaluate the independent effects and interaction of these psychological and interpersonal characteristics on defendants' abilities to (a) comprehend their rights, (b) reason rationally about the application of the rights to their own case, and (c) make decisions about waiving their rights to silence and legal counsel. The current study also seeks to further understand the relationship between suggestibility, compliance, and acquiescence. As described in earlier sections, these three characteristics may have important effects on defendants' Miranda-related competencies. Therefore, it is important to understand the correlates of these characteristics and the relationship among them.

Research Questions and Hypotheses

With respect to the "knowing" prong of Miranda waivers, the first research question investigates which demographic, psychological, and interpersonal variables are most relevant to impairments in defendants' abilities to comprehend their rights.

Hypothesis 1. It is hypothesized that cognitive impairments (i.e., low IQ and poor listening and reading comprehension) will be significant predictors of poor comprehension of Miranda warnings.

Hypothesis 2. It is hypothesized that defendants with IQs in the mentally retarded range (< 70) will exhibit poorer comprehension of Miranda rights than defendants with IQs in the borderline and low average range (70 to 89). Both of these groups will demonstrate poorer comprehension than participants with average IQs (≥ 90).

Hypothesis 3. It is hypothesized that suggestibility will be negatively correlated with Miranda comprehension. Specifically, higher Yield and Shift scores will predict poorer Miranda comprehension, based on the findings of Redlich et al. (2003) and Everington and Fulero (1999).

The second research question investigates which demographic, psychological, and interpersonal variables are most relevant to impairments in defendants' abilities to rationally reason about their rights (i.e., the "intelligent" prong of Miranda).

Hypothesis 4. It is hypothesized that the presence of psychotic symptoms and Global Assessment Scale scores will predict impairments in participants' abilities to rationally reason about their Miranda rights.

Hypothesis 5. It is hypothesized that the integrated-impairment model will better predict impairments in Miranda-related rational abilities than the traditional cognitive-developmental model.

Research Question 3 examines the dimensions underlying suggestibility, compliance, acquiescence, and other psychological variables.

Hypothesis 6. It is hypothesized that suggestibility will be most strongly correlated with listening comprehension and overall level of functioning (GAS).

Compliance is hypothesized to correlate with the Psychosis subscale of the Schedule for Affective Disorders and Schizophrenia-Change Version (SADS-C; Spitzer & Endicott, 1978), due to its previously found association with paranoid ideation (e.g., Gudjonsson et al., 2002). Consistent with past research (e.g., Gudjonsson, 1990; Shaw & Budd, 1982; Sigelman et al., 1981), acquiescence is hypothesized to correlate with intelligence.

Research Question 4 examines the properties of the Interrogation Acquiescence Questionnaire (IAQ), a newly developed measure of acquiescence.

Hypothesis 7. It is hypothesized that the IAQ will be comprised of three factors: Miranda rights, the police, and interrogation.

Hypothesis 8. It is hypothesized that the IAQ will demonstrate adequate scale homogeneity.

CHAPTER 2

METHOD

This study was approved by the University of North Texas Institutional Review Board (IRB) on April 22, 2005. The Texas Department of Mental Health and Mental Retardation Central Office Institutional Review Board granted its approval on June 28, 2005. The jointly approved consent form is provided in Appendix A.

Design

A quasi-experimental, within-subjects design was utilized to examine the relationship between characteristics of impaired criminal defendants and their Miranda-related competencies. Independent variables included IQ, reading and listening comprehension, and symptoms of psychopathology (i.e., psychosis, mania, and depression). In addition, three interpersonal variables were used as independent variables: suggestibility, compliance, and acquiescence. Dependent variables were two measures related to Miranda comprehension and decisional abilities: the Miranda Statements Scale, and the Miranda Rights Scale.

Participants

The sample consisted of 107 mentally disordered offenders from the North Texas State Hospital (NTSH), Vernon Campus. NTSH is the only maximum security state forensic hospital in Texas. Participants were recruited from the inpatient competency restoration unit and included both male and female patients. Past research at this site

(Rogers, Tillbrook, & Sewell, 2004) has demonstrated that CST referrals reflect a broad range of cognitive impairment, educational deficits, and mental disorders.

Materials

Demographic Information Form

Basic demographic and historical information was gathered by self-report from the participants. This information included their dates of birth, ethnicity, highest level of education attained, marital status, usual occupation, current charges, and number of total arrests.

Wechsler Abbreviated Scale of Intelligence (WASI)

The WASI (Psychological Corporation, 1999) is a brief measure of intelligence, composed of four subscales: Vocabulary, Similarities, Block Design, and Matrix Reasoning. From these subtests, Verbal IQ, Performance IQ, and Full Scale IQ are computed. Average split-half reliability coefficients for WASI subscales in an adult sample range from .92 to .98. Average test-retest reliability coefficients for the adult sample range from .79 to .90 for individual subtests, and from .87 to .92 for the IQ scales. In terms of concurrent validity, WASI IQ scores strongly correlate (range from .84 to .92) with IQ scores derived from the WAIS-III.

Wechsler Individual Achievement Test—Second Edition (WIAT-II)

The WIAT-II (Psychological Corporation, 2002) is an individually administered test for assessing academic achievement. For the current study, two subtests were

administered: Reading Comprehension and Listening Comprehension. Items on the Reading Comprehension subtest evaluate an examinee's ability to match written words with representative pictures, read passages and answer questions about the content, and define vocabulary words by using context cues. Split-half reliability correlations for Reading Comprehension ranged from .94 to .98, and test-retest reliability was reported as .81 for adult samples (The Psychological Corporation, 2002). Listening Comprehension assesses three domains: receptive vocabulary, sentence comprehension, and expressive vocabulary. For adult samples, split-half reliability correlations for Listening Comprehension ranged from .83 to .92, with a test-retest reliability coefficient of .93 (The Psychological Corporation, 2002).

*Schedule of Affective Disorders and Schizophrenia –
Change Version (SADS-C)*

The SADS-C (Spitzer & Endicott, 1978) is a semistructured diagnostic interview that evaluates 36 key Axis I symptoms. Specifically, the SADS-C assesses for symptoms of psychosis, depression, and mania. The SADS-C reliably measures symptom severity on six gradations: 0 indicates *no information*; 1 = *not at all*; 2 = *slight*; 3 = *mild*; 4 = *moderate*; 5 = *severe*; and 6 = *extreme severity*. Its Global Assessment Scale (GAS) is similar to the GAF in the DSM-IV, providing an overall rating of impairment. The SADS-C has impressive interrater reliability for individual symptoms with *M ICC* of .84 (Endicott, Cohen, Nee, Fleiss, & Sarantakos, 1981). For the current study, scores were computed for factor analytically-derived subscales, i.e., Psychosis, Dysphoria, Mania, and Insomnia (Rogers, Jackson, Salekin, & Neumann, 2003).

Gudjonsson Suggestibility Scale (GSS)

The GSS is a measure designed to assess an interviewee's susceptibility to suggestions. The GSS consists of a brief narrative about a robbery which is read aloud to the participant. The participants provide immediate and delayed recall of the story's elements. They are then asked 20 questions, 15 of which are misleading. Irrespective of accuracy, negative feedback about the recall is provided and the questioning is repeated with the instruction to "try to be more accurate." The degree to which interviewees conform to the leading questions at the immediate recall constitutes their "Yield 1" score. The number of questions they conform to when the questions are repeated after negative feedback comprises their "Yield 2" score. The extent to which they change their answers after the negative feedback is referred to as "Shift." The following scores are obtained from the GSS: Immediate Recall, Delayed Recall, Yield 1, Yield 2, Shift, Total Suggestibility (Yield 1 + Shift), and Confabulation (i.e., the number of distortions and fabrications in content the participant provides in recalling the story). The GSS scales evidence excellent interrater reliability, ranging from .95 to .99, and adequate internal consistency (alphas > .70). The GSS has been shown to have moderate predictive validity ($r = -.63$) in determining the accuracy of witnesses' accounts during police interviewing.

Gudjonsson Compliance Scale (GCS)

The GCS (Gudjonsson, 1989) is a brief measure that assesses self-reported compliance. Gudjonsson (1989) reported an adequate alpha of 0.71 for internal consistency of the 20-item scale and excellent test-retest reliability of 0.88 at one- to

three-month intervals. Factor analysis of the GCS revealed two main factors: (a) uneasiness or fear of people in authority, and avoidance of conflict and confrontation, and (b) eagerness to please. Construct validity of the GCS has been established in terms of discriminating between three target groups of alleged false confessors, suspects who did not confess, and confessors who did not retract their admissions of guilt (Gudjonsson, 1991). Specifically, alleged false confessors had the highest GCS scores, while those who resisted police interrogation had the lowest scores.

Miranda Statements Scale (MSS)

The MSS is a newly developed research scale composed of 30 statements, representative of Miranda components, which participants were asked to paraphrase in their own words. The MSS was developed through a multi-step process. First, 789 unique statements from 560 Miranda warnings for the five Miranda components were compiled. Individual Miranda statements, collected from jurisdictions across the United States, were categorized into five groups based on Flesch Kincaid reading comprehension level. These groups were based on low (< Grade 6), three intermediate categories of two-year intervals (Grade 6 to Grade 7.9, Grade 8 to Grade 9.9, and Grade 10 to Grade 11.9), and high (\geq Grade 12). Using prototypical analysis, three experts in the field of Miranda rights independently selected the two most representative statements from each grade category for each Miranda component. After two iterations, the level of agreement was 98.0%. The legal experts rated each statement based on representativeness (i.e., correspondence with the Miranda decision) and content diversity (i.e., variance in the content and language of the warning). Based on the

individual prototypical analyses, statements with the highest representativeness and content diversity were selected for inclusion in the MSS.

The MSS is scored by rating the participants' ability to describe in their own words the components of each warning. Content analysis of the 560 Miranda warnings had been used to establish basic categorical distinctions for each Miranda statement. These categories are used for scoring each statement, with a score of 1 if the participant included a basic description of the category, and a 0 if no description or an incorrect interpretation was provided. Rogers, Harrison, Hazelwood, and Sewell, (2007) reported that these components could be reliably identified by independent raters (M kappa = .88; range of .82 to .96). Total scores for the MSS are operationalized into two categories of comprehension: (a) poor (less than 50% comprehension) and (b) good (70% or higher comprehension). Because the Supreme Court decisions regarding Miranda rights have not quantified levels of comprehension, Rogers et al. (2007) justified 50% as a cut-off for poor understanding based on a defendant's inability to understand even half of the content of the warnings.

Miranda Rights Scale (MRS)

The MRS is an interview-based questionnaire that asks participants to address the possible advantages and disadvantages on four Miranda-related issues: (a) waiving their right to silence, (b) asserting their right to silence, (c) waiving their right to an attorney, and (d) asserting their right to an attorney. The MRS is designed to assess defendants' reasons and reasoning as it applies to their Miranda rights. Responses to each item are scored as either a "0" for the absence of an adequate answer (i.e., no

response, an unintelligible response, or a psychotic response); or as a “1” for a coherent, nonpsychotic response. Items comprise two rationally-derived scales, (a) MRS-Exercise, which assesses a participant’s ability to reason about exercising his or her rights, and (b) MRS-Waive, which assesses a participant’s ability to reason about waiving his or her rights. The MRS has been found to have good interrater reliability (M kappa = .84; Rogers et al., 2007).

Interrogation Acquiescence Questionnaire (IAQ)

The IAQ is a research measure developed specifically for the current study. It is a self-report measure, modeled after the Acquiescence Response Set questionnaire developed by Winkler, Kanouse, and Ware (1982). Using a matched-pairs method, respondents rate 32 items and their logically opposite statements on a 5-point Likert-type scale. The IAQ assesses acquiescence by the number of pairs of opposing statements endorsed by the participant. Content of IAQ items focuses on interrogation and Miranda rights. A detailed explanation of the development of the IAQ is described in the Measurement Development section.

Procedure

The purpose of the current study was to evaluate a wide range of impaired defendants so that the results will have strong ecological validity. Therefore, the inclusion criteria were very broad. Participants were required to be fluent in English and able to give informed consent. Regarding the latter, only patients who were able to

demonstrate an adequate understanding of the risks and benefits of participation were allowed to participate.

The exclusion criteria were minimal so as to increase the representativeness of the study. Inmates with extreme psychopathology, such as florid psychosis, were excluded only if their impairment precluded them from completing the measures. The staff was asked to indicate patients who would likely be uncooperative, violent, or too psychotic to participate in the study.

Participant recruitment was achieved through assistance from the NTSH staff. Staff members provided a list of patients on the competency restoration unit. Patients from the list were approached individually and given a brief description of the study. As part of informed consent, I explained that \$5 would be deposited in their trust account for completing each testing session. Therefore participants could earn a total of \$10 for completing both sessions. I met individually with patients who agreed to participate in the research and explained the purpose of the study in more detail. In accordance with the University of North Texas Institutional Review Board and the Texas Department of Mental Health and Mental Retardation Central Office Institutional Review Board, participants who agreed to participate were asked to provide written, informed consent. A sample of the consent form is reproduced in Appendix A.

The data collection involved two sessions in order to keep the individual researchers masked to the results of the measures that may affect the administration of later measures. For Session 1, I collected demographic information and administered half the measures in the following order: SADS-C, one MSS Miranda warning, WASI,

Reading Comprehension and Listening Comprehension subtests of the WIAT, one MSS Miranda warning, IAQ, and one MSS Miranda warning.

For Session 2, an independent researcher administered the GSS, one MSS Miranda warning, GCS, MRS, and one MSS Miranda warning. The order of administration of the MSS Miranda warnings was randomized. As part of the experimental design, I was masked to the Session 1 results to minimize confirmatory bias from affecting the results. Specifically, I was unaware of results from the measures of psychopathology, IQ, reading and listening skills, and acquiescence. Knowledge of these scores could have potentially affected the second researcher's administration of instruments, particularly the MRS and GSS.

Debriefing occurred after Session 2; the second researcher answered any questions the participant raised about the study. The researcher also advised the participant that all participants did receive the same negative feedback during administration of the GSS, regardless of their performances. At the end of each data collection session, I compiled a list of the participants. This list and a monetary payment were given to the hospital staff responsible for the patients' trust funds. Each participant received \$5 per session in his or her account by the end of the week.

Research measures, including interviews and self-report scales, were administered in private offices on the competency restoration unit. The total participation time for each inmate ranged from approximately three to four hours. Participants were given bathroom and other breaks as needed.

Measure Development

The Interrogation Acquiescence Questionnaire (IAQ) was developed specifically for the current study. Acquiescence refers to the tendency to reply in the affirmative to questions, regardless of content and has been described as an important factor during police interrogation (Gudjonsson, 2003). No published measure of acquiescence exists that directly relates to Miranda warnings and police questioning. Therefore, a measure relevant to these specific constructs was developed using an established framework, described below.

As previously noted, the IAQ was modeled after the Acquiescence Response Set questionnaire developed by Winkler et al. (1982). They utilized a matched-pairs method, in which 12 items and their logically opposite statements are rated by respondents. The content of Winkler et al.'s items concerned health care issues, such as prescription drug efficacy, preventative care, and physician competency. Endorsement of two logically inconsistent items was operationally defined as acquiescence. Development of the IAQ followed this matched-pairs method. The goal in developing the IAQ was to create a measure of acquiescence as it specifically applies to Miranda-related content, decisions, and outcomes.

The first step in scale development was to have members of a research team, under the leadership of Richard Rogers, Ph.D., to independently generate pairs of logically inconsistent items pertaining to three domains: Miranda, the police, and interrogation. This team consisted of members involved in a large, grant-funded research project on Miranda rights. Using a representative Miranda warning, they developed 54 simply-worded pairs of logically inconsistent items based on the content

of the warnings. As the second step, the research team members (six graduate students and one professor) independently nominated which items should be removed because they were not logically incompatible. An a priori decision was made to retain items that five or more team members (> 70%) identified as logically inconsistent. A total of 10 item pairs were eliminated at this phase.

As the third and final step, team members independently classified items into 10 a priori categories: (a) right to silence, (b) self-incrimination, (c), right to attorney/role of attorney, (d) indigent defense, (e) reasserting one's rights, (f) police tactics in interrogations, (g) comprehension/waiver of rights, (h) arrest status, (i), nature of the police, and (j) compliance to authority. This initial categorization was a preliminary step in establishing content validity for the IAQ. The minimum criterion for retention of an item was a majority of raters. As a result, 12 item pairs were removed. This multistep process yielded 32 pairs of items (i.e., 64 items in total). These items consist of an average 9.4 words per sentence. Flesch Reading Ease was calculated at 80.0 with an easy Flesch-Kincaid Grade level of 4.4.

The IAQ may be scored in two different but complementary ways. First, a total score can be computed. This total score has a possible range of 64 (*strongly disagree* to all items) to 320 (*strongly agree* to all items). Higher scores are indicative of a tendency to indiscriminately yea-say, or acquiesce. Alternatively, specific item pairs can be examined to determine content-specific acquiescence. The present study transformed item scores into matched-pair acquiescence scores. For example, if a participant chose *strongly agree* for the item "I trust the police" and also chose *agree* or *strongly agree* for its logically inconsistent partner item "The police are not to be

trusted,” the individual’s acquiescence score for that item would be 1. In contrast, a response of *strongly disagree*, *disagree*, or *neutral* to an item would rate a 0 for that item pair. With this method, a participant’s score could range from 0 (no acquiescence) to 32 (acquiescence on all item pairs).

