ORIGINAL ARTICLE

Knowing and Intelligent: A Study of Miranda Warnings in Mentally Disordered Defendants

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Abstract A conservative estimate is that 695,000 mentally disordered offenders are arrested and Mirandized annually in the United States. Past research has focused almost exclusively on cognitive factors affecting the comprehension of Miranda rights. The current study broadens the scope by including diagnostic variables and by extending the investigation to basic elements of Miranda reasoning. A sample of 107 mentally disordered defendants was administered two research measures, the Miranda Statements Scale (MSS) and Miranda Rights Scale (MRS), in addition to standardized tests. Most defendants lacked good comprehension of all but the simplest (Flesch-Kincaid <6th grade) Miranda warnings. Defendants with the poorest understanding (i.e., comprehending about 25% of the warnings) had marked deficits in multiple domains including cognitive abilities (intelligence and comprehension) and general adjustment. Different background and clinical variables predicted defendants' abilities to generate reasons either to exercise or waive their Miranda rights.

Keywords Miranda rights · Self-incrimination · Mentally disordered offenders

The *Miranda* decision (*Miranda v. Arizona*, 1966) enshrined the constitutional protections of criminal defendants in custodial interrogation. The Supreme Court recognized that suspects without legal representation were intrinsically disadvantaged by the interrogation process. It held that procedural safeguards must protect suspects held in incommunicado interrogation, noting "The entire thrust of police interrogation there, as in all the cases today, was to put the defendant in such an emotional state as to impair his capacity for rational judgment"

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(p. 465). Based on the Fifth Amendment privilege against self-incrimination, the Court affirmed defendants' constitutional rights to silence and to legal counsel.

To provide procedural safeguards, the Court held that custodial suspects must be informed about their privilege against self-incrimination. The *Miranda* decision specified the following (p. 479): "He must be informed prior to any questioning that he has the right to remain silent, that anything he says can be used against him in a court of law, that he has the right to the presence of an attorney, and that if he cannot afford an attorney one will be appointed for him prior to any questioning if he so desires. Opportunity to exercise these rights must be afforded him throughout the interrogation." According to Rogers and Shuman (2005), the five basic components of the warning include (a) right to silence, (b) statements used as evidence of guilt, (c) right to counsel, (d) counsel for indigent defendants, and (e) reassertion of rights at anytime. While affirming the basic components of the Miranda warning, the Supreme Court subsequently declined to articulate any specific language that must be used in cautioning a suspect (*California v. Prysock*, 1981). Therefore, each jurisdiction is free to establish its own wording of the Miranda warning.

Rogers, Harrison, Shuman, Sewell, and Hazelwood (in press) conducted a recent survey of Miranda warnings for federal, state, and county jurisdictions across the United States. They found a remarkable range in the length and complexity of Miranda warnings and waivers. For example, Miranda warning-waiver combinations ranged greatly from 49 to 547 words. Likewise, Flesch-Kincaid estimates are extended across the full spectrum of reading comprehension from grade 2.8 to post-college. Beyond length and reading comprehension, Miranda warnings also evidenced a surprising variability in their content. For instance, some warnings appear to limit access to an attorney (i.e., they specify "during questioning") and others state the right to silence in conditional terms (e.g., "*until* counsel is available"). In summary, the Rogers et al. study demonstrated an unexpected heterogeneity in the language and content of Miranda warnings.

The core requirement of Miranda rights is their understandability. The Court is emphatic in requiring that the suspect "be informed in clear and unequivocal terms" (pp. 467–468) and that knowledge is "the threshold requirement for an intelligent decision" (p. 468). Because Miranda warnings may be presented in written format or orally, both reading and listening comprehension must be assessed. In a survey of criminal defendants they had represented, defense counsel estimated that 48.4% did not understand the basics of Miranda at the time they confessed or made important admissions to law enforcement (Rogers, 2005b).

A substantial number of studies (Cooper, Zapf, & Griffin, 2003; Greenfield, Dougherty, Jackson, Podboy, & Zimmermann, 2001; Helms, 2003; Helms & Kemp, 2005; Helms & Sinclair, 2006; Rogers et al., in press) has relied solely on reading formulas, specifically the Flesch-Kincaid, to estimate requisite levels of reading comprehension for Miranda warnings. Given the specialized meaning of Miranda words (e.g., "exercise") and use of legal terminology (e.g., "waive"), an important empirical question is whether Flesch-Kincaid estimates accurately reflect the requisite levels of reading comprehension.

Miranda warnings are not required in a written format (*Thai v. Mapes*, 2005) and oral warnings are common in community arrests when suspects are read their Miranda rights (Weisselberg, 2006). Listening comprehension must be evaluated separately because it has only a moderate relationship with reading comprehension (see, e.g., Ransby & Swanson, 2003; Savage, 2001). Among adults with impaired comprehension, Carlile and Felbinger (1991) found the largest proportion (41.7%) had adequate reading comprehension but marked deficits in listening comprehension. Unfortunately, listening comprehension of Miranda remains virtually unresearched. As a rare exception, Tupling and Salekin (2005) evaluated listening comprehension in a relatively small sample of recently arrested defendants. Using Grisso's (1998) measures, they found that

listening comprehension was not significantly related to an understanding of Miranda rights, although it did assist suspects in recognizing the rights when provided with several alternatives.