CHAPTER 3

RESULTS

The sample was composed of 107 (84 males, 23 females) adult patients referred for competency restoration. As reported in Table 1, the racial composition of the sample was 37.4% African American, 35.5% European American, 20.6% Hispanic American, 1.9% Asian American, 2.8% biracial, and 1.9% other. A significant difference existed between the genders in terms of proportion of African Americans and Hispanic Americans ($\chi^2[1] = 4.24, p < .05$).

Table 1

Ethnic Representation of the Current Sample

	Males	Females	Total
Racial Distribution	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
African American	27 (32.1%)	13 (56.5%)	40 (37.4%)
European American	32 (38.1%)	6 (26.1%)	38 (35.5%)
Hispanic American	20 (23.8%)	2 (8.7%)	22 (20.6%)
Asian American	2 (2.4%)	0 (0%)	2 (1.9%)
Biracial	1 (1.2%)	2 (8.7%)	3 (2.8%)
Other	2 (2.4%)	0 (0%)	2 (1.9%)

Overall, the mean age was 39.01 ($SD = 11.55$) with a range from 18 to 80. The sample's mean educational achievement was slightly less than high school graduate level (M years = 11.42, $SD = 2.17$). The participants were characterized by a history of multiple arrests, although there was wide variation among the sample (M arrests =

11.69, $SD = 28.35$). No significant differences between genders were observed in terms of age ($t[105] = .10, p > .05$), years of education ($t[102] = .50, p > .05$), or number of arrests ($t[105] = 1.22, p > .05$). Participants reported a large variation in number of total arrests, ranging from one to 200.

Table 2

Gender Differences for Patients in Age, Education, and Arrests

	Males		Females		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Age	38.95	11.50	39.22	11.98	.10	.923
Education	11.33	2.07	11.59	2.52	.50	.616
Number of arrests	13.52	31.78	5.35	6.41	1.22	.224

As illustrated in Table 3, the sample of mentally disordered patients was characterized by intellectual abilities in the low to low average range (M Full scale IQ = 81.11, $SD = 14.46$), with 22.0% of participants scoring in the mentally retarded range of intellectual functioning, as measured by the WASI. This sample was also evaluated to have a rather low overall level of functioning (M Global Assessment Scale = 43.79, $SD = 12.24$). A score in this range (i.e., 41 to 50) is qualitatively described by the SADS-C as “any serious symptomatology or impairment in functioning that most clinicians would think obviously requires treatment or attention” (Spitzer & Endicott, 1978, p. 11). GAS scores ranged from 20 to 65, with 12.8% of the sample having scores between 20 and 30, signifying gross impairment in behavior, communication, or judgment.

Table 3

Psychological Characteristics of the Sample

	<i>M</i>	<i>SD</i>	Range
Verbal IQ	78.60	14.55	55-116
Performance IQ	86.62	15.18	58-129
Full Scale IQ	81.11	14.46	56-118
Reading Comprehension*	67.51	16.62	40-110
Listening Comprehension*	75.02	18.73	40-110
Global Assessment Scale	43.79	12.24	20-65

*Age-based standard scores.

Table 4 displays descriptive data for the interpersonal variables of interest: suggestibility, compliance, and acquiescence. For comparison purposes, the values from Gudjonsson's (1997) validation samples for the GSS and GCS are also included. Cohen's *ds* are provided as a measure of effect size between the current sample and the forensic patients in the validation sample.

Table 4

Interpersonal Variables: A Comparison of the Current Sample and Gudjonsson's (1997) Validation Sample

	Current Sample		Validation Sample: "Normal" Controls		Validation Sample: Forensic Patients		<i>d</i> *
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Yield 1 (GSS)	6.2	3.6	4.6	3.0	5.9	3.7	.08
Yield 2 (GSS)	8.5	4.3	5.6	3.8	7.3	4.2	.28
Shift (GSS)	6.4	3.7	2.9	2.5	4.3	3.2	.63
Total Suggestibility (GSS)	12.6	5.7	7.5	4.6	10.2	5.7	.42
Total Compliance (GCS)	11.6	3.3	9.0	3.5	11.1	4.5	.13
Total Acquiescence (IAQ)	194.2	26.6	--	--	--	--	--

*Cohen's *d* for current sample and forensic patients in the validation sample

Effect sizes in the moderate range were observed for the differences in Total Suggestibility ($d = .42$) and for Shift ($d = .63$) between the current sample and Gudjonsson's (2003) sample of forensic patients, with the current sample having the higher scores. Negligible differences were found between the current sample and the forensic validation sample on Yield 1 ($d = .08$) and Total Compliance ($d = .13$).

Research Question 1

Research Question 1 examined the effect of demographic, psychological, and interpersonal variables on the “knowing” prong of Miranda as measured by the Miranda Statements Scale (MSS). The MSS assesses participants' ability to comprehend the words, phrases, and overall meanings of Miranda warnings by asking them to paraphrase individual Miranda components in their own words. The “knowing” prong closely resembles the second level of decisional competence outlined by Appelbaum and Grisso (1988): the ability to understand relevant information about a specific decision. At the lowest version of the MSS (< 6th grade reading level), the average score was 59.4% correct. This percentage declined as the MSS versions increased in difficulty, with Version 5 (> 12th grade reading level) having a mean score of 37.9% correct. Only two versions, Version 1 and Version 3, had at least one participant with a perfect score. Table 5 displays descriptive data for correct scores on the different levels of the MSS.

Table 5

Descriptive Data for MSS Scores

MSS Version	<i>M</i> % correct	<i>SD</i>	Minimum	Maximum
1 (< 6 th grade)	59.4	23.6	0.0	100.0
2 (Grade 6.0 – 7.9)	49.0	20.0	0.0	85.0
3 (Grade 8.0 – 9.9)	44.7	20.0	0.0	100.0
4 (Grade 10.0 – 11.9)	46.0	20.0	0.0	91.0
5 (\geq 12 th grade)	37.9	20.9	0.0	92.0
Total MSS	46.4	16.2	5.0	84.0

Hypothesis 1 addressed the predictive relationship of verbal IQ score, performance IQ score, full scale IQ score, listening comprehension score, and reading comprehension score on the participants' ability to paraphrase Miranda warnings (i.e., total MSS scores). A stepwise multiple regression was conducted, with full scale IQ and reading comprehension entering the regression ($R^2_{\text{adj}} = .30$). The overall relationship was significant [$F(2, 102) = 23.59, p < .001$].

As an additional analysis, each version of the MSS was analyzed with the same predictor variables in individual regressions. Interestingly, the significant predictors varied for each warning version. For Version 1 (Grade Level < 6th), only listening comprehension was a significant predictor ($R^2_{\text{adj}} = .14$). For Version 2 (Grade Level 6 to 7.9), full scale IQ was a significant predictor, accounting for 10.5% of the variance. For Version 3 (Grade Level 8 to 9.9), only verbal IQ was a significant predictor ($R^2_{\text{adj}} = .27$). At more advanced Flesch-Kincaid levels, reading comprehension was the significant predictor for both Version 4 (Grade Level 10 to 11.9; $R^2_{\text{adj}} = .32$) and Version 5 (Grade

Level ≥ 12 ; $R^2_{\text{adj}} = .19$). Table 6 summarizes the standardized beta coefficients for each MSS version and predictor variable.

Table 6

Beta Coefficients for Cognitive Variables' Prediction of MSS Scores

	MSS 1	MSS 2	MSS 3	MSS 4	MSS 5	Total MSS
Listening Comprehension	.385***	.176	.087	.135	.236	.188
Reading Comprehension	.215	.110	.044	.574***	.445***	.255*
Verbal IQ	.117	.013	.530***	.208	.060	.060
Performance IQ	.163	.070	.075	.159	.172	.118
Full Scale IQ	.190	.337**	.202	.237	.186	.347**

*Significant at $p < .05$; **significant at $p < .01$; ***significant at $p < .001$.

To further assess the relationship between the cognitive variables and MSS scores, a stepwise discriminant function analysis was performed. MSS scores were grouped into the two categories previously used by Rogers, Harrison, Hazelwood, and Sewell (2007). Specifically, “good” understanding was operationalized as $>70\%$ correct, and “poor” understanding was defined as $<50\%$ correct. Surprisingly few of the participants obtained scores in the “good” range. Percentages of participants achieving scores of at least 70% were as follows: Version 1 = 37.5%; Version 2 = 11.4%; Version 3 = 9.5%; Version 4 = 10.5%; Version 5 = 6.7%. Only MSS Version 1 (Grade Level < 6) had relatively adequate numbers of good ($n = 39$) and poor ($n = 34$) understanding to perform the analysis. Reading comprehension was the only variable to enter, with a Wilks' lambda $[1, 71] = .793$ ($F = 18.58$, $p < .001$) accounting for 20.7% of the variance. Interestingly, listening comprehension was the only significant predictor of MSS Version 1 scores when examined via regression. However, when the goal was to discriminate

between good and poor understanding, reading comprehension was the only significant variable. These findings suggest that reading level may have a threshold effect, whereby scores below a certain level are associated with poor MSS comprehension. In contrast, listening comprehension may demonstrate more of a cumulative effect, with gradually increasing Miranda comprehension related to similar incremental changes in listening comprehension.

As a supplementary analysis, participants were divided into two groups based on MSS total scores via a median split: “low” ($< 46.4\%$ correct) and “high” ($> 46.4\%$ correct). ANOVAs were used to compare these two groups on cognitive, psychological, and interpersonal variables. Significant differences between the groups were found for all of the cognitive variables (i.e., VIQ, PIQ, FSIQ, Reading Comprehension, and Listening Comprehension) and GAS. Specifically, participants in the “low” MSS group had significantly lower IQ scores, comprehension scores, and overall level of functioning than participants in the “high” group. The largest differences were found in terms of VIQ ($d = .86$), Listening Comprehension ($d = .78$), Full Scale IQ ($d = .77$), Reading Comprehension ($d = .73$), and GAS ($d = .70$). Interestingly, no significant differences were found between the two groups on any of the measures of suggestibility, compliance, or acquiescence. Table 7 displays the means and standard deviations for the two groups, along with F values and Cohen’s ds .

Hypothesis 2 explored the differences on Miranda comprehension between participants with IQs in the extremely low range (< 70), borderline to low average range (70-89), and average range (≥ 90) via ANOVAs. Cohen’s ds were also computed to

evaluate the effect size of significant differences. Table 8 displays the *F* values and Cohen's *ds* for each MSS version and the total MSS score across IQ groups.

Table 7

Comparison of Participants above and below the Median MSS Total Score on Cognitive, Psychological, and Interpersonal Variables

	"Low"		"High"		<i>F</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Education	11.13	2.14	11.70	2.18	1.84	.26
Number of arrests	11.98	30.31	11.43	26.67	0.01	.02
VIQ	72.72	13.27	84.20	13.49	20.03**	.86
PIQ	82.62	13.28	90.27	15.94	7.36*	.52
FSIQ	75.72	13.19	86.16	13.83	16.23**	.77
Reading Comprehension	61.50	13.12	72.98	17.65	14.08**	.73
Listening Comprehension	68.25	19.15	81.80	15.70	16.27**	.78
GAS	39.57	11.77	47.61	11.37	13.16**	.70
SADS-C Dysphoria	13.57	5.95	13.79	5.43	0.04	.04
SADS-C Psychosis	8.15	3.60	7.70	3.42	0.46	.13
SADS-C Mania	7.91	3.19	7.29	2.58	1.25	.21
GSS Yield 1	6.66	3.60	5.76	3.49	1.68	.25
GSS Yield 2	9.14	4.14	8.00	4.42	1.85	.27
GSS Shift	6.92	3.45	5.85	3.91	2.17	.29
Total Suggestibility	13.58	5.47	11.75	5.83	2.75	.32
Compliance	12.27	3.19	11.04	3.29	3.87	.18
Acquiescence	198.48	33.55	189.98	16.84	2.75	.32

*Significant at $p < .01$; **significant at $p < .001$.

Table 8

Differences between Levels of IQ on the MSS

Version	IQ < 70		IQ = 70-89		IQ ≥ 90		<i>F</i>	<i>d</i> ¹	<i>d</i> ²	<i>d</i> ³
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
MSS1	46.6	28.2	59.3	19.1	69.7	23.4	6.59*	.58	.51	.91
MSS2	38.9	21.6	49.0	18.1	57.5	18.4	6.22*	.53	.47	.94
MSS3	31.3	17.9	43.5	16.2	57.9	19.6	14.79**	.73	.83	1.41
MSS4	33.9	22.3	44.8	17.8	57.7	15.5	11.06**	.57	.76	1.26
MSS5	24.3	20.6	38.2	20.7	48.3	15.3	9.97**	.68	.53	1.35
MSS Total	33.7	17.3	46.0	13.7	57.2	11.5	18.64**	.83	.86	1.63

¹Cohen's *d* for < 70 IQ group and 70-89 IQ group; ²Cohen's *d* for 70-89 IQ group and ≥ 90 IQ group; ³Cohen's *d* for < 70 IQ group and ≥ 90 IQ group; *Significant at $p < .01$;

**Significant at $p < .001$

Moderate to large differences were found across the three groups for all reading-level versions of the MSS. Cohen's *ds* ranged from .47 to 1.63, with the largest effect sizes found between the lowest IQ group and the average IQ group. The Miranda warnings with the highest reading levels (i.e., MSS 3 through MSS 5) evidenced the largest differences between the extremely low IQ group and the average IQ group.

Hypothesis 3 investigated the predictive relationship of components of interrogative suggestibility on Miranda comprehension. A stepwise multiple regression was conducted with total MSS scores as the dependent variable and the seven components of suggestibility (i.e., Yield 1, Yield 2, Shift, Immediate Recall, Delayed Recall, Immediate Recall Total Confabulations, Delayed Recall Total Confabulations) as the predictor variables. Based on this relatively small sample, the two significant predictors of MSS scores were Delayed Memory Recall and Delayed Recall Total Confabulations ($F [2, 90] = 25.04, p < .001$); this model accounted for 34.3% of the variance. Table 9 displays the beta coefficients and zero-order correlations for the predictive ability of the components of suggestibility on Miranda understanding.

Table 9

Relationship of Suggestibility Components to MSS Scores

GSS Component	<i>r</i>	Beta	<i>p</i>
Yield 1	-.174	-.019	.824
Yield 2	-.133	.053	.543
Shift	-.108	.063	.476
Immediate Memory Recall	.518**	-.075	.648
Delayed Memory Recall	.533**	.547	.001
Immediate Recall Confabulations	-.133	.023	.856
Delayed Recall Confabulations	-.257*	-.292	.001

* $p < .05$; ** $p < .01$

As illustrated in Table 9, only Delayed Memory Recall and Delayed Recall Confabulations were significantly associated with MSS scores when the other variables were held constant. The ability to recall information after a delay is clearly relevant to the comprehension of Miranda rights. Logically, the more information a person is able to remember after some time has passed, the better he or she is likely to describe that information. Likewise, the more a defendant distorts or changes information in his or her memory, the more likely he or she is to err in comprehending that information. In contrast to past Miranda research by Redlich et al. (2003) and Everington and Fulero (1999), neither Yield nor Shift was related to MSS scores.

Research Question 2

The second research question investigated which demographic, psychological, and interpersonal variables are most relevant to the “intelligent” prong of Miranda as measured by the MRS. Components of Research Question 2 are addressed by Hypotheses 4 and 5. Hypothesis 4 examined the predictive relationship of symptoms of psychopathology with Miranda-related reasoning abilities. A stepwise multiple regression was conducted with subscale scores from the SADS-C (i.e., Dysphoria, Psychosis, Insomnia, and Mania) and the Global Assessment Score (GAS) as the independent variables and total MRS score as the dependent variable. Three variables (Mania, GAS, and Psychosis) produced a significant model ($F = 5.01, p < .01$). However, this model accounted for a very low proportion of the variance ($R^2_{\text{adj}} = .10$). Table 10 displays the zero-order correlation and beta coefficient for each variable.

Table 10

Relationship of Psychopathology to MRS Total Scores

	Beta coefficient	<i>r</i>	<i>p</i>
Dysphoria	.053	.038	.593
Psychosis	.297	.122	.012
Insomnia	-.053	.003	.566
Mania	.191	.176	.048
GAS	.377	.147	.002

Unexpectedly, both psychosis and mania were positively correlated with MRS scores, indicating that as the severity of symptoms increased, Miranda-related reasoning abilities also increased. To further explore this finding, correlations were calculated between individual symptom severity ratings from the mania and psychosis subscales and MRS total scores. None of the five symptoms of mania (i.e., increased energy, elated mood, increased activity, increased self-esteem, and decreased need for sleep) was significantly correlated with MRS scores. Likewise, none of the three psychotic symptoms (i.e., delusions, distrustfulness, and hallucinations) was significantly related to MRS scores. This finding suggests that a combination of manic or psychotic symptoms increases a defendant's ability to identify pros and cons of asserting or waiving his or her rights. As expected, higher GAS scores, indicative of less impaired functioning, were associated with higher levels of Miranda-related reasoning abilities.

Hypothesis 5 postulated that the integrated impairment model would better predict impairments in Miranda reasoning than the cognitive-developmental model. To evaluate this hypothesis, variables with significant correlations to MRS scores were

selected to be utilized in a dominance analysis. Dominance analysis (Budescu, 1993; Azen & Budescu, 2003), a form of hierarchical multiple regression, was used to exhaustively evaluate the unique contribution of each variable to the criterion. Specifically, variables with significant correlations ($p \leq .05$) to MRS total scores were included in the analysis. Table 11 displays the correlations between cognitive, diagnostic, and interpersonal variables and MRS scores.

Table 11

Correlations between Clinical Variables and MRS Scores

Variable	Measure	Pearson's r
Age	--	.102
Verbal IQ	WASI	.380**
Performance IQ	WASI	.253**
Full Scale IQ	WASI	.365**
Reading Comprehension	WIAT	.371**
Listening Comprehension	WIAT	.379**
Mania	SADS-C	.176*
Dysphoria	SADS-C	.038
Psychosis	SADS-C	.122
Insomnia	SADS-C	.003
Global Assessment Scale	SADS-C	.147
Immediate Recall	GSS	.276**
Immediate Recall Confabulations	GSS	.00
Delayed Recall	GSS	.215*
Delayed Recall Confabulations	GSS	-.009
Yield 1	GSS	-.047
Yield 2	GSS	.016
Shift	GSS	.039
Total Suggestibility	GSS	.004
Compliance	GCS	-.159
Acquiescence	IAQ	-.190*

*Significant at $p \leq .05$; **significant at $p \leq .01$.

The nine significant variables were entered into a dominance analysis: Verbal IQ, Performance IQ, Full Scale IQ, Reading Comprehension, Listening Comprehension, Mania, Immediate Recall, Delayed Recall, and Acquiescence. Dominance analysis identifies the unique contributions of each variable, taking into account other predictor variables. The current analysis evaluated each variable at the zero-order (i.e., each variable first), first-order (i.e., each variable after every other variable), second-order (i.e., each variable after every pair of variables), and last-order (i.e., each variable after all other variables).

To summarize the analyses at the zero-, first-, second-, and last-order, the change in R^2 for each variable in each regression was computed. For the zero-order analysis, this value is simply R^2 . For the first- and second-order analyses, this change was computed by averaging the predictor's added contribution after all other variables were entered. Tables 23 and 24 in Appendix B display all of the regression results for the first- and second-order models. For the last-order regressions, the change was computed by subtracting the R^2 value for the 8-variable model from the R^2 value for the 9-variable model. Additionally, the proportion of significant ($p \leq .05$) regressions for each variable was computed for the first-order, second-order, and last-order analyses.

Table 12 displays the mean values for each predictor variable at each order of analysis.

Table 12

Predictors of Nonpsychotic Reasons to Exercise or Waive Miranda Rights Using Dominance Analysis

	Predictors	R^2	ΔR^2	Beta	p
Zero Order	GSS immediate recall	.076	.076	.276	.007
	GSS delayed recall	.046	.046	.215	.038
	Verbal IQ	.144	.144	.380	.000

(table continues)

Table 12 (continued).

	Predictors	R^2	ΔR^2	Beta	p
Zero Order (cont.)	Performance IQ	.064	.064	.253	.014
	Full Scale IQ	.133	.133	.365	.000
	Reading comprehension	.138	.138	.371	.000
	Listening comprehension	.144	.144	.379	.000
	Mania	.031	.031	.176	.050
	Acquiescence	.036	.036	-.190	.067
First Order	GSS immediate recall	.119	.027	.180	.25
	GSS delayed recall	.110	.014	.085	.13
	Verbal IQ	.156	.072	.315	.63
	Performance IQ	.119	.026	.056	.38
	Full Scale IQ	.152	.067	.337	.63
	Reading comprehension	.152	.068	.297	.63
	Listening comprehension	.155	.072	.307	.63
	Mania	.130	.033	.181	.38
	Acquiescence	.110	.013	-.097	.13
Second Order	GSS immediate recall	.148	.010	.124	.04
	GSS delayed recall	.144	.004	.029	0.0
	Verbal IQ	.167	.037	.241	.36
	Performance IQ	.153	.015	-.088	.18
	Full Scale IQ	.167	.039	.370	.46
	Reading comprehension	.165	.036	.245	.36
	Listening comprehension	.166	.038	.251	.36
	Mania	.167	.033	.181	.54
	Acquiescence	.145	.005	-.059	0.0
Last Order	GSS immediate recall	.229	.002	.104	.626
	GSS delayed recall	.229	.002	-.076	.695
	Verbal IQ	.229	.010	-.484	.305
	Performance IQ	.229	.023	-.855	.118
	Full Scale IQ	.229	.022	1.417	.130
	Reading comprehension	.229	.003	.095	.585
	Listening comprehension	.229	.002	.082	.620
	Mania	.229	.025	.163	.107
	Acquiescence	.229	.001	-.022	.846

Cognitive variables were the strongest predictors of Miranda reasoning when considered alone (zero-order). Each of these four variables (i.e., Verbal IQ, Full Scale IQ, Reading comprehension, and Listening comprehension) accounted for at least 13% of the variance. When one other predictor was entered first (first-order), the same four variables retained their prominence, with incremental changes in variance ($\Delta R^2 > .05$). At the second-order level, each of the nine variables accounted for $> 14\%$ of the variance. With the exception of PIQ, all the cognitive variables sustained a change in $R^2 > .035$. Interestingly, at the second-order level, Mania retained significance in the greatest proportion of regressions (i.e., 54%). Acquiescence, as measured by the IAQ, was significant in none of the second-order regressions. Because acquiescence is closely related to intelligence (i.e., $r = -.45$), much of the variance it contributed was likely subsumed by the cognitive variables. By the last-order, all of the variables had lost their significant contribution and only accounted for $< 3\%$ of the variance.

Research Question 3

Research Question 3 examined the underlying dimensions and relationships among suggestibility, compliance, acquiescence, and other psychological variables via exploratory factor analysis. Hypothesis 6 proposed that suggestibility would be most strongly correlated with listening comprehension and overall level of psychological functioning (GAS); compliance would correlate with paranoid ideation (i.e., psychosis); and acquiescence would correlate with overall intelligence. An exploratory higher-order factor analysis was used to identify underlying factors associated with Miranda-related variables. Principal axis factoring with Varimax rotation was utilized on the following 14

variables: Yield 1, Yield 2, Shift (components of suggestibility); GCS total score; IAQ total score; verbal IQ; performance IQ; psychosis, dysphoria, mania, and insomnia (SADS-C scale scores); GAS; listening comprehension; and reading comprehension. With eigenvalues > 1.0, a five-factor model was originally considered. However, this solution included two cross-loadings and three factors consisting of only one or two items. Two-, three-, and four-factor models were specified for comparative purposes. A three-factor model, which accounted for 54.6% of the variance and included no cross-loadings, was considered optimal. The individual variables and their factor loadings are displayed in Table 13.

Table 13

Three-Factor Model of Miranda-Related Variables

	Cognitive Abilities	Suggestibility	Psychological Impairment
WASI VIQ	.89	-.03	.00
WIAT Listening Comprehension	.86	-.08	.14
WIAT Reading Comprehension	.80	-.11	.20
WASI PIQ	.76	-.02	.02
IAQ Total Score	-.61	.16	.08
GCS Total Score	-.34	.09	.17
GSS Yield 2	-.10	.92	.09
GSS Yield 1	-.17	.77	.01
GSS Shift	-.02	.73	.05
SADS-Insomnia	.07	-.27	.13
SADS-Psychosis	.09	-.08	.84
GAS	.21	.02	-.84
SADS-Dysphoria	.10	-.02	.64
SADS-Mania	.00	.33	.39
eigenvalues	3.36	2.20	2.08
% of variance accounted for	24.0	15.7	14.9

Note. Substantial loadings ($\geq .40$) are presented in bold.

Factor 1, Cognitive Abilities (24.0% of the variance), includes the two intelligence scores, reading comprehension, listening comprehension, and the lack of acquiescence. Research has repeatedly found that acquiescence is strongly correlated with cognitive abilities (e.g., Finlay & Lyons, 2002; Sigelman et al., 1981); the current finding that acquiescence is most strongly related to Verbal IQ, Performance IQ, Reading Comprehension, and Listening Comprehension is consistent with this past research.

Factor 2, Suggestibility (15.7% of the variance), consists of the three variables that constitute the total suggestibility score, Yield 1, Yield 2, and Shift. Factor 3, Psychological Impairment (14.9% of the variance), is comprised of three measures of psychological impairment. SADS-Psychosis and SADS-Dysphoria are subscales from the SADS-C, while the Global Assessment Scale, also from the SADS-C, is a broad assessment of psychological impairment.

Interestingly, compliance, as measured by the GCS, did not load on any of the three factors. Pearson correlations were calculated to further investigate the relationship of compliance to other variables. Small but significant correlations were found between compliance and acquiescence ($r = .28, p < .01$), verbal IQ ($r = -.25, p < .01$), performance IQ ($r = -.20, p < .05$), and full scale IQ ($r = -.26, p < .01$). Insomnia and Mania, subscales from the SADS-C, also did not load significantly on any factor.

To further evaluate the relationship among cognitive, psychopathological, and interpersonal constructs, supplementary correlations were conducted. Table C.1 in Appendix C displays the correlations among these variables. One key finding was that compliance had a small but significant correlation with dysphoria. Contrary to

expectations, compliance had no significant relationship with psychosis. Another notable finding is that Shift was only significantly related to Yield 1 ($r = .22$), Yield 2 ($r = .59$), and Total Suggestibility ($r = .79$). No other significant correlations were found between Shift and other clinical variables.

As an additional supplementary analysis, the relationship among components of suggestibility was analyzed via correlations. Table D.1 in Appendix D displays the correlations between these components. In general, memory-based components tended to significantly correlate with each other, while Yield 1, Yield 2, and Shift were significantly related to each other. Surprisingly, Immediate Recall was not correlated with Immediate Recall Total Confabulations and was only marginally related to both Immediate Recall Distortions ($r = .26$) and Immediate Recall Fabrications ($r = .19$).

Other patterns of correlations were generally consistent with past research on the GSS. Shift was significantly correlated with only one memory component, Immediate Recall Total Confabulations, although this correlation was quite small ($r = .20$). This finding is consistent with previous research findings (e.g., Baxter & Boon, 2000; Gudjonsson, 1984a; Gudjonsson, 2003) that Shift is more a product of social pressure than of cognitive impairment. Also consistent with prior research (e.g., Gudjonsson & Clare, 1995; Gudjonsson & Sigurdsson, 1996), Distortions and Fabrications were not correlated with each other, indicating that separate cognitive mechanisms may produce these failures of memory. Yield 1 and Yield 2 were highly correlated ($r = .70$) and also correlated significantly with Shift ($r = .22$ for Yield 1; $r = .59$ for Yield 2). These findings reflect Gudjonsson's (2003) theory that Yield 1 and Shift are related, although not strongly so, and that Yield 2 may be construed as a combination of Yield 1 and Shift.

As another supplementary analysis, further analyses were conducted to evaluate the prior research regarding the effect of age on suggestibility. Consistent with the study by Polczyk et al. (2004), participants classified as younger (i.e., age < 36) were compared with those considered older (i.e., age > 49) on components of suggestibility. Older defendants scored significantly lower on Immediate Memory Recall ($F = 4.72, p < .05$), but differences between other memory-related variables were nonsignificant. Surprisingly, older participants scored lower on Shift ($F = 5.98, p < .05$) and Total Suggestibility ($F = 7.55, p < .01$) than younger participants. These results contradict those of Polczyk et al. (2004) in many areas. They found that older adults scored significantly lower than young adults on all memory indices, and they were more suggestible in terms of Yield 1, Yield 2, and Total Suggestibility. No significant differences were found between age groups on Shift. It is important to note that the current sample utilizes defendants found incompetent to stand trial due to severe psychopathology, cognitive deficits, or a combination of the two, while Polczyk et al.'s findings are based on a community-based "normal" sample of adults.

Research Question 4

Research Question 4 examined the properties of the newly developed IAQ. First, participants' total scale scores were examined. Possible total scores could range from 64 (a score of 1 [*strongly disagree*] on every item) to 320 (a score of 5 [*strongly agree*] on every item). The mean score for the present sample was 194.15 ($SD = 26.61$) with a range from 112 to 316.

Acquiescence has consistently been correlated with IQ (Gudjonsson, 1990; Shaw & Budd, 1982; Sigelman et al., 1981). Specifically, research has found individuals with mental retardation to be more acquiescent than individuals with average intellectual ability (Fulero & Everington, 2004; Sigelman et al., 1982). In the current study, full scale IQ was significantly correlated with acquiescence in terms of IAQ total scores ($r = -.27, p < .01$) and paired-item scores ($r = -.45, p < .01$). Differences among IAQ total scores were analyzed across the three IQ groups: extremely low range (< 70), borderline to low average range (70-89), and average range (≥ 90) via ANOVA. The extremely low IQ group had a mean IAQ total score of 210.00 ($SD = 39.77$). The borderline to low average IQ group had a mean score of 191.55 ($SD = 24.22$). The average range IQ group had a mean score of 187.83 ($SD = 12.05$). A significant difference among the groups was observed ($F = 5.22, p < .01$). Cohen's d s were also computed to evaluate the effect size of significant differences. The largest effect size was found between the extremely low and average groups ($d = .82$), with a smaller value between the extremely low and borderline to low groups ($d = .63$), and a small effect size between the borderline to low and average groups ($d = .18$). Although significant differences were found among the three groups on total IAQ scores, the differences between the average score per item for each group were minor. The extremely low IQ group had a mean item score of 3.28; the borderline to low average IQ group had a mean item score of 2.99; the average IQ group had a mean item score of 2.93. These three mean scores are closely clustered around the mid-point score of 3, qualitatively defined as "neutral."

Additionally, acquiescence scores based on item-pairs were analyzed.

Proportions of participants providing acquiescent responses to an item-pair ranged from 7.2% to 44.1%. Table 14 displays the percentages of acquiescent responses for each item-pair. Item-pairs are grouped by content.

Table 14

Percentage of Participants Responding with an Acquiescent Style to Logically Inconsistent Items on the IAQ

Paraphrased IAQ item	%
Waiver	29.7
Silence	19.8
Silence	41.4
Silence	32.4
Silence	23.4
Self-incrimination	18.0
Silence	14.4
Silence	11.7
Silence	7.2
Self-incrimination	30.6
Self-incrimination	11.7
Right to attorney	39.6
Right to attorney	34.2
Right to attorney	27.9
Right to attorney	32.4
Right to attorney	10.8
Right to attorney	20.7
Indigent defense	27.9
Indigent defense	27.0
Reassertion of rights	16.2
Reassertion of rights	13.5
Police authority	44.1
Police authority	8.1
Police authority	18.9
Perception of police	18.9
Perception of police	19.8
Perception of police	8.1
Police tactics	13.5
Perception of police	18.9
Perception of police	15.3
Perception of police	13.5
Arrest status	10.8

The most prevalent item content in terms of percentages of participants responding in an acquiescent manner was the role of the defense attorney. Five item pairs involving this issue evoked acquiescent responding in more than 20% of participants. Other items with more than one-fifth of participants responding in a yes-saying fashion included obeying the police, waiver decisions, self-incrimination, indigent defense, and police coercion.

Although the subject-to-variable ratio is less than optimal, an exploratory factor analysis was conducted as a preliminary investigation of the IAQ's factor structure. For the purposes of factor analysis, half of the paired items were reversed scored so that each item-pair was scored content-wise in the same direction. Principal components analysis (PCA) with direct oblimin rotation was utilized. PCA was chosen because the goal of this method is data reduction, a necessary first step in the development of an assessment instrument (Floyd & Widaman, 1995). This method also capitalizes on all of the variance of an individual item (Tabachnick & Fidell, 2001). Direct oblimin rotation, an oblique method, was selected as the items were intercorrelated. With eigenvalues > 1.0, a 17-factor solution was initially obtained. However, this model produced multiple cross-loadings and no rational interpretations of the latent factors. After examining the scree plot, further PCAs were conducted, with the number of specified factors ranging from two to five. A two-factor solution produced the best fit for the 64 items (see Table 15), although 20 items did not load on either factor. There was only one cross-loading.

Table 15

Two-Component Model of the IAQ

Paraphrased IAQ Item	Component	
	Trust police/ Disregard Miranda	Self-protection/ Assert Miranda
Obey the police	0.74	-0.04
Answer all police questions	0.73	0.12
The police care about you	-0.73	0.21
The police will not use force	-0.73	-0.15
You have no options during interrogation	0.71	0.21
Trust the police	-0.69	0.19
Talk to the police	0.66	0.05
The police care about you	0.64	0.31
Talk to the police	-0.64	-0.02
The police will help you	-0.63	0.35
Staying silent means you're guilty	0.61	-0.05
Obey the police	-0.61	0.03
Talk to the police	0.61	-0.05
Talk to the police	0.60	0.06
The police are fair	-0.57	0.18
If you are arrested, you can leave	0.56	0.22
Talk to the police	0.53	-0.15
Your attorney may not assist you	-0.53	0.06
You are financially responsible for legal costs	0.50	0.08
You are financially responsible for legal costs	-0.49	-0.02
Obey the police	0.45	0.35
The police are more powerful than your attorney	0.44	-0.05
If you are arrested, you cannot leave	-0.44	0.30
Your attorney works for the police	0.44	0.31
The police will use force	0.43	0.01
Do not obey the police	-0.43	0.04
Trust the police	0.64	0.43
You can disagree with the police	-0.03	0.68
You do not have to talk to the police	-0.03	0.65
Risk of self-incrimination	-0.02	-0.64
You do not have to talk to the police	0.14	0.63
You do not have to talk to the police	0.20	0.62
You do not have to talk to the police	-0.15	0.61
The police will use force	0.15	-0.58
Indigent defense	0.27	-0.55
Police motives	-0.33	0.53
Your attorney will assist you	0.14	0.51
Your attorney will assist you	-0.08	-0.51
You have options during interrogation	0.03	0.50
Indigent defense	0.17	0.49
Do not trust the police	-0.22	-0.48

(table continues)

Table 15 (continued).