Beyond rudimentary comprehension, the Miranda decision requires suspects to possess rational abilities. The Supreme Court in *Colorado v. Spring* (1987, p. 573) held that "the waiver must have been made with a full awareness both of the nature of the right being abandoned and the consequences of the decision to abandon it." As articulated in *Iowa v. Tovar* (2004, p. 1387), the Court affirmed that an intelligent waiver requires "the defendant knows what he is doing and his choice is made with eyes open." The rational ability to ascertain each choice and its consequences involves the capacity for suspects to generate reasons to exercise or waive Miranda rights. Seminal research by Grisso (1998) suggests that adult offenders apply basic reasoning better to their right to counsel than their right to silence.

Recent studies (see reviews by Grisso, 2003; Oberlander, Goldstein, & Goldstein, 2003) tend to focus on cognitive factors (e.g., mental retardation) and de-emphasize the combined role of severe mental disorders and cognitive impairment on Miranda comprehension and decisions. Severe mental disorders should not be overlooked. Weinstein, Kim, Mack, Malvade, and Saraiya (2005) estimated their prevalence in correctional settings to range from 6 to 20%. A national survey of jails by the Bureau of Justice Statistics (Ditton, 1999) estimated that 16% of inmates are diagnosed with Axis I disorders. Focusing on specific disorders, Teplin (1994) randomly sampled 728 male jail detainees and found 3.0% currently diagnosed with schizophrenia and 4.1% with major mood disorders. Estimates are generally higher among female jail detainees, especially for mood disorders (Lewis, 2005). With approximately 13.9 million arrests in 2004 (FBI, 2006), even a conservative estimate of 5.0% would suggest that 695,000 defendants annually were suffering from severe mental disorders at the time of their arrests and subsequent Miranda warnings.

The current study addresses Miranda warnings in the form of four research questions focused on mentally disordered defendants. First, what are the necessary levels of reading and listening comprehension required to understand the basic concepts of the Miranda warnings at different Flesch-Kincaid grade-estimates? Second, what cognitive (i.e., intelligence, reading comprehension, and listening comprehension) and diagnostic (i.e., Axis I symptoms and Global Assessment Functioning) variables are useful in classifying the level (e.g., "poor" <50%; "good" 70–89%; and excellent ≥90%) of understanding? Third, what are the common reasons considered by defendants in deciding to exercise or waive their Miranda rights? Fourth, which cognitive and diagnostic variables predict defendants' capacity to generate reasons for exercising or waiving their Miranda rights?

Method

This study was approved jointly by Texas Department of Mental Health and Mental Retardation (TDMHMR) Central Office Institutional Review Board and the University of North Texas Institutional Review Board. It is part of programmatic research on Miranda understanding that is supported by the Law and Social Sciences Program of the National Science Foundation.

Participants

Defendants were recruited from competency-to-stand-trial units at the Vernon campus of North Texas State Hospital. The sample is composed of 84 male and 23 female defendants with a mean age of 38.95 (*SD* = 11.45) years. Regarding self-identified ethnicity, the sample consists of 40 (36.7%) African Americans, 40(36.7%) European Americans, 22 (20.2%) Hispanic Americans,

and 5(4.6%) other/biracial. Most of the sample had some high school education ($M = 11.42$; $SD = 2.17$), but relatively few (19.8%) had completed at least one year of college. For current criminal charges, the most serious offenses typically involved aggression against others that included murder/manslaughter (11 or 10.3%), aggravated assault (36 or 33.6%), sexual assault (5 or 4.7%), and assault (24 or 22.4%). Smaller numbers were involved in property offenses: robbery (11 or 10.3%), auto theft (2 or 1.9%), and burglary (1 or 0.9%).

Most patients (76 or 71.0%) had psychotic diagnoses on their charts, comprised mainly of Psychotic Disorder, NOS (40 or 37.4%), Schizoaffective Disorders (20 or 18.7%), and Schizophrenia (14 or 13.1%). Bipolar Disorders (10 or 9.3%), other mood disorders (9 or 8.4%), and dementia/cognitive disorders (6 or 5.7%) were less common. Regarding comorbidity, polysubstance abuse/dependence was frequently observed (39 or 36.4%), followed by alcohol abuse/dependence (14 or 13.1%), and specific types of substance abuse (10 or 9.3%).