Paraphrased IAQ Item	Component	
	Trust police/ Disregard Miranda	Self-protection/ Assert Miranda
Your attorney will assist you	0.38	-0.43
You do not have to talk to the police	0.02	0.41
Your attorney will assist you	0.12	-0.40
Police are infallible	-0.39	-0.12
No risk of self-incrimination	-0.39	0.05
Your attorney will assist you	-0.38	0.15
Your attorney will assist you	-0.37	0.16
Talk to the police	0.36	-0.22
You do not need an attorney	-0.35	0.22
Your attorney will not assist you	0.27	0.31
Never waive your rights	-0.25	0.07
Do not talk to the police	0.18	0.07
Your attorney will assist you	-0.18	0.36
Understand your rights	-0.18	0.22
You have choices during interrogation	-0.14	0.29
Risk of self-incrimination	0.13	-0.23
The police make mistakes	-0.12	-0.24
Your attorney will not assist you	0.10	0.06
Do not trust the police	0.08	-0.17
The police will try to trick you	0.06	0.11
Do not talk to the police	-0.05	0.31
The police are unfair	0.04	0.03
Your attorney will assist you	0.00	-0.35
eigenvalues	11.26	6.95
% of variance accounted for	17.6	10.9

Note. Unique and substantial ($\geq .40$) loadings are presented in bold. The cross-loading is underlined.

Component 1, Trust Police/Disregard Miranda, accounted for 17.6% of the variance and consisted of 26 items with substantial and unique loadings. In general, these items represent positive perceptions of the police and lack of knowledge about one's rights or the nature of interrogation. Six items involve beliefs that one should talk to the police or answer their questions. Three items consist of statements that one should obey the police. Other items involve trusting the police, having to pay for one's own defense, and that the defense attorney may not assist the defendant.

The second component, Self-Protection/Assert Miranda, consisted of 17 items, accounting for 10.9% of the variance. This factor is characterized by knowledge of one's rights and the adversarial nature of police interrogation. Five items involve the belief that one is not obligated to speak to the police or answer questions. Four items involve the belief that the defense attorney will assist the suspect.

Hypothesis 8 examined the scale homogeneity of the IAQ using Cronbach's alpha and inter-item correlations. A high alpha value was found for the IAQ 64-item scale (.89). The mean interitem correlation for the 64-item IAQ (.12) is slightly lower than desired (Clark & Watson, 1995). High alpha values were also high for the two PCA-derived components: .91 for component 1 and .84 for component 2. Mean interitem correlations for the two components were satisfactory: .28 (component 1) and .24 (component 2). These findings indicate that the two components derived from the IAQ show promise as preliminary scale factors. The current study is the first utilization of the IAQ, and additional exploratory studies are warranted to refine these initial scale properties.

Supplementary Analyses

To further evaluate the properties of the newly developed MSS, correlations among the total scores (percent correct) on the different versions, based on reading level, were computed. Correlations were computed separately for MSS Versions A and B, as each participant received only one of these versions. Results for MSS-A are displayed in Table 16. Significant correlations were found between all five versions of MSS-A, with values ranging from .40 to .67.

Table 16

Correlations among MSS-A Versions

	MSSA2	MSSA3	MSSA4	MSSA5
MSSA1	.46*	.53*	.56*	.55*
MSSA2		.48*	.67*	.55*
MSSA3			.49*	.40*
MSSA4				.62*

*Correlation is significant at $p < .01$.

As Table 17 illustrates, significant correlations were also found for the versions of MSS-B, with values ranging from .43 to .69.

Table 17

Correlations among MSS-B Versions

	MSSB2	MSSB3	MSSB4	MSSB5
MSSB1	.52*	.45*	.43*	.52*
MSSB2		.62*	.63*	.69*
MSSB3			.53*	.59*
MSSB4				.65*

*Correlation is significant at $p < .01$.

Additionally, correlations among components of the MSS were examined. The participants' scores for each of the five components (i.e., the right to remain silent, self-incrimination, right to an attorney, indigent defense, and reassertion of rights) correlated both within and across the warnings of different reading levels. Tables 27 and 28 in Appendix E display the correlations for MSS-A and MSS-B. Interestingly, there was no

apparent pattern of correlations among the components. For example, the “right to silence” component of Version A-1 correlated significantly with “right to silence” from Version A-2, “self-incrimination” from Version A-4, “right to attorney” from Version A-1, “indigent defense” from Versions A-1 and A-5, and “reassertion of rights” from Versions A-1, A-4, and A-5.

As an additional examination of factors affecting “intelligent” waivers of Miranda rights, the Exercise and Waive scales of the MRS were evaluated separately. Stepwise multiple regressions were computed for each scale, with independent variables selected if they evidenced significant correlations with the scales. For the Exercise scale, these variables were Global Assessment of Functioning (GAS), GSS Immediate Recall, GSS Delayed Recall, Verbal IQ, Performance IQ, Full Scale IQ, Reading Comprehension, Listening Comprehension, Compliance, Mania, and Acquiescence. The combination of verbal IQ and mania produced a significant prediction model ($F = 10.54, p < .001$), which accounted for 17.2% of the variance. As with total MRS scores, mania was found to be positively related to the ability to generate reasons to exercise one’s rights. Thus, the combination of verbal abilities and symptoms of mania provided a significant predictive model for reasoning abilities associated with exercising one’s Miranda rights. Table 18 displays the zero-order correlations and beta coefficients for the 11 variables significantly correlated with MRS-Exercise.

Table 18

Relationship of Variables to MRS-Exercise

	<i>r</i>	Beta coefficient	<i>p</i>
Verbal IQ	.363	.350	.001
Mania	.174	.259	.008
GAS	.182	.165	.091
Delayed Memory	.280	.165	.112
Immediate Memory	.306	.077	.467
Full Scale IQ	.326	-.076	.701
Performance IQ	.226	-.069	.573
Acquiescence	.163	.062	.545
Compliance	-.170	-.035	.723
Listening Comprehension	.311	-.035	.806
Reading Comprehension	.288	.005	.971

Variables with significant correlations with the MRS Waive scale were Verbal IQ, Performance IQ, Full Scale IQ, Reading Comprehension, and Listening Comprehension. Only Listening Comprehension entered the prediction model ($F = 12.81, p < .01$), accounting for 10.2% of the variance. Interestingly, mania, which was found to have a significant relationship to both total MRS scores and MRS-Exercise scores, was not correlated with MRS-Waive. Zero-order correlations and beta

coefficients for the variables significantly correlated to MRS-Waive are shown in Table 19.

Table 19

Relationship of Variables to MRS-Waive

	<i>r</i>	Beta coefficient	<i>p</i>
Listening Comprehension	.313	.333	.001
Reading Comprehension	.313	.154	.252
Full Scale IQ	.277	.077	.586
Verbal IQ	.268	.061	.672
Performance IQ	.192	-.008	.948

Interestingly, the Exercise and Waive scales are apparently influenced by different clinical variables. In terms of critically evaluating a decision to *exercise* one's Miranda rights, verbal intelligence and the presence of manic symptoms are the strongest predictors. Mania was not even significantly correlated with the Waive scale, and Verbal IQ had no significant predictive value. For reasoning about *waiver* decisions, only listening comprehension manifested any predictive ability. These results suggest that reasoning abilities associated with these two elements of Miranda rights may be very different mechanisms and require different competencies.

CHAPTER 4

DISCUSSION

An individual's entry into the criminal justice system typically begins with an arrest and police interrogation. The suspect's confession, which is the overriding goal of police interrogations, is likely to be "the single most persuasive factor" in his or her later conviction (Oberlander, Goldstein, & Goldstein, 2003). Police questioning is the first event of several in which the suspect's competence may be called into question. Prior to questioning a suspect, the police must obtain a waiver of Miranda rights that is provided knowingly, intelligently, and voluntarily. Failure to secure a valid waiver may render a confession inadmissible. In most cases, the validity of Miranda waivers are not critically examined (Fulero & Everington, 1995). This omission may result in a false confession and the unjust imprisonment of an innocent person. Therefore, it is in the best interest of all parties involved—the defendant, the prosecution, and the trier of fact—to ensure that waivers of rights are made in a competent manner. The present study investigates factors affecting Miranda-related abilities and their relationship to the "knowing" and "intelligent" prongs of valid waivers. This chapter discusses decisional models of Miranda comprehension and reasoning and implications for clinical practice in light of the current findings.

Decisional Models

Grisso (2003) has outlined three areas of functioning associated with the capacity to waive one's Miranda rights. He describes these functional abilities as "what a person should be able to know, understand, believe or do in order to make an

informed decision about waiver of rights at the time of police investigations” (p. 158).

These three functional abilities, (a) understanding of the warnings, (b) perceptions of the intended functions of the Miranda rights, and (c) capacities to reason about the probable consequences of waiver or nonwaiver decisions. These three components are discussed in light of the current findings.

The first functional ability, understanding of the Miranda warnings, addresses the suspect’s comprehension of the words and phrases used to inform him or her of legal rights. More broadly, this capacity may be conceptualized as the second level of Appelbaum and Grisso’s (1988) decisional competencies: understanding relevant information about a specific decision. Measured by the Miranda Statements Scale (MSS), results of the current study suggest that Miranda comprehension is best conceptualized as several dimensions based on its components. As illustrated in Tables 28 and 29, no consistent pattern of correlations is observed between components. These findings indicate that the ability to comprehend one component, such as the right to silence, does not generalize to the comprehension of a different component (e.g., the risk of self-incrimination). This finding was consistent across the five reading levels of the MSS. From a practical perspective, a suspect may comprehend that he does have the right to refrain from talking, but may not understand the risks associated with waiving that right. In other words, a Miranda waiver cannot be reduced to a single construct, but involves discrete cognitive abilities associated with each Miranda component.

The “knowing” criterion clearly entails more than a simple familiarity with certain vocabulary words frequently used in Miranda warnings. The word “lawyer” or “attorney”

is used in the Miranda components involving right to an attorney, indigent defense, and, often, in the reassertion of rights. However, participants in the current study evidenced no pattern of comprehension across these three components despite their similar vocabulary. In the *Miranda* decision, the Supreme Court insisted that suspects be informed of their rights “in clear and unequivocal terms” (pp. 467-468). However, a large national survey of versions of Miranda warnings and waivers revealed extreme variability in the reading comprehension levels at which they were written (Rogers et al., 2007). In general, lengthier warnings, which tend to have higher reading levels, provide additional information. However, this additional detail may have a paradoxical effect in obscuring or diverting attention away from the basic meaning of the warning (Helms & Sinclair, 2006).

As hypothesized, cognitive abilities, particularly full scale IQ and reading comprehension, were significant predictors of total MSS scores. These results are similar to those found by Tupling and Salekin (2005), who reported that Verbal IQ and Listening Comprehension were predictive of Miranda comprehension in a sample of jail inmates. They found that expressive vocabulary, in particular, was a significant predictor of Miranda comprehension as measured by the CMR and CMV. Receptive vocabulary, however, had no significant predictive ability on any of the Miranda measures. In the current sample, when categorized into two groups based on MSS scores, participants in the “low score” group had significantly lower IQ and comprehension scores than those in the “high score” group.

In the current study, surprisingly few numbers of participants showed even marginal competency with this first functional ability. At a reading level less than 6th

grade, slightly more than one-third of the sample evidenced an understanding of at least 70% of the content of the Miranda warning. The proportion of participants with this level of understanding declined sharply as the reading level of the warnings increased. At the highest level, > 12th grade, only 6.7% of participants achieved a comprehension score of at least 70%. Such severe deficiencies in this first area of functioning essentially preclude the capacity to engage in the next, more complex, functional abilities.

In the development of the MSS, Rogers et al. (2007) operationalized $\geq 70\%$ correct as “good” understanding and $< 50\%$ as “poor” understanding. These scores provide convenient cut points for qualitatively describing groups of participants. However, the 70% level affords opportunity for several distortions and/or omissions in the paraphrasing of Miranda warnings. For instance, if a warning consisted of ten identified content components, a respondent could completely distort the meaning of three of those components and still be classified as having “good” understanding. As the Supreme Court has not specified the level of comprehension that is adequate to be considered a valid waiver, it is left to the trier of fact in individual cases to make this determination. Forensic examiners can provide useful information in terms of percentage of adequate comprehension and descriptions of content distortions.

Grisso's (2003) second area of functioning, perceptions of the intended functions of the Miranda rights, consists of three important content areas: (a) perception of the nature of interrogation, (b) perception of the attorney-client relationship, and (c) perception of the protection from self-incrimination. This area of functioning combines elements of Appelbaum and Grisso's (1988) second and third levels of decisional

competencies (i.e., understanding relevant information and appreciating the significance of relevant information as it applies to one's own case). The Exercise scale of the MRS evaluates perceptions of the intended functions of the rights by having respondents identify potential problems with talking to the police, reasons for staying silent, reasons to ask for an attorney, and problems with not asking for an attorney. These questions address the content areas identified by Grisso by eliciting (a) participants' perceptions of the adversarial quality of interrogation, (b) the advocacy quality of the attorney-client relationship, and (c) protection from self-incrimination. In the present study, the ability to generate reasons to exercise one's own rights was found to positively correlate with two memory scales from the GSS (Immediate Recall and Delayed Recall), Verbal IQ, Performance IQ, Full Scale IQ, Reading Comprehension, Listening Comprehension, and GAS. Therefore, cognitive factors are predominantly associated with this function. However, GAS, a global measure of psychological functioning, was also significantly correlated to MRS-Exercise, providing some preliminary support to Rogers' (2004) integrated-impairment model of Miranda waivers.

The third functional ability is the capacity to reason about the probable consequences of waiver/nonwaiver decisions. Grisso (2003) posited that the presence of mental retardation or developmental immaturity would limit a suspect's ability to weigh consequences about their decisions. Specific skills necessary for reasoning about waiver decisions include an anticipatory perspective of short-term and long-term consequences and the capacity to generate alternative responses or course of action. These skills are also reflected in Appelbaum and Grisso's (1988) fourth level of decisional competence, rationally assessing the pros and cons of various decisions.

Both the Exercise and Waive scales from the MRS assess this functional capacity. The Exercise scale, which was described in the previous paragraph, includes the identification of potential problems with waiving one's rights and likely consequences of exercising one's rights. The Waive scale consists of four main areas: (a) reasons to talk to the police, (b) problems with staying silent, (c) possible problems with asking for an attorney, and (d) reasons to not ask for an attorney. Cognitive variables (i.e., Verbal IQ, Performance IQ, Full Scale IQ, Reading Comprehension, and Listening Comprehension) were the only participant characteristics significantly correlated with the Waive scale. This finding supports the traditional cognitive-developmental model of factors affecting valid Miranda waivers.

The MRS was also utilized to ascertain participants' ability to reason about consequences of waiver decisions by ask about their own decisions regarding their Miranda rights during their most recent arrest. Approximately equal numbers of the participants reported waiving their Miranda rights and talking to the police (49.1%) and exercising their rights and not answering police questions (50.9%). Surprisingly, analyses between these two groups showed no significant differences in terms of demographics, cognitive abilities, symptoms of psychopathology, components of suggestibility, compliance, or acquiescence. This finding suggests the importance of situational factors that may influence suspects during police interrogations. As Gudjonsson (2003) notes, a person who is awakened by the police in the middle of the night and taken to the police station is likely to be in a different state of mind than the individual who goes willingly to police as a witness and subsequently becomes a suspect. Duration of custody, behaviors of the police, the presence of drug or alcohol

intoxication, and the severity of the crime may all affect waiver decisions. Participants were asked about their reasons for talking or not talking to the police. Table 20 outlines the reasons given for waiving Miranda rights and answering police questions.

Table 20

Participants' Self-Reported Reasons for Answering Police Questions

Reason	% of Participants Providing Reason
To cooperate	22.4
To claim innocence	20.4
To provide reasons for one's actions	16.3
To admit guilt	16.3
Was confused or impaired at the time	8.2
To get released	6.1
Because the police will use coercion	6.1
To obtain information	4.1
No reason/do not know	4.1
Response could not be categorized	30.6

Note. Participants could provide more than one response, so percentages exceed 100%.

Almost one-third of participant responses could not be categorized because they were unintelligible, psychotic in nature, or otherwise nonsensical. Nearly one-fourth of the sample who spoke to the police identified a desire to be cooperative as a reason for their waiver decision. This finding is surprising in light of the fact that the participants who chose to talk to the police were not significantly more compliant, as measured by

the GCS, than the participants who did not talk. Even the participants who expressed a desire to cooperate were no more compliant ($F = .017$, $p = .896$) or acquiescent ($F = .001$, $p = .975$) than other participants. The desire to cooperate, as it relates to interrogations, may be a situational factor that does not correlate with any of the interpersonal characteristics examined in the current study.

Table 21 illustrates the percentages of participants providing specific reasons for exercising their Miranda rights and remaining silent.

Table 21

Participants' Self-Reported Reasons for Not Answering Police Questions

Reason	% of Participants Providing Reason
No questions asked	50.0
Negative perceptions of the police	18.5
To protect against self-incrimination	9.3
Was confused or upset at the time	7.4
To obtain legal assistance	3.7
To avoid more legal trouble	1.9
No reason/do not know	7.4
Response could not be categorized	37.0

Note. Participants could provide more than one response, so percentages exceed 100%.

Half of the participants who did not speak to the police at the time of their arrest indicated that no questions were asked of them. Almost one-fifth of participants reported that they did not speak because of some negative perception or attitude toward

the police. Less than 10% of the sample identified the risk of self-incrimination as a reason for exercising their right to silence. This finding suggests that most of the participants failed to appreciate one of the primary protections afforded by Miranda rights.

Another surprising finding was the fact that the group who chose to talk to the police did not exhibit significantly lower scores on any of the Miranda-related measures than the group who chose to exercise their right to silence. Therefore, the suspects who chose to talk to the police did not display less understanding of their rights or less ability to reason about their decisions than the participants who chose to remain silent. Table 22 shows the mean scores for the scales of the MSS and MRS for each group.

Table 22

Differences on MSS and MRS Scores between Participants Who Did and Did Not Talk to the Police at the Time of Their Arrest

	Talked to police		Did not talk to police		<i>F</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
MSS1	61.6%	24.7	57.7%	22.7	.68	.41
MSS2	50.1%	19.3	49.0%	20.0	.09	.76
MSS3	41.5%	20.2	47.6%	19.1	2.56	.11
MSS4	48.0%	21.8	44.1%	18.4	.97	.33
MSS5	37.8%	22.1	38.4%	19.2	.02	.89
MSS Total	46.5%	16.5	46.5%	15.9	.00	1.00
MRS-Waive	1.7	1.4	1.5	1.2	.28	.60
MRS-Exercise	3.1	1.1	2.9	1.0	.83	.37
MRS Total	4.7	2.0	4.4	1.8	.75	.39

These three functional abilities provide a framework for understanding the necessary competencies for providing valid waivers of Miranda rights. Conceptually, the first ability parallels the “knowing” prong of Miranda waivers, while the second and third abilities parallel the “intelligent” prong. Results of the present study suggest that cognitive and developmental factors are the strongest predictors of the three functional abilities. However, overall level of psychological functioning also seems to influence the ability to reason about waiver decisions. The current sample was limited by a low overall level of psychological functioning ($M\text{ GAS} = 43.79$) with no GAS scores above 65. This characteristic of the samples likely suppressed the influence of impairment on Miranda-related abilities. Interpersonal characteristics have also been examined in relation to Miranda-related competencies. These characteristics are discussed in detail in the next section.

Interpersonal Components

Three interpersonal characteristics have been identified as important to evaluate in cases of alleged false confessions. These characteristics, suggestibility, compliance, and acquiescence, have been virtually ignored as potentially important factors in the first step leading to a confession: the waiver of Miranda rights. The nature of the arrest and interrogation process may be so stressful or even fear-producing for some individuals that they are unable to provide a knowing and intelligent waiver of their rights or provide a false confession. Gudjonsson (2003) advises examiners to consider assessing traits such as assertiveness, self-esteem, anxiety proneness, suggestibility,

compliance, and acquiescence. The current study examined the latter three characteristics and their relation to Miranda-related abilities.

Suggestibility

Gudjonsson (2003) has identified suggestibility as an important area for consideration in evaluating cases of alleged false confessions. He developed the Gudjonsson Suggestibility Scales (GSS) for the specific purpose of assessing interrogative suggestibility. Rogers and Shuman (2005) also acknowledge the potential effect of a defendant's suggestibility on his or her ability to provide a valid waiver of rights. They suggest the GSS as a possible measure for assessing interrogative suggestibility but caution that its ecological validity may prove problematic under cross-examination.

Results of the current study indicate that the main components of suggestibility, Yield and Shift, do not contribute significantly to the prediction of either "knowing" or "intelligent" capabilities in regards to Miranda rights. The scores of Yield 1 and 2, Shift, and total suggestibility were not significantly correlated with MSS or MRS scores. These findings differ from those reported by the two other studies investigating the relationship between suggestibility and Miranda comprehension. Redlich, Silverman, and Steiner (2003) found that suggestibility was a significant predictor of Miranda comprehension as measured by Grisso's Understanding and Appreciation of Miranda Rights. In their juvenile sample, higher Shift scores were associated with lower Miranda comprehension, recognition, and vocabulary scores. Similarly, Everington and Fulero (1999) reported significant negative correlations between the components of

suggestibility (i.e., Yield and Shift) and Grisso's Miranda measures. Their sample included probationers with and without mental retardation. Redlich et al.'s sample consisted of juveniles from the community, recruited through a high school and a community center. The participants in Everington and Fulero's study were mentally retarded probationers. Therefore, it is highly probable that these two groups of participants, living in the community, had significantly higher levels of psychological functioning (i.e., GAF scores) than the current participants who were hospitalized in a maximum security institution. Also, the present study used the MSS and MRS to measure Miranda comprehension, while the previous two studies utilized Grisso's Miranda measures.

Compliance

According to Gudjonsson (2003), highly compliant criminal suspects may be likely to agree to requests by the police that they find aversive for some perceived instrumental gain, such as termination of an interview, release from custody, or avoidance of conflict. In extreme cases, highly compliant individuals may agree to provide a false confession, even though they are aware that the information they are providing is inaccurate.

The current study found that compliance was not a significant predictor of Miranda-related knowledge or reasoning abilities. Compliance was found to be significantly negatively correlated with Verbal IQ ($r = -.25$), Performance IQ ($r = -.20$), and Full Scale IQ ($r = -.26$). Defendants with IQs in the extremely low range (< 70) obtained significantly higher scores on the GCS than defendants with IQs in the

average range (> 89). Previous studies have found that compliance is significantly correlated with Yield 1, Shift, and Total Suggestibility (Gudjonsson, 1990b). These findings were not replicated in the current study; no component of suggestibility was significantly related to compliance scores. Gudjonsson (1990b, 2003) has also asserted that there is no relationship between compliance and acquiescence. Participants in the current study evidenced a modest but significant relationship ($r = .23$) between these two constructs. A possible explanation for the failure to replicate Gudjonsson's results is the differences in participant characteristics, specifically IQ and overall level of psychological functioning. Unfortunately, Gudjonsson did not report mean scores for participants' IQ, suggestibility, compliance, or acquiescence, so comparisons between this sample and the current participants cannot be made.

Gudjonsson (1990b) reported that compliance and total suggestibility, in addition to the WAIS-R subtest Picture Arrangement, loaded on a single factor. In the current study, compliance failed to load significantly in a factor analysis of cognitive, psychological, and interpersonal constructs. However, its factor loading (.34) on the Cognitive Abilities factor did approach significance.

Acquiescence

Acquiescence, the tendency to provide an affirmative answers to questions regardless of content, has potentially serious consequences for suspects in an interrogation situation. For example, if a police officer provides a highly acquiescent individual his or her Miranda rights, then asks, "Do you want to waive your rights?" the suspect is likely to answer affirmatively. In extreme cases, acquiescent individuals may

even falsely admit to committing crimes when questions are asked in a yes/no format. Both Gudjonsson (2003) and Rogers and Shuman (2005) stress the importance of addressing acquiescence in Miranda-related evaluations in addition to suggestibility and compliance. Previous studies have reported a significant, but weak, association between acquiescence and suggestibility, particularly Yield 1 and Yield 2. These studies used non-disordered volunteers as participants. In the current sample, a small but significant correlation between acquiescence and Yield 1 was found ($r = .26$). Other components of suggestibility were not significantly related to acquiescence. This finding is similar to that of Gudjonsson (1990) in a study involving forensic patients in which no significant relationship ($r = .13$) was found between Total Suggestibility and acquiescence.

Acquiescence has consistently been found to correlate negatively with intellectual ability (Finlay & Lyons, 2002; Shaw & Budd, 1982), and this pattern was supported by the current study. Specifically, acquiescence was significantly associated with VIQ ($r = -.44$), PIQ ($r = -.37$), and FSIQ ($r = -.45$). Likewise, it was negatively correlated with reading comprehension ($r = -.33$) and listening comprehension ($r = -.42$). Like compliance, acquiescence was found to be significantly higher in the extremely low IQ group than in the average IQ group.

Although acquiescence is clearly relevant to Miranda-related evaluations, there is no validated measure specific to this purpose. Rogers and Shuman (2005) advocate the use of an opposite-item pairs method for evaluating acquiescence. They suggest posing logically inconsistent pairs of questions to a defendant with content specific to his or her situation. This method was utilized by Winkler et al. (1982) in the

development of the Acquiescence Response Set (ARS), a frequently used research scale to control for acquiescence.

IAQ

The current study utilized the framework of the ARS to develop the Interrogation Acquiescence Questionnaire (IAQ) with content specific to Miranda rights and the interrogation procedure. This study represents the first examination of the IAQ's properties. Participants demonstrated a wide range of scores on the IAQ, ranging from 112 to 316, with possible scores ranging from 64 to 320. Interestingly, none of the participants demonstrated a "nay-saying" response style. Even the lowest obtained score, 112, is almost twice the minimum possible score. Individual item-pairs showed wide variation in their eliciting of acquiescent responses, with 7.2 to 44.1% of participants acquiescing on individual items. Preliminary components analysis revealed two main components: (a) Trust Police/Disregard Miranda, and (b) Self-Protection/Assert Miranda. These two components reflect the opposite-item pairs method used to create the measure, with "pro-Miranda" items loading on one component and "anti-Miranda" items loading on the other.

The initial reliability value for the total IAQ is promising, with a Cronbach's alpha of .89. When the two extracted components were analyzed separately, internal reliability remained strong. Cronbach's alphas of .91 and .84 were found for components 1 and 2, respectively. The mean inter-item correlations were .28 (component 1) and .24 (component 2). Further refinement of the IAQ using larger and

more diverse samples is necessary before it can be recommended as a valid measure of acquiescence.

Clinical Practice

Psychologists undertaking evaluations of competence to waive Miranda rights are often faced with formidable challenges. These types of forensic evaluations have frequently been described as difficult or complex for several reasons. First, Miranda evaluations are typically retrospective in nature (Rogers & Shuman, 2005). It is impossible to ascertain, with complete accuracy, the state of mind of a defendant during an interrogation that occurred weeks, months, or even years prior to the time of the evaluation. A condition that is alleged to have led to incompetence may have remitted by the time of the evaluation, making credible corroboration difficult, if not impossible, to obtain (Melton et al., 1997). As Grisso (1981) has noted, a defendant's current understanding of Miranda rights may not represent his or her capacities at the time that the waiver was obtained. For example, in his study of juveniles' comprehension of Miranda rights, the participants demonstrated significant practice effects whereby CMR scores increased 37.5% after only a two-day interval. Therefore, many of a forensic examiner's conclusions are the result of an inferential process, requiring retrospective interpretations of the defendant's abilities based on (a) his or her current capacities, (b) reports, from the defendant and others, of the defendant's behavior and state of mind at the time of the interrogation, and (c) knowledge of the multitude of contextual factors of the interrogation.

The second reason that Miranda evaluations are a complex undertaking is the variability in legal standards (Rogers & Shuman, 2005). In a nationwide analysis of Miranda warnings from 560 jurisdictions, Rogers et al. (2007) found that Miranda warnings and waivers ranged in length from 49 to 547 words. The minimum grade level required for reading comprehension ranged from Grade 2.8 to post-college level. Psychologists who conduct evaluations involving waivers of Miranda rights must be familiar with the versions utilized in the jurisdiction in question. Additionally, if multiple versions of Miranda warnings are used one jurisdiction, it is necessary to ascertain which version was used with the defendant.

Finally, evaluations of competence to waive Miranda rights may be frustrating for the examiner due to the lack of specialized, standardized assessment measures (Rogers & Shuman, 2005). The lack of Miranda-related measures is likely a direct result of the variability in Miranda warnings across the United States. Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights (1998) are the only published measures that purport to assess Miranda comprehension. However, these measures utilize the Miranda warning used in St. Louis in the late 1970s, which is not generalizable to jurisdictions using different versions. Additionally, these measures lack the reliability and validity necessary to be considered "validated scales" (Rogers, Jordan, & Harrison, 2004).

Another Miranda-specific instrument for clinicians to consider is the Miranda Checklist Inventory (MCI; Greenfield, Dougherty, Jackson, & Zimmerman, 2000). Conceptualized as a framework for guiding Miranda-related evaluations, the MCI is not intended as a measure per se. Further research is needed on the MCI for determining

its clinical utility. Recently developed, the MRS and MSS (Rogers, 2005) were used in the present study and represent the latest effort to quantify Miranda comprehension and reasoning. Preliminary studies suggest good interrater reliability (Rogers et al., 2007).

Models for Conducting Competence-to-Waive Miranda Rights Evaluations

Few published resources are available for guiding clinicians in conducting competency-to-waive Miranda rights evaluations. Compared to other psycholegal constructs that psychologists may be asked to address (e.g., competency to stand trial, mental state at the time of the offense, and risk assessment), guidelines for Miranda evaluations are only recently receiving attention in the literature (see DeClue, 2004; Rogers & Shuman, 2005). While frequently-cited forensic references, such as Melton et al. (1997) and Grisso (2003) provide important information in terms of case law and theoretical considerations, they provide little practical information for actually conducting an evaluation regarding the validity of Miranda waivers.

Pragmatic guidelines for evaluating competency to waive Miranda rights are presented by Gudjonsson (2003), Rogers and Shuman (2005), and Frumkin (2000). These three frameworks differ substantially in their breadth and depth of coverage, but share some common features. Gudjonsson (2003) proposed a broad framework to guide forensic psychologists in evaluating cases of possible false confessions. Although waiving Miranda rights is only a small component of the larger issue of false confessions, his framework for evaluation can easily be applied to this crucial component in interrogations. In contrast, Frumkin (2000) and Rogers and Shuman (2005) offer specific suggestions for evaluating defendants' competencies associated

with valid Miranda waivers. These three sets of guidelines will be evaluated in light of the findings from the current study.

Gudjonsson identifies six groups of factors that should be evaluated in cases of suspected false confessions: (a) the circumstances of the arrest and custody, (b) characteristics of the defendant, (c) mental and physical state during custody, (d) interrogative factors, (e) explanations for the alleged false confession, and (f) the retraction. The first four areas are clearly relevant to assessing the validity of Miranda waivers and will be examined in more detail.

First, the circumstances of the arrest and custody should be examined. These circumstances may include the nature of the arrest; for example, was it sudden and forceful? Other important aspects to consider include the time of day the arrest occurred, the time spent in custody prior to questioning, and the coerciveness of the police officers. These situational factors are generally considered in relation to the “voluntary” prong of Miranda waivers, but environmental stressors, such as denying a defendant basic needs, could certainly interfere with comprehension and reasoning abilities.

The second area of evaluation, which has particular significance to the current study, is the characteristics of the defendant. These characteristics may include physical traits, psychological characteristics, and reactions to the interrogation. Physical characteristics, particularly age, may be associated with vulnerabilities in terms of lack of knowledge or susceptibility to police pressure (Gudjonsson, 1992; Pearse et al., 1998). The effects of other traits, such as race and gender, have not been empirically studied. Other personal characteristics that may place a defendant at a

disadvantage include lack of life experience and unfamiliarity with police procedures. Gudjonsson (2003) identifies many psychological characteristics that may affect valid Miranda waivers, including cognitive impairments, personality traits, specific anxiety proneness, mental illness, and personality disorders. These factors are the focus of the current study and will be examined in more detail.

The third area of consideration is the mental and physical state of the suspect during custody. Suspects may be under the influence of drugs or alcohol or affected by a physical condition that is exacerbated by the stress of arrest. Defendants with chronic conditions, such as heart disease or diabetes, may fear not having access to their medications. This fear and a focus on short-term goals (e.g., obtaining medication) may contribute to a decision to confess (Gudjonsson, 2003). Gudjonsson recommends reconstructing the suspect's mental and physical state at the time of the interrogation by reviewing police records, interviewing the suspect, and obtaining information from relatives or doctors who visited the suspect while in custody.

Fourth, interrogative factors, which involve verbal and nonverbal communication associated with the questioning, should be examined. Video recordings of the interrogation are the preferred source of this information and offer information on the style of questioning and interrogation techniques used (Gudjonsson, 2003). Examination of these interrogative factors may reveal the use of leading questions or the manipulation of a suspect's emotions, techniques that could contribute to a waiver of rights and possibly invalid confession.

The fifth area of examination, explanations for the alleged false confession, is appropriate when this issue has been raised by a defendant. Interviewing the

defendant and querying the reasons for his or her confession is useful for generating hypotheses about his or her behavior. These hypotheses can then be tested through psychological testing or review of police records (Gudjonsson, 2003). For example, if the defendant claims that he is illiterate and that his Miranda rights were given to him in written form, psychological testing, a review of educational records, and examination of police records or transcripts may prove or invalidate his claims.