Standardized measures

Participants were administered a battery of standardized tests and research scales that are listed and described. As part of the programmatic research on Miranda, several additional scales were given that are not part of the current investigation. They include four measures of interpersonal responses to authority: (a) the Gudjonsson Suggestibility Scale (GSS; Gudjonsson, 1997), (b) the Gudjonsson Compliance Scale (GCS; Gudjonsson, 1989), (c) Gudjonsson Confession Questionnaire-Revised (GCQ-R; Gudjonsson & Sigurdsson, 1999), and (d) the Interrogation Acquiescence Scale (IAS; Harrison & Rogers, 2005). In addition, participants were asked to define a list of vocabulary words that have been used in Miranda warnings. The following measures were used in the current investigation:

Wechsler Abbreviated Scale of Intelligence (WASI)

The WASI (Wechsler, 1999) is a well-validated intelligence test composed of four scales (Vocabulary, Similarities, Block Design, and Matrix Reasoning) that measure both verbal and nonverbal intellectual abilities. The WASI has exceptional reliability (i.e., rs > .90) and correlates highly with the comprehensive WAIS-III (Wechsler, 1997) as a measure of both verbal ($r = .88$) and overall ($r = .92$) intelligence.

Wechsler Individual Achievement Test 2nd Edition (WIAT-II)

The WIAT-II (Psychological Corporation, 2002) Reading Comprehension and Listening Comprehension subtests yield grade-equivalent scores. The WIAT-II is highly reliable (i.e., rs for subtests from .80 to .98) and has excellent normative data for adult populations.

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

The SADS-C (Spitzer & Endicott, 1978) is designed to evaluate key dimensions of psychopathology. The SADS-C has impressive interrater reliability (M ICC $= .95$). For use with jail samples, Rogers, Jackson, Salekin and Neumann (2003) found a good model fit (CFI $= .92$; RCFI $= .95$) via confirmatory factor analysis for its four clinical scales: Psychosis, Mania, Dysphoria, and Insomnia. The SADS-C also yields an estimate of overall impairment that corresponds to the Global Assessment Functioning (GAF).

Slosson Oral Reading Test-Revision 3 (SORT-R3)

The SORT-R3 (Slosson & Nicholson, 2002) is a brief (3–5 minutes) reliable screen for reading level that correlates at .90 with reading comprehension on the Woodcock Johnson. The SORT-R3 addressed an ancillary objective, namely whether custodial suspects with limited reading ability could be effectively screened.

Research scales

A critical component of this study was further validation of the Miranda Statements Scale (MSS; Rogers et al., in press) and the initial development of the Miranda Rights Scale (MRS). Their development and validation will be examined in detail.

Miranda Statements Scale (MSS)

Rogers et al. (in press) developed the MSS to provide representative Miranda components at different reading levels. In subsequent paragraphs, we describe its development as a research scale and scoring of categories.

The first step in the MSS development was to assemble the 789 unique statements from 560 Miranda warnings for the five Miranda components (Rogers et al., in press). Flesch-Kincaid reading estimates were used to organize the unique statements into five grade levels: < 6, 6.0 to 7.9, 8 to 9.9, 10 to 11.9, and ≥12. For each grade level, three Miranda experts independently selected the two most representative versions for each Miranda component. As evidence of construct validity, experts reached a high concordance (98.0%) for representative components at the second iteration (see Rogers et al., in press). For the second step, two parallel versions were developed by randomly assigning one of each pair of representative components to either MSS-A or MSS-B. Five Miranda warnings of increasing reading difficulty were thus created for each version. For example, MSS-A1 consists of five warning components and a waiver, all at a Flesch-Kincaid reading level <6 grade. At the other end of the spectrum, MSS-A5 consists of five warning components and a waiver at ≥12 reading level.

The MSS is scored by defendants' ability to state in their own words the content of each warning, which is organized by categories. The general categories for scoring the MSS were derived from the content analysis of the 560 Miranda warnings. Rogers et al. (in press) had established basic categorical distinctions, which use common characteristics to define a component or category (Krippendorf, 2004). These categorical distinctions are referred to as "Miranda components." Rogers et al. found that Miranda components would be reliably identified by independent raters with a *M* kappa of .88 (range from .82 to .96). Because the MSS does not cover all the categorical distinctions found in the 560 Miranda warnings, non-relevant categories were eliminated. This simplification of the scoring categories necessitated a further testing of their reliability (see Results).

Because Supreme Court decisions make no effort to quantify levels of comprehension, we operationalized three categories on the MSS apriori: (a) "poor understanding" for less than 50% comprehension, (b) "good understanding" for 70 to 89% comprehension, and (c) "excellent understanding" for 90% or higher.[1] Our rationale for *poor* comprehension was simply based on

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[1] We considered but rejected a more elaborate approach that would attempt to assess understanding of "core" components separately. The problem is operationalization. For example, some appellate courts have held that Miranda warnings must specify "prior to questioning" (i.e., a core component) while others have not (see Rogers et al., in press).

the defendant's failure to grasp even half of the relevant material. For *good* comprehension, we set the standard at 70%, which allows considerable leeway for errors and omissions. Finally, *excellent* understanding was used to designate nearly complete comprehension ($\geq 90\%$). We fully recognize that appellate courts and legal scholars may wish to consider propounding more stringent standards, or alternatively, relaxing the minimum level of accuracy.