The sixth and final component involves the retraction of the alleged false confession. Specifically, examiners should establish the length of delay between confession and retraction. As Gudjonsson (2003) has noted, once the pressure of the interrogation has ended, an innocent defendant would be expected to retract the confession at the earliest possible opportunity. Retractions after a long delay and the retainment of counsel may be met with much more skepticism.

Characteristics of the Defendant

As with other psycholegal inquiries, characteristics of the defendant have a profound influence on the decision rendered. Factors such as cognitive abilities and symptoms of psychopathology are common areas of forensic evaluation, whether the issue is competency to stand trial, criminal responsibility, risk assessment, or competency to waive Miranda rights. This section will examine the characteristics salient to Miranda-related evaluations in light of the current findings.

Cognitive Factors

Cognitive factors, such as intelligence, reading ability, attentional deficits, and

memory capacity are frequently cited as areas to address in Miranda evaluations. Conditions, such as mental retardation and dementia, may have a significant impact on suspects' abilities to attend to, retain, recall, and reason about their rights.

Intelligence. In terms of assessing intellectual abilities, Gudjonsson does not recommend any particular measures or methods. Rogers and Shuman (2005) suggest utilizing the WASI in cases where cognitive impairment does not appear to be an issue. For more comprehensive assessments, they recommend the WAIS-III, with careful attention paid to Verbal IQ and the Verbal Comprehension Index. Frumkin (2000) also recommends the Wechsler tests, with an emphasis on verbal abilities. Although verbal abilities would logically be the best indicator for comprehension of Miranda rights, they should not be examined to the exclusion of performance abilities (Gudjonsson, 2003). For example, the WAIS-III subtest Picture Arrangement, a nonverbal task, has been shown to have the highest correlation with interrogative suggestibility, an important factor in Miranda evaluations that will be discussed in detail later (Gudjonsson, 1990b). Picture Arrangement measures social awareness, understanding of behavior, and sequential logic, all potentially important skills during interrogation. IQ scores have consistently been found to correlate with Miranda comprehension. For example, Viljoen et al. (2002) reported that IQ was a strong predictor of understanding interrogation warnings for participants with no current Axis I diagnosis.

For the "knowing" prong of Miranda waivers, as measured by the MSS in the current study, Full Scale IQ was a significant predictor ($r = .34$) of understanding on one version of warnings. This version, MSS 2, consists of warnings at a reading level

between Grade 6 and Grade 7.9. Full Scale IQ, in combination with Reading Comprehension, also significantly predicted total MSS scores. Verbal IQ was a significant predictor for MSS Version 3 (Grade 8 to 9.9). Performance IQ, as measured by the WASI, was not significantly associated with MSS scores. However, the fact that FSIQ significantly predicted scores on two versions of the MSS that VIQ did not suggests that PIQ may have a small but potentially important association with Miranda comprehension. Therefore, it is advisable to assess both verbal and performance abilities in an evaluation of Miranda comprehension.

When participants at differing levels of IQ were compared, those in the average range ($IQ \geq 90$) outscored those in the extremely low range ($IQ < 70$) on all versions of the MSS. Effect sizes increased substantially as the reading level of the warnings increased. During a forensic evaluation, an issue of paramount importance is establishing the reading level of the Miranda warning administered at the time of arrest. When there is obvious incongruence between the defendant's IQ (e.g., < 70) and the reading level of the warning (e.g., $> \text{Grade } 12$), the likelihood of a valid "knowing" waiver decreases.

Intellectual abilities were also shown to be predictive of the "intelligent" prong of Miranda waivers, as assessed by the MRS. Verbal, Performance, and Full Scale IQ were each significantly correlated with MRS scores. Results of a dominance analysis indicate that all three IQ scores are significant predictors of Miranda-related reasoning abilities. One interesting finding of the dominance analysis is that when VIQ is entered third, after PIQ and FSIQ, it no longer contributes significantly. However, both PIQ and FSIQ retained significance when entered in the third position. This finding adds further

support to the recommendation that nonverbal abilities be assessed in addition to verbal abilities when conducting Miranda evaluations.

Reading and listening comprehension. Reading ability is another crucial component of any evaluation regarding competency to waive Miranda rights (Gudjonsson, 2003; Helms, 2003; Helms & Holloway, 2006; Rogers & Shuman, 2005). Gudjonsson does not identify particular measures or methods for assessing reading level, but Frumkin recommends the use of the Wide Range Achievement Test (WRAT) or the Wechsler Individual Achievement Test. Rogers and Shuman caution against the use of earlier versions of the WRAT, as they do not provide a measure of reading comprehension, only word recognition. The recently published WRAT-4 does include a new subtest of sentence comprehension. Rogers and Shuman suggest the use of the Wechsler Individual Achievement Test, 2nd Edition (WIAT-II), subtests of which were utilized in the current study. This instrument yields grade-equivalent scores for word reading, oral expression, reading comprehension, and listening comprehension. The last two components, reading and listening comprehension, are particularly relevant to the comprehension of Miranda rights. In the current study, Reading Comprehension is the only variable to significantly discriminate between participants with good and poor understanding on the MSS. Reading Comprehension also significantly predicts MSS scores at the highest reading levels (i.e., Grades 10 to 11.9 and ≥ 12). Reading Comprehension provided a unique contribution to the prediction of MRS scores in one-third of dominance analysis second-order regressions.

Interestingly, only Rogers and Shuman identify listening comprehension as an area of consideration during Miranda evaluations. Few published studies have examined the relevance of listening comprehension to understanding of Miranda rights. In one of the only studies to examine the relationship of these two abilities, Tupling and Salekin (2005) found that listening comprehension is an important predictor of Miranda understanding. In the current study, Listening Comprehension contributed significantly to the prediction of MRS scores in approximately one-third of second-order regressions of the dominance analysis. Based on these findings, listening comprehension, which may not parallel a defendant's reading comprehension ability, is a key area for assessment in Miranda evaluations.

Memory impairment. Memory capacity is a third area of cognitive functioning that may warrant investigation in cases of questionable Miranda waivers. Rogers and Shuman (2005) state emphatically that "Miranda evaluations should address the suspect's ability to recall their rights at intervals approximating the interrogation length" (p. 126). They do not provide any specific guidelines for assessing memory of Miranda rights, suggesting that an individualized, informal assessment of memory may be adequate for most defendants. Frumkin's recommendations do not include an evaluation of memory impairment.

Although memory assessment was not a primary component of the current study, the ability to recall verbally presented information, both immediately after the stimulus and following a delay, was examined via the Gudjonsson Suggestibility Scales. The combination of Delayed Memory Recall and Delayed Recall Total Confabulations

(memory distortions and fabrications) produced a significant regression model for predicting MSS scores. Both Immediate Memory Recall and Delayed Memory Recall were significantly correlated with MRS scores, although their contribution to the dominance analysis at levels higher than zero-order was minimal. Therefore, a screening measure for memory impairment is advisable for Miranda evaluations, with the administration of more extensive testing if indicated by the screening results.

Presence of Psychopathology

Another broad area for assessment during Miranda evaluations is the presence of a serious mental disorder. The relationship between mental disorders and comprehension of Miranda rights has been virtually ignored in the literature with only a few exceptions (e.g., Viljoen, Roesch, & Zapf, 2002). Gudjonsson (2003) identifies faulty reality monitoring, distorted perceptions and beliefs, and proneness to feelings of guilt as symptoms that could affect the interrogation process to the suspect's disadvantage. Gudjonsson suggests that depressive disorders, in particular, may lead some people to implicate themselves falsely in a crime as a way of relieving strong feelings of guilt. Frumkin suggests the MMPI, Rorschach Inkblots, or the 16 PF for evaluation of a defendant's psychological and emotional functioning. He highlights reality testing, submissiveness, impulse control, and coping and thinking abilities as important areas for considerations.

Rogers and Shuman (2005) strongly recommend using the Schedule for Affective Disorders and Schizophrenia (SADS; Spitzer & Endicott, 1978) to assess the effects of psychological symptoms on a defendant's functioning. Rogers and Shuman

highlight the importance of paranoid delusions in decisions regarding Miranda rights. Specifically, they postulate that paranoid suspects may misinterpret forceful questioning as an imminent threat of physical violence. They may then respond with anger, disengagement, or capitulation. Viljoen et al. (2002), in one of the only studies to examine the effect of psychopathology on comprehension of rights, found that defendants with psychotic disorders obtained the lowest scores on three subtests and the total score of the Test of Charter Comprehension (ToCC; Ogloff & Olley, 1992), a Canadian version of Grisso's Miranda Instruments. In the current study, psychotic symptoms were unrelated to MSS scores and positively correlated with MRS scores. This unexpected finding contradicts the results of Viljoen et al., and further studies are necessary to understand the relationship of psychosis to Miranda comprehension and waiver decisions.

In the present study, depressive symptoms, as measured by the SADS-C-Dysphoria scale, showed no relation to MSS or MRS scores. However, this sample was characterized by severe psychological disorders and concomitant impairment in functioning, which may have overshadowed depressive symptomatology. The only variable of psychopathology to enter the dominance analysis for predicting total MRS scores was mania. Research investigating bipolar disorder and cognitive abilities has consistently found impairments in attention, executive functioning, learning, memory, and psychomotor speed in individuals with mania, hypomania, and bipolar disorder in remission (Martinez-Aran et al., 2004). One hypothesis for the current unusual finding is that because many of the participants had a severe psychotic disorder, by comparison, those with a mood disorder had more intact cognitive functioning.

Examination of the SADS-C Mania scale reveals that participants' scores ranged from 4 to 17. Possible scale scores range from 0 to 30. Therefore, the relatively low levels exhibited by the participants likely represent an energizing change from prior functioning, rather than true manic symptoms. When the Exercise and Waive scales of the MRS were examined separately, mania was only a significant predictor for the Exercise scale. Psychosis and depression, as assessed by the SADS-C evidenced no significance in the prediction of MSS or MRS scores. Although GAS was significantly correlated with total MRS scores, it was not a significant predictor in the regression model. The limited range of GAS scores in the present study may have restricted its utility as a predictor.

Suggestibility and compliance were not found to contribute to the predictive models generated for MSS and MRS scores. The current sample's level of cognitive and psychological impairment was rather severe, however, which may have overshadowed any potential effect of suggestibility or compliance on Miranda-related abilities.

In conclusion, when undertaking Miranda-related evaluations, psychologists should be mindful of the many influences that may affect a suspect's waiver of rights, such as circumstances of the arrest, the mental and physical state of the suspect during custody, interrogative factors, and characteristics of the defendant (Gudjonsson, 2003). In light of the current findings and guidelines by Rogers and Shuman (2005) and Frumkin (2000), recommended areas for assessment include verbal and performance IQ, reading comprehension, listening comprehension, and the presence of psychopathology. Due to the retrospective nature of most Miranda-related evaluations,

assessment of current functioning and, as thoroughly as possible, a reconstruction of the defendant's level of cognitive and psychological functioning at the time of arrest is necessary.

Limitations of the Current Study

The main purpose of this study was to evaluate factors that may affect a defendant's ability to knowingly and intelligently waive his or her Miranda rights. A primary limitation of this study is the lack of a "gold standard" for measuring Miranda-related abilities. The MSS and MRS, two newly developed measures, were utilized as the criterion standards for assessing "knowing" and "intelligent" capacities, respectively. Although validation studies are still needed, both measures show promising initial psychometric properties.

Similarly, acquiescence, as it relates to Miranda waivers and interrogation, also lacks a standardized, validated means of evaluation. The newly created IAQ, used in this study, is a first attempt at developing such a measure. The IAQ was modeled after a widely accepted framework for assessing acquiescence. Its initial psychometric properties are promising, and with further refinement, it is anticipated that the IAQ could be a useful tool in Miranda evaluations.

Another limitation is this study's moderate sample size, which is problematic for analyses such as discriminant function analysis and exploratory factor analysis. Larger sample sizes are needed to improve the stability of the IAQ's factor structure.

Finally, the participants were assessed after they had been admitted to a competency-restoration unit of a forensic hospital. A considerable amount of time (i.e.,

weeks or months, depending on the participant) had elapsed since their initial arrest and being read their Miranda rights. Most participants were taking psychotropic medications at the time of their participation, which likely decreased their symptoms of mental disorders and improved their ability to concentrate and reason. This improved psychological stability likely represented a vastly different state than most patients with similar disorders experienced when they were actually arrested. However, this discrepancy in psychological functioning over time is representative of the difficulties faced by examiners in conducting retrospective evaluations.

Directions for Future Research

The participants in the current study were patients with severe mental disorders who had been found incompetent to stand trial. Future studies investigating Miranda-related competencies should include participants at the time of arrest or shortly thereafter. This methodology would allow for assessment of other potentially important factors, such as intoxication, lack of sleep, and anxiety or fear, on suspects' abilities to understand and reason about their rights. Evaluation immediately following assertion or waiver of Miranda rights would also provide ecological validity to significant findings.

This study focused on characteristics of the defendants in relation to Miranda comprehension and waiver decisions. Situational factors, such as length of time in custody, attitudes and behaviors of the police, and the severity of the offense in question are other potentially important determinants of suspects' decisions regarding their rights. These environmental factors, and how they interact with suspects' characteristics, deserve further study.

Another direction for future research would include continuing the refinement and validation of the IAQ. The current study provided preliminary information on its factor structure and internal reliability. It would be useful to compare scores on the IAQ with an accepted criterion measure, such as the ARS.

Finally, practice guidelines and recommendations for psychologists conducting Miranda-related evaluations are necessary for improving the standard of practice in this area. With approximately 40 to 50% of suspects waiving their Miranda rights (Gudjonsson, 2003), the potential for invalid waivers and even false confessions is troubling. The current study found that only a small percentage of participants could understand the majority of a Miranda warning written at greater than a 6th grade level. Attorneys and law enforcement personnel charged with developing the specific wording for Miranda warnings in their jurisdiction and those involved in delivering the warnings should be educated about the potential for invalid waivers. Increased understanding about the factors affecting valid waivers of Miranda rights can help promote justice for both criminal suspects and victims.

Summary

This study explored cognitive, psychological, and interpersonal factors affecting mentally disordered defendants' abilities to comprehend their Miranda rights and reason rationally about their waiver decisions. An important finding of this research was the importance of cognitive factors, particularly intelligence, reading comprehension, and listening comprehension, in the ability to provide "knowing" and "intelligent" waivers. The presence of symptoms of psychopathology provided some predictive ability in

terms of reasoning capacity, but results indicated that, overall, cognitive-development factors were more important to Miranda-related competencies. Contrary to previous research, the interpersonal characteristics suggestibility and compliance had no significant effect on Miranda comprehension. Acquiescence, as measured by the newly developed IAQ, did demonstrate some significant predictive ability.

Results also revealed that a surprisingly low number of mentally disordered offenders were able to demonstrate even a basic understanding of Miranda warnings written at a reading level greater than 6th grade. This finding is especially disturbing in light of the tremendous variation in warnings across jurisdictions and the fact that many are written at a high school level or above.

This study represents the first examination of the Interrogation Acquiescence Questionnaire (IAQ). Initial results are promising, and with further refinement, it is likely that the IAQ will be a useful instrument for assessing acquiescence in Miranda-related evaluations.

Finally, this research adds to the literature on factors affecting competence to waive Miranda rights. Expanding on more focused Miranda studies, it provides an exploration of the influence of cognitive, psychological, and interpersonal characteristics and the relationship among these factors. Important implications for forensic assessment are examined, with specific recommendations provided for the critical components to be included in Miranda-related evaluations.

APPENDIX A
CONSENT FORM

University of North Texas

Institutional Review Board

Research Consent Form

Approved by the Texas Department of Mental Health and Mental Retardation (TDMHMR) Central Office Institutional Review Board and the University of North Texas Institutional Review Board

Subject Name

Date

Title of Study Models of Miranda Comprehension for Representative Warnings

Principal Investigator Richard Rogers

Setting Vernon Campus, North Texas State Hospital

Before agreeing to this study, I must understand its methods. This form describes the methods, benefits, and risks. It says I have the right to stop at any time. It makes no promises about the results of the study.

Start Date of Study 05/01/2005

End Date of Study 5/01/2006

Purpose of the Study

My part of the study looks at Miranda warnings¹ used across the country. It looks at which statements are easy to understand. It looks at reading and listening. It looks at my verbal skills and any emotional problems. Each person is different. It looks at what things may affect my understanding of Miranda statements.

Description of the Study

The study looks at how my understanding of Miranda can be affected. I will meet alone with a researcher. She will ask me questions and give me scales to complete. I will have two sessions, each 2 to 2½ hours, to avoid fatigue.

Procedures

12 measures are given. Most are brief and easy to complete. Two look at how well I listen and read. One looks at verbal abilities. One looks at emotional problems. Three look at my reactions to legal situations. One looks at how easy I can be influenced. Three measures look at parts of Miranda. If I gave a statement to police, a questionnaire asks for my ideas about this.

Description of the possible risks

Most measures are used in clinical, school, and other settings. There are no known physical or emotional risks. Once in a while, subjects become slightly stressed. This only for a short time. There is a slight chance data could be subpoenaed.

I will **not** be asked about child abuse. If I give such information, the law requires us to tell the authorities.

Benefits

I may learn things about myself from this research. The research helps us to understand Miranda statements. Five dollars will be put in my account for each of the sessions.