Miranda Rights Scale (MRS)

The MRS (Rogers, 2005a) is a research scale that asks participants to express the possible advantages and disadvantages on four Miranda-related issues considering their own cases: (a) waiving their right to silence, (b) exercising their right to silence, (c) waiving their right to an attorney, and (d) exercising their right to an attorney. Consistent with *Iowa v. Tovar* (2004, p. 1387) requiring that custodial suspects must be aware of their options and their likely consequences, the MRS is a rationally constructed scale that provides defendants with an opportunity to describe their reasons for waiving or exercising their Miranda rights. Examples regarding the right to silence include the following:

- Waive right to silence: "Thinking of your own case, what would be some good reasons to talk with police without an attorney?"
- Exercise right to silence: "What are possible problems with you talking with police without an attorney?"

One objective of the current study was to develop scoring categories for the MRS and to test its reliability.

Procedure

Potential participants were approached individually about their possible involvement in the study. To be as representative as possible, only minimal exclusion criteria were used (a) lack of fluency in English, (b) inability to give written informed consent, and (c) recently violent behavior that would put researchers at risk. Participants were randomly assigned to receive either the MSS-A or MSS-B. To minimize ordering effects, the five versions of Miranda warnings were administered in one of three sequences: either the original format from easiest (<6th grade) to most difficult (≥ 12 grade) or one of two sequences with a randomized order.

After providing written informed consent, participants were tested in two sessions in private offices on the competency restoration unit. In the first session, they were administered the SADS-C, WASI, Reading Comprehension, and Listening Comprehension subtests of the WIAT, three Miranda warnings from the MSS, and the IAQ. To keep the five MSS warnings as separate as possible, other measures were interspersed between each MSS warning. Testing began with the first MSS Miranda warning followed by the SADS-C, an interview-based measure used to facilitate rapport. A similar sequence was maintained for the remainder of the first session: (a) the WASI and SORT followed by the second MSS Miranda warning, and (b) the WIAT subtests and IAQ followed by the third MSS Miranda warning. The first session was approximately $2\frac{1}{2}$ to 3 hr in duration.

On the following day, the second session was administered by an independent researcher who was masked to the results of the first session. The GSS and the fourth MSS Miranda warning were the first two measures administered. The participants were then asked to define a list of Miranda words. The next measures were the GCS, MRS, GCQ-R, and GSS-delayed. The final measure was the fifth MSS Miranda warning. The second session was substantially shorter than the first, averaging $1\frac{1}{2}$ hr.

Participants were given an opportunity to ask questions about the study at the conclusion of the second session. In addition, they were provided with nominal compensation ($5.00 per session) to their trust funds for their participation.

Results

Descriptive data

Table 1 summarizes the quantifiable clinical and background data available for these pretrial defendants. For comparative purposes, we also examined differences on these variables for the lowest ($<35.4\%$) and highest ($>60.7\%$) quartiles in overall comprehension as measured by the MSS. Regarding background variables, no differences were found for prior arrests whereas years of education produced a significant but comparatively small effect size ($d = .65$ with a grade difference of 1.36 years). Age yielded the largest effect size ($d = 1.11$) for background variables with the lowest quartile being approximately 10 years older than the highest quartile. For clinical variables, very large differences (Cohen's ds > 1.50) were found for intelligence, and reading and listening comprehension. Constellations of Axis I symptoms were nonsignificant, although moderately large differences were found for overall impairment (i.e., GAF; $d = .86$).

Table 1 Descriptive data on the entire sample and comparisons of mentally disordered defendants with Miranda comprehension in the lowest and highest quartiles

Scale	Entire sample		Lowest quartile		Highest quartile		F	d
	M	SD	M	SD	M	SD		
Age	38.95	11.45	44.96	8.85	34.32	10.31	15.69***	1.11
Education	11.42	2.17	10.72	2.07	12.08	2.10	5.22*	.65
Prior arrests	11.69	28.35	10.52	20.25	8.08	8.67	.31	.16
WASI FIQ	81.08	14.45	70.42	10.48	92.68	13.42	43.77***	1.85
WASI VIQ	78.61	14.52	68.54	11.71	88.92	14.61	30.33***	1.54
Vocabulary	34.08	10.82	26.23	8.23	41.12	10.38	32.37***	1.59
Similarities	36.76	11.12	30.15	9.58	45.36	9.68	31.80***	1.58
WASI PIQ	86.55	15.14	76.65	9.88	96.88	14.18	35.16***	1.66
Block design	40.34	9.86	34.96	7.62	45.68	9.50	19.82***	1.25
Matrix reasoning	41.77	11.72	34.04	8.72	50.12	10.80	34.35***	1.64
WIAT listening	75.28	18.65	61.28	16.17	87.56	13.57	38.76***	1.76
WIAT reading	67.51	16.62	55.29	10.60	80.21	16.90	37.45***	1.77
Slosson reading	159.98	43.93	122.90	61.83	183.12	19.29	21.32***	1.37
SADS GAF	43.70	12.20	40.08	11.17	49.16	9.86	9.45**	.86
SADS Psychotic	7.51	3.44	7.31	3.46	7.72	3.47	.18	.12
SADS mania	7.35	2.81	7.50	2.86	7.20	2.80	.14	.11
SADS dysphoria	12.90	4.79	12.38	4.89	13.44	4.73	.61	.22
SADS insomnia	2.27	2.02	2.35	2.24	2.20	1.80	.07	.07

Note. The lowest quartile ($n = 26$) is comprised of Miranda comprehension $< 35.4\%$ ($M = 23.70\%$; $SD = 7.60\%$). The highest quartile ($n = 25$) is comprised of Miranda comprehension $> 60.7\%$ ($M = 65.78\%$; $SD = 5.19\%$).