Procedures for Keeping Research Records Private

To protect privacy, only research numbers are used on the data. All data is locked in a research room. A master list will be kept at the hospital. It will only be kept for the time of the study.

Review for the Protection of Participants

The UNT Committee for the Protection of Human Subjects (940) 565-3940 and the TDMHMR Central Office Institutional Review Board approved this study.

Research Subject's Rights

I read or had read to me all of the above.

A researcher explained the study to me and answered my questions. I know the risks, discomforts and benefits of the study.

I know I can talk to family or friends before deciding about the study.

I understand that I do not have to take part in this study. I can stop at any time without any penalties or loss of rights. The study staff may choose to stop the study for me at any time.

If I have problems or questions, I can call Dr. Richard Rogers at (940) 565-2671. For questions about my rights as a research subject, I can call Dr. Rogers or Dr. Lynn Crismon (Chair of Central Office IRB) at (512) 206-5068. I can contact the NTSB human rights officer for questions about my rights.

I understand my rights as research subject, I freely consent to take part in this study. I understand the study, its methods and purpose. I know I will receive a copy of this consent form.

Signature of Subject Date

Signature of Witness Date

For the Investigator or Designee:

I certify that I have reviewed the contents of this form with the subject signing above. I have explained the known benefits and risks of the research. It is my opinion that the subject understood the explanation.

Signature of Researcher

Date

¹Before questioning, a police officer read you your rights. This is called a Miranda warning.

APPENDIX B

FIRST- AND SECOND-ORDER DOMINANCE ANALYSIS REGRESSIONS

Table B.1

First Order Dominance Analysis for Predicting MRS Scores

Predictor	First Variable	R^2	Beta	p
Immediate recall	Delayed recall	0.077	0.341	0.08
	Verbal IQ	0.152	0.101	0.38
	Performance IQ	0.099	0.206	0.06
	Full Scale IQ	0.143	0.117	0.31
	Reading comprehension	0.141	0.069	0.58
	Listening comprehension	0.150	0.095	0.41
	Mania	0.105	0.273	0.01
	Acquiescence	0.088	0.240	0.03
Delayed recall	Immediate recall	0.077	-0.076	0.70
	Verbal IQ	0.149	0.072	0.50
	Performance IQ	0.082	0.143	0.19
	Full Scale IQ	0.137	0.070	0.52
	Reading comprehension	0.138	0.015	0.90
	Listening comprehension	0.146	0.054	0.62
	Mania	0.079	0.218	0.03
	Acquiescence	0.068	0.184	0.08
Verbal IQ	Immediate recall	0.152	0.326	0.01
	Delayed recall	0.149	0.351	0.00
	Performance IQ	0.145	0.374	0.00
	Full Scale IQ	0.148	0.264	0.22
	Reading comprehension	0.163	0.233	0.10
	Listening comprehension	0.164	0.219	0.14
	Mania	0.180	0.386	0.00
	Acquiescence	0.145	0.367	0.00
Performance IQ	Immediate recall	0.099	0.167	0.13
	Delayed recall	0.082	0.202	0.06
	Verbal IQ	0.145	0.009	0.94
	Full Scale IQ	0.174	-0.499	0.04
	Reading comprehension	0.140	0.058	0.63
	Listening comprehension	0.145	0.046	0.70
	Mania	0.095	0.254	0.01
	Acquiescence	0.075	0.212	0.05
Full Scale IQ	Immediate recall	0.143	0.304	0.01
	Delayed recall	0.137	0.335	0.00
	Verbal IQ	0.148	0.130	0.54
	Performance IQ	0.174	0.821	0.00
	Reading comprehension	0.156	0.201	0.16
	Listening comprehension	0.159	0.187	0.20
	Mania	0.165	0.366	0.00
	Acquiescence	0.134	0.350	0.00

(table continues)

Table B.1 (continued).

Predictor	First Variable	R^2	Beta	p
Reading comprehension	Immediate recall	0.141	0.328	0.01
	Delayed recall	0.138	0.363	0.00
	Verbal IQ	0.163	0.200	0.16
	Performance IQ	0.140	0.338	0.01
	Full Scale IQ	0.156	0.223	0.12
	Listening comprehension	0.164	0.204	0.14
	Mania	0.173	0.377	0.00
	Acquiescence	0.143	0.346	0.00
Listening comprehension	Immediate recall	0.150	0.326	0.01
	Delayed recall	0.146	0.355	0.00
	Verbal IQ	0.164	0.215	0.14
	Performance IQ	0.145	0.352	0.00
	Full Scale IQ	0.159	0.240	0.10
	Reading comprehension	0.164	0.232	0.10
	Mania	0.167	0.370	0.00
	Acquiescence	0.145	0.364	0.00
Mania	Immediate recall	0.105	0.172	0.09
	Delayed recall	0.079	0.180	0.08
	Verbal IQ	0.180	0.188	0.05
	Performance IQ	0.095	0.177	0.08
	Full Scale IQ	0.165	0.178	0.07
	Reading comprehension	0.173	0.188	0.05
	Listening comprehension	0.167	0.154	0.11
	Acquiescence	0.078	0.207	0.04
Acquiescence	Immediate recall	0.088	-0.116	0.27
	Delayed recall	0.068	-0.153	0.14
	Verbal IQ	0.145	-0.029	0.79
	Performance IQ	0.075	-0.113	0.30
	Full Scale IQ	0.134	-0.033	0.76
	Reading comprehension	0.143	-0.078	0.45
	Listening comprehension	0.145	-0.035	0.74
	Mania	0.078	-0.220	0.03

Table B.2

Second Order Dominance Analysis for Predicting MRS Scores

Predictor	First two variables	R^2	Beta	p
Immediate recall	Delayed recall/Verbal IQ	0.152	0.117	0.56
	Delayed recall/Performance IQ	0.100	0.269	0.18
	Delayed recall/Full Scale IQ	0.144	0.169	0.40
	Delayed recall/Reading comprehension	0.143	0.146	0.47
	Delayed recall/Listening comprehension	0.151	0.143	0.48

(table continues)

Table B.2 (continued).

Predictor	First two variables	R^2	Beta	p
Immediate recall (cont.)	Delayed recall/Mania	0.106	0.320	0.10
	Delayed recall/Acquiescence	0.089	0.284	0.16
	Verbal IQ/Performance IQ	0.152	0.102	0.38
	Verbal IQ/Full Scale IQ	0.154	0.094	0.42
	Verbal IQ/Reading comprehension	0.164	0.042	0.74
	Verbal IQ/Listening comprehension	0.167	0.061	0.61
	Verbal IQ/Mania	0.186	0.093	0.41
	Verbal IQ/Acquiescence	0.152	0.099	0.39
	Performance IQ/Full Scale IQ	0.178	0.079	0.49
	Performance IQ/Reading comprehension	0.143	0.064	0.61
	Performance IQ/Listening comprehension	0.151	0.091	0.44
	Performance IQ/Mania	0.129	0.202	0.07
	Performance IQ/Acquiescence	0.104	0.191	0.09
	Full Scale IQ/Reading comprehension	0.158	0.050	0.69
	Full Scale IQ/Listening comprehension	0.162	0.068	0.57
	Full Scale IQ/Mania	0.174	0.112	0.32
	Full Scale IQ/Acquiescence	0.144	0.114	0.32
	Reading comprehension/Listening comprehension	0.165	0.032	0.10
	Reading comprehension/Mania	0.175	0.058	0.64
	Reading comprehension/Acquiescence	0.145	0.057	0.65
	Listening comprehension/Mania	0.174	0.099	0.39
	Listening comprehension/Acquiescence	0.151	0.092	0.43
	Mania/Acquiescence	0.125	0.227	0.03
Delayed recall	Immediate recall/Verbal IQ	0.152	-0.018	0.92
	Immediate recall/Performance IQ	0.100	-0.074	0.70
	Immediate recall/Full Scale IQ	0.144	-0.060	0.75
	Immediate recall/Reading comprehension	0.143	-0.091	0.63
	Immediate recall/Listening comprehension	0.151	-0.055	0.77
	Immediate recall/Mania	0.106	-0.056	0.77
	Immediate recall/Acquiescence	0.089	-0.051	0.79
	Verbal IQ/Performance IQ	0.149	0.072	0.51
	Verbal IQ/Full Scale IQ	0.151	0.063	0.56
	Verbal IQ/Reading comprehension	0.163	0.014	0.90
	Verbal IQ/Listening comprehension	0.165	0.036	0.74
	Verbal IQ/Mania	0.184	0.073	0.48
	Verbal IQ/Acquiescence	0.149	0.071	0.51
	Performance IQ/Full Scale IQ	0.176	0.046	0.67
	Performance IQ/Reading comprehension	0.140	0.012	0.92
	Performance IQ/Listening comprehension	0.147	0.049	0.66
	Performance IQ/Mania	0.114	0.147	0.17
	Performance IQ/Acquiescence	0.091	0.135	0.22
	Full Scale IQ/Reading comprehension	0.156	0.007	0.95
	Full Scale IQ/Listening comprehension	0.160	0.032	0.77
	Full Scale IQ/Mania	0.169	0.074	0.49
	Full Scale IQ/Acquiescence	0.138	0.070	0.52
	Reading comprehension/Listening comprehension	0.164	-0.005	0.97

(table continues)

Table B.2 (continued).

Predictor	First two variables	R^2	Beta	p
Delayed recall (cont.)	Reading comprehension/Mania	0.173	0.015	0.89
	Reading comprehension/Acquiescence	0.143	0.012	0.92
	Listening comprehension/Mania	0.171	0.063	0.56
	Listening comprehension/Acquiescence	0.147	0.053	0.63
	Mania/Acquiescence	0.110	0.182	0.08
Verbal IQ	Immediate recall/Delayed recall	0.152	0.325	0.01
	Immediate recall/Performance IQ	0.152	0.328	0.02
	Immediate recall/Full Scale IQ	0.154	0.233	0.28
	Immediate recall/Reading comprehension	0.164	0.227	0.12
	Immediate recall/Listening comprehension	0.167	0.202	0.18
	Immediate recall/Mania	0.186	0.336	0.00
	Immediate recall/Acquiescence	0.152	0.318	0.01
	Delayed Recall/Performance IQ	0.149	0.352	0.01
	Delayed Recall/Full Scale IQ	0.151	0.257	0.23
	Delayed Recall/Reading comprehension	0.163	0.233	0.11
	Delayed Recall/Listening comprehension	0.165	0.213	0.15
	Delayed Recall/Mania	0.184	0.356	0.00
	Delayed Recall/Acquiescence	0.149	0.339	0.00
	Performance IQ/Full Scale IQ	0.188	-0.553	0.21
	Performance IQ/Reading comprehension	0.163	0.246	0.12
	Performance IQ/Listening comprehension	0.165	0.232	0.15
	Performance IQ/Mania	0.180	0.383	0.00
	Performance IQ/Acquiescence	0.145	0.364	0.01
	Full Scale IQ/Reading comprehension	0.163	0.191	0.39
	Full Scale IQ/Listening comprehension	0.165	0.175	0.43
	Full Scale IQ/Mania	0.182	0.287	0.17
	Full Scale IQ/Acquiescence	0.148	0.260	0.23
	Reading comprehension/Listening comprehension	0.172	0.154	0.34
	Reading comprehension/Mania	0.199	0.236	0.09
	Reading comprehension/Acquiescence	0.163	0.221	0.14
	Listening comprehension/Mania	0.194	0.248	0.09
	Listening comprehension/Acquiescence	0.164	0.217	0.15
	Mania/Acquiescence	0.183	0.359	0.00

(table continues)

Table B.2 (continued).

Predictor	First two variables	R^2	Beta	p
Performance IQ	Immediate recall/Delayed Recall	0.100	0.166	0.13
	Immediate recall/Verbal IQ	0.152	-0.003	0.98
	Immediate recall/Full Scale IQ	0.178	-0.470	0.05
	Immediate recall/Reading comprehension	0.143	0.052	0.66
	Immediate recall/Listening comprehension	0.151	0.033	0.78
	Immediate recall/Mania	0.129	0.169	0.12
	Immediate recall/Acquiescence	0.104	0.144	0.21
	Delayed recall/Verbal IQ	0.149	-0.002	0.99
	Delayed recall/Full Scale IQ	0.176	-0.487	0.04
	Delayed recall/Reading comprehension	0.140	0.057	0.64
	Delayed recall/Listening comprehension	0.147	0.040	0.74
	Delayed recall/Mania	0.114	0.202	0.06
	Delayed recall/Acquiescence	0.091	0.168	0.14
	Verbal IQ/Full Scale IQ	0.188	-1.049	0.04
	Verbal IQ/Reading comprehension	0.163	-0.026	0.84
	Verbal IQ/Listening comprehension	0.165	-0.028	0.83
	Verbal IQ/Mania	0.180	0.004	0.98
	Verbal IQ/Acquiescence	0.145	0.005	0.97
	Full Scale IQ/Reading comprehension	0.182	-0.419	0.10
	Full Scale IQ/Listening comprehension	0.183	-0.410	0.12
	Full Scale IQ/Mania	0.206	-0.499	0.04
	Full Scale IQ/Acquiescence	0.174	-0.497	0.04
	Reading comprehension/Listening comprehension	0.164	-0.003	0.98
	Reading comprehension/Mania	0.175	0.053	0.46
	Reading comprehension/Acquiescence	0.144	0.039	0.75
	Listening comprehension/Mania	0.169	0.055	0.64
	Listening comprehension/Acquiescence	0.146	0.041	0.74
	Mania/Acquiescence	0.113	0.201	0.06
Full Scale IQ	Immediate recall/Delayed recall	0.144	0.303	0.01
	Immediate recall/Verbal IQ	0.154	0.109	0.61
	Immediate recall/Performance IQ	0.178	0.754	0.00
	Immediate recall/Reading comprehension	0.158	0.195	0.18
	Immediate recall/Listening comprehension	0.162	0.170	0.25
	Immediate recall/Mania	0.174	0.307	0.01
	Immediate recall/Acquiescence	0.144	0.295	0.02
	Delayed recall/Verbal IQ	0.151	0.110	0.61
	Delayed recall/Performance IQ	0.176	0.791	0.00
	Delayed recall/Reading comprehension	0.156	0.201	0.16
	Delayed recall/Listening comprehension	0.160	0.180	0.22
	Delayed recall/Mania	0.169	0.334	0.00
	Delayed recall/Acquiescence	0.138	0.321	0.01
	Verbal IQ/Performance IQ	0.188	1.817	0.03
	Verbal IQ/Reading comprehension	0.163	0.056	0.80
	Verbal IQ/Listening comprehension	0.165	0.058	0.79
	Verbal IQ/Mania	0.182	0.111	0.60

(table continues)

Table B.2 (continued).

Predictor	First two variables	R^2	Beta	p
Full Scale IQ (cont.)	Verbal IQ/Acquiescence	0.148	0.125	0.56
	Performance IQ/Reading comprehension	0.182	0.648	0.04
	Performance IQ/Listening comprehension	0.183	0.625	0.04
	Performance IQ/Mania	0.206	0.823	0.00
	Performance IQ/Acquiescence	0.174	0.817	0.00
	Reading comprehension/Listening comprehension	0.169	0.116	0.47
	Reading comprehension/Mania	0.190	0.193	0.17
	Reading comprehension/Acquiescence	0.157	0.185	0.22
	Listening comprehension/Mania	0.186	0.204	0.16
	Listening comprehension/Acquiescence	0.159	0.185	0.22
	Mania/Acquiescence	0.168	0.337	0.00
Reading comprehension	Immediate recall/Delayed recall	0.143	0.329	0.01
	Immediate recall/Verbal IQ	0.164	0.178	0.26
	Immediate recall/Performance IQ	0.143	0.300	0.04
	Immediate recall/Full Scale IQ	0.158	0.196	0.22
	Immediate recall/Listening comprehension	0.165	0.189	0.21
	Immediate recall/Mania	0.175	0.341	0.01
	Immediate recall/Acquiescence	0.145	0.312	0.02
	Delayed recall/Verbal IQ	0.163	0.192	0.22
	Delayed recall/Performance IQ	0.140	0.332	0.02
	Delayed recall/Full Scale IQ	0.156	0.220	0.16
	Delayed recall/Listening comprehension	0.164	0.207	0.17
	Delayed recall/Mania	0.173	0.369	0.00
	Delayed recall/Acquiescence	0.143	0.339	0.01
	Verbal IQ/Performance IQ	0.163	0.205	0.16
	Verbal IQ/Full Scale IQ	0.163	0.190	0.20
	Verbal IQ/Listening comprehension	0.172	0.142	0.35
	Verbal IQ/Mania	0.199	0.204	0.15
	Verbal IQ/Acquiescence	0.163	0.199	0.16
	Performance IQ/Full Scale IQ	0.182	0.136	0.37
	Performance IQ/Listening comprehension	0.164	0.205	0.16
	Performance IQ/Mania	0.175	0.347	0.00
	Performance IQ/Acquiescence	0.144	0.326	0.01
	Full Scale IQ/Listening comprehension	0.169	0.156	0.31
	Full Scale IQ/Mania	0.190	0.235	0.10
	Full Scale IQ/Acquiescence	0.157	0.224	0.12
	Listening comprehension/Mania	0.193	0.231	0.10
	Listening comprehension/Acquiescence	0.165	0.203	0.15
	Mania/Acquiescence	0.183	0.343	0.00
Listening comprehension	Immediate recall/Delayed recall	0.151	0.325	0.01
	Immediate recall/Verbal IQ	0.167	0.193	0.21
	Immediate recall/Performance IQ	0.151	0.309	0.02
	Immediate recall/Full Scale IQ	0.162	0.215	0.16
	Immediate recall/Reading comprehension	0.165	0.226	0.11
	Immediate recall/Mania	0.174	0.315	0.01

(table continues)

Table B.2 (continued).