*significant at $p < .05$.

**significant at $p < .01$.

***significant at $p < .001$.

MRS scoring

The MRS is composed of open-ended questions that provide the possibility that some defendants may generate large numbers of responses. In the current study, however, most MRS items (87.6%) averaged 1 or fewer responses per inquiry. To avoid problems with outliers, we scored each defendant's best response. Responses were scored as either "0" or "1." A "0" score was the *absence* of a coherent, nonpsychotic response (i.e., no response, an unintelligible answer, or a psychotic reason). A "1" score was the *presence* of one or more coherent, nonpsychotic reasons. Each of the four categories (i.e., exercise-silence, exercise-counsel, waive-silence, and waive-counsel) has two questions with possible scores ranging from 0 to 2.

Reliability of the MSS and MRS

The interrater reliability for the MSS-A and MSS-B scoring categories was examined by randomly selecting 30 cases. Two independent raters achieved a very high level of agreement of 96.3%. Most Miranda components were accurately paraphrased by at least five participants and were used to compute kappa coefficients. For MSS-A, the mean kappa for individual Miranda components was .89 ($SD = .12$) with a range from .53 to 1.00. For MSS-B, kappas averaged .92 ($SD = .11$) with a range from .51 to 1.00. Overall, the kappas demonstrated a high level of interrater reliability.[2]

The scoring reliability of the MRS was evaluated on 30 randomly selected cases with two independent raters. Given the number of scoring categories (i.e., 9 to 14) for each MRS item, the interrater reliability was very good with a mean kappa of .84 and a range from .68 to .95.

Comprehension levels on the MSS

The apriori goal of establishing poor, good, and excellent understanding of the MSS components was not realized because so few defendants achieved the 90% criterion for excellent understanding. The numbers ranged from 7 (6.7%) for the MSS warning below grade 6 to 1 (0.9%) for those Flesch-Kincaid categories at grade 10 and higher. Therefore, the "good understanding" category was expanded to 70% or higher.

A key finding for this sample of mentally disordered defendants was the small proportion of defendants able to achieve good understanding at *any* Flesch-Kincaid category. The percentages of *good* understanding for each Flesch-Kincaid category are summarized: <6th grade category = 36.4%; 6–7.9 grade category = 11.2%; 8–9.9 grade category = 9.3%; 10–11.9 grade category = 10.3%; ≥ 12 grade category = 6.5%. Logically, the percentages for *poor* understanding manifested the opposite trend: <6th grade category = 31.8%; 6–7.9 grade category = 46.7%; 8–9.9 grade category = 49.5%; 10–11.9 grade category = 47.7%; ≥ 12 grade category = 64.5%. The key finding is that representative Miranda warnings with Flesch-Kincaid estimates at or above the 6th grade level are only well understood by approximately 10% of the mentally disordered defendants, even though they tended to be only in the midrange of impairment (M GAF = 43.70 with a range from 20 to 65) for clinical populations. At the highest category (≥ 12 grade), nearly two-thirds of the defendants exhibited a poor understanding of Miranda.

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[2] The kappas with few observations (< 5) are often attenuated by low base rates. However, the current data suggest good reliability for both the MSS-A ($M = .81$; $SD = .16$) and MSS-B ($M = .86$; $SD = .18$).

Table 2 WIAT grade equivalents for poor (<50%) and good (≥70%) understanding for representative Miranda warnings at different Flesch-Kincaid categories

Categories	Poor understanding		Good understanding		F	d
	M	SD	M	SD		
Reading						
<6	4.20	2.64	7.53	2.91	25.93*	1.19
6–7.9	4.73	2.91	8.42	2.44	16.35*	1.31
8–9.9	4.74	3.10	8.70	2.77	14.06*	1.30
10–11.9	4.30	2.49	9.21	3.34	30.86*	1.85
≥12	5.14	2.96	7.32	2.68	3.03	0.74
Listening						
< 6	5.05	3.58	8.00	3.03	14.52*	0.89
6–7.9	5.57	3.47	9.52	2.54	13.69*	1.19
8–9.9	5.47	3.14	10.10	2.73	19.04*	1.50
10–11.9	5.25	3.29	9.39	2.46	15.41*	1.31
≥12	5.84	3.48	7.71	2.84	1.89	0.54

Note. $^* = p < .001$.

WIAT grade equivalents were generated for poor versus good understanding of representative Miranda warnings (see Table 2). The most salient finding is that defendants with good understanding averaged above the 7th grade level in both reading and listening comprehension. This finding holds irrespective of the Flesch-Kincaid estimate, including the lowest category (< 6th grade). Average WIAT reading grade equivalents increase gradually with the higher Flesch-Kincaid categories. The singular exception is the highest category (≥12 grade) which has only 6 defendants of whom two had low reading scores (i.e., WIAT reading equivalents of 4.4 and 4.6). A potential complication in establishing WIAT grade equivalents is prior exposure to Miranda warnings via the criminal justice system and popular media. In other words, defendants may not be relying solely on their immediate comprehension in paraphrasing Miranda components.

An inspection of frequency distributions revealed that very low WIAT reading grade equivalents (≤2.0) consistently indicated poor Miranda understanding with a Positive Predictive Power (PPP) = 1.00 and specificity = 1.00. As expected, this very low cut score has only modest sensitivity (.27). Even slightly less efficient, SORT-R3 total scores (cut score for failure <110) yielded excellent specificity (.97) and good PPP (.88) with a very modest sensitivity (.22).

Potential determinants of Miranda understanding

The original goal was to examine the classification of Miranda understanding (poor, good, and excellent) at different Flesch-Kincaid categories. As noted, the excellent category was inapplicable to the current sample and was eliminated. Only the lowest Flesch-Kincaid category (<6th grade) had adequate representation of poor ($n = 34$) and good ($n = 39$) understanding. Stepwise discriminant analyses were performed on cognitive and diagnostic variables separately. To maintain an adequate subject-to-variable ratio (20:1), each discriminant model was limited to a maximum of three variables. For the cognitive variables, only WIAT Reading comprehension entered with a Wilks' lambda [1, 71] = .808 ($F = 16.42$, $p < .001$) accounting for 19.2% of the variance. For the diagnostic variables, GAF and SADS Dysphoria subscale entered (Wilks' lambda [2, 73] = .930, $F = 7.16$, $p = .001$) and accounted for a similar percentage of the variance (i.e., 17.0%).

The final discriminant model combined cognitive and diagnostic variables for the classification of poor and good Miranda understanding. The discriminant model was significant (Wilks' lambda [2, 71] = .752; $F = 11.24$, $p < .001$). Only two variables entered the discriminant function with the following standardized canonical coefficients: WIAT reading comprehension (.779) and GAF (.534). Accounting for 24.8% of the variance, the model correctly predicted 72.6% of the cases. It was slightly better at predicting poor understanding (Sensitivity = .76) than good understanding (Specificity = .69). In examining the structure matrix, three variables were moderately correlated with the discriminant function: Verbal IQ (.66), listening comprehension (.66), and Performance IQ (.53).

Reasons related to Miranda decisions

Defendants are faced with a critical decision on whether to exercise or waive their Miranda rights to silence and to legal counsel. Common responses ($\geq 5\%$) to the MRS are categorized in Table 3. Reasons for waiving rights include an opportunity to prove one's innocence, apparent ability to handle the defense, and perceived financial limitations. Most defendants saw advantages to exercising the right to silence for avoiding incrimination (63.6%), and counsel for assisting in the defense (83.2%). Interestingly, comparable numbers believed they were capable (19.6%) or incapable (21.5%) of handling their own defense.

Rational decisions about Miranda require the capacity to generate coherent, nonpsychotic reasons for exercising or waiving rights. Table 4 summarizes the data on mentally disordered defendants' capacity to generate nonpsychotic reasons for waiving and exercising Miranda rights. Approximately one-fourth of the mentally disordered defendants could not generate a single reason for why they should exercise their Miranda right to silence. A smaller number (16.2%) had a similar problem with their right to counsel. Taken together, 6.3% expressed no rational idea why they should exercise either of their constitutional protections.

A potentially contentious issue is whether valid reasons commonly exist for waiving constitutional protections; the *Miranda* decision acknowledged the grave perils of participating in police interrogations. For our purposes, we simply tabulated nonpsychotic reasons for waiving Miranda rights to silence and counsel. While only about half (54.1%) failed to generate any reasons to waive silence, very few (8.1%) had a similar problem with waiving the right to counsel.

We explored how cognitive and diagnostic variables predicted the capacity to generate nonpsychotic reasons to exercise Miranda rights via dominance analysis. Dominance analysis (Budescu, 1993; Azen & Budescu, 2003) is an application of hierarchical multiple regression that exhaustively evaluates the unique and shared contributions of predictor variables in relation to a criterion. Its primary advantage over traditional regression methods is its ability to identify the unique contributions of each variable, taking into account other predictor variables. Potential predictors were chosen by utilizing the variables that were significantly correlated ($p \leq .05$) with each criterion: nonpsychotic reasons for (a) exercising Miranda rights and (b) waiving Miranda rights.

In exercising Miranda rights, Verbal IQ and Listening Comprehension were the strongest predictors, when considered alone (zero-order), accounting for about 10% or more of the variance (see Table 5). When one or two predictors were entered first, Verbal IQ maintained its prominence with an incremental change in variance ($\Delta R^2 > 5.0\%$). Finally, we examined the unique variance for predictors after all other variables were entered first. English as a first language contributed unique variance ($\Delta R^2 = 2.5\%$) in predicting nonpsychotic reasons to exercise Miranda rights. Two diagnostic variables also emerged with unique variance, specifically GAF and Mania subscale.