Predictor	First two variables	R^2	Beta	p
Listening comprehension (cont.)	Immediate recall/Acquiescence	0.151	0.317	0.01
	Delayed recall/Verbal IQ	0.165	0.202	0.18
	Delayed recall/Performance IQ	0.147	0.333	0.01
	Delayed recall/Full Scale IQ	0.160	0.231	0.12
	Delayed recall/Reading comprehension	0.164	0.233	0.10
	Delayed recall/Mania	0.171	0.341	0.00
	Delayed recall/Acquiescence	0.147	0.340	0.01
	Verbal IQ/Performance IQ	0.165	0.221	0.14
	Verbal IQ/Full Scale IQ	0.165	0.205	0.18
	Verbal IQ/Reading comprehension	0.172	0.161	0.31
	Verbal IQ/Mania	0.194	0.182	0.21
	Verbal IQ/Acquiescence	0.164	0.214	0.15
	Performance IQ/Full Scale IQ	0.183	0.155	0.31
	Performance IQ/Reading comprehension	0.164	0.233	0.11
	Performance IQ/Mania	0.169	0.337	0.01
	Performance IQ/Acquiescence	0.146	0.342	0.01
	Full Scale IQ/Reading comprehension	0.169	0.181	0.25
	Full Scale IQ/Mania	0.186	0.218	0.13
	Full Scale IQ/Acquiescence	0.159	0.239	0.11
	Reading comprehension/Mania	0.193	0.203	0.14
	Reading comprehension/Acquiescence	0.165	0.220	0.13
	Mania/Acquiescence	0.171	0.340	0.00
Mania	Immediate recall/Delayed recall	0.106	0.170	0.09
	Immediate recall/Verbal IQ	0.186	0.185	0.06
	Immediate recall/Performance IQ	0.129	0.174	0.08
	Immediate recall/Full Scale IQ	0.174	0.176	0.07
	Immediate recall/Reading comprehension	0.175	0.186	0.06
	Immediate recall/Listening comprehension	0.174	0.156	0.11
	Immediate recall/Acquiescence	0.125	0.194	0.06
	Delayed recall/Verbal IQ	0.184	0.188	0.05
	Delayed recall/Performance IQ	0.114	0.180	0.07
	Delayed recall/Full Scale IQ	0.169	0.179	0.07
	Delayed recall/Reading comprehension	0.173	0.189	0.05
	Delayed recall/Listening comprehension	0.171	0.157	0.12
	Delayed recall/Acquiescence	0.110	0.206	0.04
	Verbal IQ/Performance IQ	0.180	0.188	0.05
	Verbal IQ/Full Scale IQ	0.182	0.185	0.06
	Verbal IQ/Reading comprehension	0.199	0.190	0.05
	Verbal IQ/Listening comprehension	0.194	0.173	0.07
	Verbal IQ/Acquiescence	0.183	0.196	0.05
	Performance IQ/Full Scale IQ	0.206	0.178	0.06
	Performance IQ/Reading comprehension	0.175	0.188	0.05
	Performance IQ/Listening comprehension	0.169	0.157	0.12
	Performance IQ/Acquiescence	0.113	0.198	0.05
	Full Scale IQ/Reading comprehension	0.190	0.185	0.06

(table continues)

Table B.2 (continued).

Predictor	First two variables	R^2	Beta	p
Mania (cont.)	Full Scale IQ/Listening comprehension	0.186	0.164	0.09
	Full Scale IQ/Acquiescence	0.168	0.187	0.06
	Reading comprehension/Listening comprehension	0.193	0.172	0.08
	Reading comprehension/Acquiescence	0.183	0.203	0.04
	Listening comprehension/Acquiescence	0.171	0.166	0.09
Acquiescence	Immediate recall/Delayed recall	0.089	-0.113	0.29
	Immediate recall/Verbal IQ	0.152	-0.020	0.85
	Immediate recall/Performance IQ	0.104	-0.079	0.47
	Immediate recall/Full Scale IQ	0.144	-0.023	0.84
	Immediate recall/Reading comprehension	0.145	-0.071	0.50
	Immediate recall/Listening comprehension	0.151	-0.027	0.80
	Immediate recall/Mania	0.125	-0.148	0.16
	Delayed recall/Verbal IQ	0.149	-0.027	0.80
	Delayed recall/Performance IQ	0.091	-0.101	0.35
	Delayed recall/Full Scale IQ	0.138	-0.032	0.77
	Delayed recall/Reading comprehension	0.143	-0.077	0.46
	Delayed recall/Listening comprehension	0.147	-0.035	0.75
	Delayed recall/Mania	0.110	-0.183	0.08
	Verbal IQ/Performance IQ	0.145	-0.029	0.79
	Verbal IQ/Full Scale IQ	0.148	-0.020	0.85
	Verbal IQ/Reading comprehension	0.163	-0.029	0.79
	Verbal IQ/Listening comprehension	0.164	-0.004	0.97
	Verbal IQ/Mania	0.183	-0.061	0.57
	Performance IQ/Full Scale IQ	0.174	-0.006	0.95
	Performance IQ/Reading comprehension	0.144	-0.070	0.51
	Performance IQ/Listening comprehension	0.146	-0.029	0.79
	Performance IQ/Mania	0.113	-0.145	0.18
	Full Scale IQ/Reading comprehension	0.157	-0.034	0.75
	Full Scale IQ/Listening comprehension	0.159	-0.006	0.96
	Full Scale IQ/Mania	0.168	-0.066	0.54
	Reading comprehension/Listening comprehension	0.165	-0.030	0.78
	Reading comprehension/Mania	0.183	-0.108	0.29
	Listening comprehension/Mania	0.171	-0.069	0.52

APPENDIX C

INTERCORRELATIONS OF COGNITIVE, PSYCHOLOGICAL, AND INTERPERSONAL
VARIABLES

Table C.1

Intercorrelations of Cognitive, Psychological, and Interpersonal Variables

	PIQ	FSIQ	RC	LC	Dysphoria	Psychosis	Insomnia	Mania	GAS	Yield 1	Yield 2	Shift	Total Suggestibility	Compliance	Acquiescence
VIQ	0.65**	0.89**	0.74**	0.75**	0.15	0.05	0.11	-0.03	0.22*	-0.21*	-0.10	-0.04	-0.14	-0.25**	-0.44**
PIQ		0.91**	0.58**	0.59**	0.13	0.11	0.04	0.00	0.19*	-0.15	-0.13	-0.07	-0.14	-0.20*	-0.37**
FSIQ			0.74**	0.74**	0.14	0.10	0.07	0.00	0.22*	-0.22*	-0.15	-0.08	-0.17	-0.26**	-0.45**
RC				0.72**	0.30**	0.21*	0.10	-0.03	0.09	-0.17	-0.16	-0.14	-0.17	-0.08	-0.33**
LC					0.21*	0.18	0.13	0.06	0.11	-0.23*	-0.16	-0.05	-0.16	-0.13	-0.42**
Dysphoria						0.33**	0.24*	-0.04	-0.26**	0.04	0.03	0.00	0.03	0.24*	0.01
Psychosis							0.09	0.28**	-0.61**	-0.13	-0.03	0.03	-0.06	0.01	-0.07
Insomnia								0.04	0.06	-0.17	-0.11	-0.14	-0.20*	0.01	-0.06
Mania									-0.26**	0.16	0.23*	0.14	0.20*	-0.11	0.14
GAS										-0.05	-0.10	-0.01	-0.03	-0.09	-0.19
Yield 1											0.70**	0.22*	0.76**	0.17	0.26**
Yield 2												0.59**	0.82**	0.08	0.19
Shift													0.79**	0.10	0.00
Total Suggestibility														0.16	0.16
Compliance															0.23*

Note. VIQ = Verbal IQ; PIQ = Performance IQ; FSIQ = Full Scale IQ; RC = Reading Comprehension; LC = Listening Comprehension.

*Correlation is significant at $p < .05$.

**Correlation is significant at $p < .01$.

APPENDIX D
CORRELATIONS OF GSS SUBSCALES

Table D.1

Correlations of the GSS Subscales

	IR Distortions	IR Fabrications	IR Total Confabulations	DR	DR Distortions	DR Fabrications	DR Total Confabulations	Yield 1	Yield 2	Shift	Total Suggestibility
IR	.26**	-.19*	.06	.85**	.23*	-.22*	.05	-.27**	-.23*	-.16	-.25*
IR Distortions		.03	.74**	.17	.67**	.10	.57**	-.14	.03	.16	.03
IR Fabrications			.69**	-.20	.19	.64**	.50**	.22*	.13	.14	.22*
IR Total Confabulations				.01	.62**	.48**	.74**	.04	.11	.20*	.16
DR					.22*	-.17	.08	-.11	-.17	-.20	-.16
DR Distortions						.13	.83**	-.08	.05	.05	.01
DR Fabrications							.65**	.12	.00	.15	.17
DR Total Confabulations								.02	.05	.12	.10
Yield 1									.70**	.22*	.76**
Yield 2										.59**	.82**
Shift											.79**

Note. IR = Immediate Recall; DR = Delayed Recall.

* Correlation is significant at $p < .05$.

** Correlation is significant at $p < .01$.

APPENDIX E

INTERCORRELATIONS OF MSS-A AND MSS-B COMPONENTS

Table E.1

Intercorrelations of MSS-A Components

Component	Version	Right to silence					Self-incrimination					Right to attorney					Indigent defense					Reassertion of rights				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Right to silence	1		0.31*	0.07	0.08	0.22	0.11	0.25	0.15	0.29*	0.06	0.30*	0.04	0.06	-0.11	0.15	0.32*	0.09	0.15	0.27	0.36*	0.32*	0.03	0.10	0.39**	0.30*
	2			0.20	0.37**	0.23	0.24	0.14	0.07	0.28*	0.26	0.25	0.31*	0.11	0.06	0.42**	0.21	0.35*	0.12	.29*	0.34*	0.14	0.43**	0.25	0.27	0.13
	3				-0.12	0.06	0.09	0.02	0.13	0.05	0.14	0.17	0.12	0.12	0.06	0.15	-0.12	-0.06	-0.10	0.05	-0.01	0.29*	0.29*	0.15	0.04	0.19
	4					0.12	0.15	0.23	0.22	0.37**	0.14	0.10	0.14	0.37**	0.22	0.16	0.15	0.16	-0.01	0.18	0.27	-0.03	0.31*	0.14	0.31*	0.01
	5						0.21	0.17	0.21	0.31*	0.31*	0.16	0.12	0.18	0.19	0.41**	0.34*	0.22	0.07	0.32*	0.20	0.18	0.27	0.03	0.20	0.17
Self-incrimination	1							0.03	0.22	0.33*	0.25	0.23	0.17	0.14	0.35*	0.21	0.21	0.22	0.14	0.28	0.31*	0.38**	0.19	0.17	0.11	0.22
	2								0.22	0.58**	0.30*	0.29*	0.29*	0.25	0.16	0.39**	0.36*	0.43**	0.03	0.26	0.32*	0.08	0.47**	0.06	0.44**	0.41**
	3									0.20	0.42**	0.20	0.10	0.41**	0.31*	0.35*	0.05	0.19	0.05	0.31*	0.36**	0.37**	0.22	0.28*	0.49**	0.29*
	4										0.27	0.31*	0.26	0.34*	0.32*	0.31*	0.48**	0.43**	0.18	0.46**	0.37**	0.23	0.63**	0.11	0.48**	0.28*
	5											0.31*	0.23	0.26	0.11	0.41**	0.19	0.38**	0.00	0.42**	0.54**	0.20	0.42**	0.37**	0.27	0.27
Right to attorney	1												0.31*	0.43**	0.27	0.18	0.20	0.24	0.15	0.22	0.29*	0.37**	0.21	0.21	0.39**	0.26
	2													0.30*	0.17	0.23	0.13	0.32*	0.27	0.15	0.28*	0.15	0.28*	0.17	0.31*	0.21
	3														0.48**	0.16	0.12	0.34*	0.08	0.19	0.14	0.39**	0.32*	0.29*	0.25	0.09
	4															0.10	0.38**	0.16	0.06	0.25	0.20	0.10	0.27	0.12	0.25	0.14
	5																0.29*	0.30*	0.27	0.30*	0.56**	0.24	0.49**	0.12	0.56**	0.47**
Indigent defense	1																	0.14	0.35*	0.45**	0.27	0.14	0.25	-0.04	0.45**	0.40**
	2																		0.28	0.35*	0.27	0.10	0.24	0.18	0.32*	0.11
	3																			0.11	0.21	0.32*	-0.08	0.12	0.30*	0.26
	4																				0.45**	0.25	0.37**	0.40**	0.47**	0.36**
	5																					0.36*	0.32*	0.14	0.48**	0.43**
Reassertion of rights	1																						0.13	0.32*	0.34*	0.31*
	2																							0.26	0.36*	0.30*
	3																								0.19	0.16
	4																									0.53**

*Correlation is significant at $p < .05$.

**Correlation is significant at $p < .01$.

Table E.2

Intercorrelations of MSS-B Components

Component	Version	Right to silence					Self-incrimination					Right to attorney					Indigent defense					Reassertion of rights				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Right to silence	1		0.37**	0.37**	0.52**	0.10	0.34*	0.02	0.28*	0.26	0.40**	0.20	0.17	0.29*	0.23	0.33*	0.25	0.17	0.32*	0.03	0.14	0.29*	0.07	-0.01	-0.13	0.34*
	2			0.34*	0.39**	0.11	0.41**	0.11	0.28*	0.38**	0.28	0.20	0.24	0.24	0.31*	0.51**	0.45**	0.42**	0.34*	0.24	0.53**	0.26	0.28	0.16	-0.24	0.34*
	3				0.29*	-0.08	0.17	-0.11	0.35*	0.13	0.48**	0.28*	0.10	0.30*	0.11	0.27	0.34*	0.16	0.22	-0.10	0.18	0.15	0.13	0.31*	-0.17	0.21
	4					0.35*	0.34*	0.07	0.51**	0.69**	0.45**	0.37**	0.50**	0.38**	0.39**	0.39**	0.24	0.32*	0.45**	0.04	0.35*	0.45**	0.23	0.47**	-0.03	0.42**
	5						0.21	0.21	0.20	0.45**	0.21	0.32*	0.29*	0.26	0.35*	0.40**	-0.01	0.01	0.47**	0.15	0.18	0.27	0.28	0.25	-0.09	0.33*
Self-incrimination	1							0.28*	0.34*	0.39**	0.47**	0.59**	0.22	0.15	0.17	0.39**	0.38**	0.16	0.17	0.16	0.31*	0.70**	0.12	0.04	-0.01	0.16
	2								0.08	0.17	0.30*	0.32*	0.33*	0.32*	0.15	0.21	0.24	0.19	0.24	0.21	-0.03	0.27	0.39**	0.30*	0.15	0.23
	3									0.50**	0.48**	0.30*	0.40**	0.44**	0.37**	0.37**	0.20	0.33*	0.41**	0.16	0.40**	0.40**	0.40**	0.39**	-0.03	0.20
	4										0.37**	0.49**	0.58**	0.36**	0.52**	0.35*	0.31*	0.23	0.45**	0.09	0.34*	0.58**	0.26	0.41**	0.07	0.42**
	5											0.44**	0.32*	0.47**	0.34*	0.47**	0.43**	0.45**	0.44**	0.13	0.37**	0.51**	0.62**	0.44**	0.12	.42**
Right to attorney	1												0.44**	0.33*	0.23	0.28*	0.52**	0.02	0.16	-0.23	0.13	0.59**	0.26	0.20	-0.05	0.20
	2													0.19	0.41**	0.17	0.24	0.20	0.42**	0.18	0.40**	0.42**	0.42**	0.40**	0.08	0.48**
	3														0.36**	0.30*	0.28*	0.38**	0.53**	0.00	0.08	0.21	0.25	0.46**	-0.17	0.10
	4															0.45**	0.38**	0.26	0.42**	0.12	0.31*	0.29*	0.31*	0.29*	-0.01	0.37**
	5																0.26	0.30*	0.40**	0.16	0.42**	0.34*	0.34*	0.35*	0.06	0.39**
Indigent defense	1																	0.23	0.23	-0.06	0.17	0.41**	0.30*	0.17	0.06	0.25
	2																		0.25	0.25	0.48**	0.16	0.32*	0.49**	-0.17	0.17
	3																			0.35*	0.37**	0.34*	0.42**	0.36**	0.02	0.23
	4																				0.44**	0.07	0.39**	0.03	0.05	-0.03
	5																					0.24	0.34*	0.17	-0.06	0.18
Reassertion of rights	1																						0.30*	0.19	0.30*	0.24
	2																							0.40**	0.00	0.34*
	3																								0.14	0.19
	4																									0.02

*Correlation is significant at $p < .05$.

**Correlation is significant at $p < .01$.

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