Table 3 Common reasons (≥ 5%) for waiving and exercising Miranda rights

Decision	Right	Reason	%
Waive	Silence	Innocent (e.g., prove he or she is not guilty)	17.8
		Police will get angry or upset	7.5
		Police will think I am guilty	6.5
		To cooperate	5.6
		To get information, ask questions	5.6
	Counsel	Defend yourself, choose defense, handle it yourself	19.6
		Can't afford an attorney	17.8
		Can't trust the attorney's allegiance	6.5
		Attorney is not serious about the case	5.6
Exercise	Silence	Avoid incrimination	63.6
		The police lie or misrepresent	19.6
		To wait for a lawyer	17.8
		Protect my rights	11.2
		Force or coerce you, entrap you	9.3
		Could add another criminal charge	6.5
		Don't like the police or don't trust them	5.6
		Have something to hide; I don't have to lie to the police	5.6
	Counsel	Assist me with my case	83.2
		Poor job at self-representation; need attorney's expertise	21.5
		Case will be postponed; spend a long time in jail	16.8
		Self-incrimination	11.2
		Get convicted; bad verdict	10.3
		Reduce my sentence (e.g., plea bargain)	9.3
		Not have legal knowledge of an attorney	9.3
		Longer, harsher sentences	8.4
		Provide me with knowledge of the law	7.5
		Help me generally (not about the legal case)	7.5
		Arrange bail/bond	5.6

In waiving Miranda rights, predictors included cognitive abilities and gender, but no diagnostic variables (see Table 6). At the zero-order level, reading and listening comprehension explained close to 10% of the variance ($R^2 = .098$). Gender (i.e., being female) always added significantly to the first and second-order regressions (Proportion $= 1.00$). Gender also added the most unique variance. When all other variables were considered, gender still accounted for 4.1% of the variance.

Table 4 Nonpsychotic reasons to exercise and waive Miranda rights to silence and counsel

Rights	Exercise Miranda			Waive Miranda		
	M	SD	% at 0	M	SD	% at 0
Silence	1.07	.78	27.0	.59	.71	54.1
Counsel	1.32	.74	16.2	1.17	.55	8.1
Total	2.39	1.15	6.3	1.76	.97	6.3

Note. % at 0 = The percentage of cases for which no nonpsychotic reasons were generated.

Table 5 Predictors of nonpsychotic reasons to exercise Miranda rights using dominance analysis

	Predictors	R^2	ΔR^2	Beta	p
Zero order	Predictors	R^2	ΔR^2	Beta	p
	Non-English	.043	.043	− .207	.025
	Verbal IQ	.131	.131	.363	.000
	Performance IQ	.051	.051	.226	.016
	Reading comprehension	.083	.083	.288	.003
	Listening comprehension	.097	.097	.311	.002
	GAF	.033	.033	.182	.043
	Mania subscale	.030	.030	.174	.050
First order	Predictors	R^2	ΔR^2	Beta	Proportion
	Non-English	.108	.038	− .193	1.000
	Verbal IQ	.144	.071	.341	1.000
	Performance IQ	.095	.025	.132	.500
	Reading comprehension	.110	.046	.208	.667
	Listening comprehension	.118	.056	.244	.667
	GAF	.104	.031	.173	.333
	Mania subscale	.106	.033	.180	.667
Second order	Predictors	R^2	ΔR^2	Beta	Proportion
	Non-English	.147	.033	− .183	.800
	Verbal IQ	.158	.058	.314	1.000
	Performance IQ	.129	.010	.068	.200
	Reading comprehension	.136	.023	.147	.333
	Listening comprehension	.139	.029	.187	.400
	GAF	.146	.030	.174	.533
	Mania subscale	.148	.034	.185	.867
Sixth order	Predictors	R^2	ΔR^2	Beta	p
	Non-English	.222	.025	− .171	.050
	Verbal IQ	.222	.016	.235	.093
	Performance IQ	.222	.000	− .028	.419
	Reading comprehension	.222	.001	.053	.369
	Listening comprehension	.222	.001	.059	.358
	GAF	.222	.038	.214	.024
	Mania subscale	.222	.038	.207	.023

Note. p = significance (two-tail); proportion = The proportion of regressions in which the predictor variable was significant ($p \leq .05$).

Discussion

Melton, Petrila, Poythress, and Slobogin (1997) found that public defenders expressed significant concerns about their defendants' pretrial competencies because of their mental capacities. Their estimates ranged from 7.9% to 14.8% (see footnote 93, p. 669). Even if Miranda issues were salient in only a minority of such cases,[3] thousands of mentally disordered defendants are likely impaired in their Miranda understanding and subsequent decisions.

Miranda comprehension

A major thrust of this research was to examine differences in Miranda comprehension levels. The initial analysis (Table 1) provided a very general perspective that used overall Miranda

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[3] Defense attorneys would likely argue that impaired Miranda abilities are only relevant when defendants waive their rights and provide inculpatory information.

Table 6 Predictors of nonpsychotic reasons to waive Miranda rights using dominance analysis

	Predictors	R^2	ΔR^2	Beta	p
Zero order	Predictors	R^2	ΔR^2	Beta	p
	Gender	.045	.045	− .213	.015
	Verbal IQ	.072	.072	.268	.003
	Performance IQ	.037	.037	.192	.026
	Reading comprehension	.098	.098	.313	.001
	Listening comprehension	.098	.098	.313	.001
	Target words	.032	.032	.180	.034
First order	Predictors	R^2	ΔR^2	Beta	Proportion
	Gender	.111	.043	− .208	1.000
	Verbal IQ	.098	.036	.087	.600
	Performance IQ	.083	.014	.085	.400
	Reading comprehension	.114	.057	.269	.800
	Listening comprehension	.111	.054	.265	.800
	Target words	.089	.019	.136	.400
Second order	Predictors	R^2	ΔR^2	Beta	Proportion
	Gender	.138	.043	− .207	1.000
	Verbal IQ	.118	.016	.130	.300
	Performance IQ	.113	.003	.022	.100
	Reading comprehension	.129	.035	.239	.700
	Listening comprehension	.125	.029	.222	.400
	Target words	.119	.012	.112	.000
Fifth order	Predictors	R^2	ΔR^2	Beta	p
	Gender	.164	.041	− .205	.017
	Verbal IQ	.164	.001	.055	.371
	Performance IQ	.164	.001	− .042	.371
	Reading comprehension	.164	.016	.199	.094
	Listening comprehension	.164	.006	.121	.222
	Target words	.164	.005	.073	.228

Note. p = significance (two-tail); proportion = The proportion of regressions in which the predictor variable was significant ($p \leq .05$).

comprehension (i.e., *M* percentage of MSS total scores) to compare the lowest (average comprehension = 23.7%) and highest (average comprehension = 65.8%). The verbal intelligence of those in this lowest category (*M* = 68.54) represents severe deficits that are 20 points lower than those in the highest quartile (*M* = 88.92). These differences are paralleled for both reading (*d* = 1.77) and listening (*d* = 1.76) comprehension. When WIAT standard scores are transformed into grade equivalents, the lowest quartile represents very low grades for reading (*M* = 3.36; *SD* = 2.15) and listening (*M* = 4.04; *SD* = 2.86) comprehension. In summary, those defendants with a very poor grasp of Miranda components had severely impaired cognitive abilities involving both their tested intelligence and achievement levels.

On average, the mentally disordered defendants fell in the midrange of psychological impairment (*M* GAF = 43.70); this category (41 to 50) is used to designate either serious symptoms or any serious impairment. Defendants in the lowest quartile were likely to manifest more impaired GAF categories: (a) 38.5% for 31–40 GAF (i.e., impaired reality testing/communication or major impairment), and (b) 19.2% for 21–30 GAF (i.e., psychotically based behavior, severe problems with communication/judgment, or gross impairment). In contrast, comparatively few defendants in the highest quartile met these GAF categories (28.0% and 0.0% respectively). Interestingly, no differences were observed in symptom constellations including psychotic symptoms. The comparative importance of cognitive abilities over diagnostic variables was unexpected in light of

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the chart diagnoses, which emphasized psychotic and other Axis I disorders and de-emphasized mental retardation (0.0%) and dementia/cognitive disorders (5.7%). One plausible explanation is that functional impairment, brought on by symptoms of Axis I disorders, is negatively affecting cognitive performance.

A detailed analysis of Miranda comprehension focused on defendants' capacities to understand representative warnings at different Flesch-Kincaid levels. A basic but crucial finding was that mentally disordered defendants in the current study had widespread difficulties in understanding all but the simplest warnings. Importantly, these difficulties occurred despite their past experiences with the criminal justice system ($M = 11.69$ arrests) and averaging close to a high school education ($M = 11.42$ years). This finding underscores the importance of research focused on mentally disordered offenders. In the general population, prior arrests appear to contribute to a better understanding of Miranda (Grisso, 1981). Based on the present data, the backgrounds of mentally disordered defendants (i.e., arrests and education) cannot be considered effective screens for which defendants should be evaluated for their Miranda comprehension.

Based on our apriori standards, we were surprised at how few mentally disordered defendants evidenced good comprehension across the Flesch-Kincaid categories. Even at the lowest Flesch-Kincaid category (<6th grade), only 36.4% evidenced a good grasp of the Miranda components. Moreover, these percentages of good comprehension plummeted (i.e., <12.0%) with more difficult Flesch-Kincaid categories. One hypothesis for these poor overall performances was that most mentally disordered defendants lacked the ability to focus on many ideas irrespective of grade level. To explore this hypothesis, we divided Miranda components into simple (2 or fewer concepts) and complex (4 or more concepts). We found that defendants evidenced much higher comprehension for simple ($M = .29, SD = .11$) than complex ($M = .18, SD = .10; F [1,110] = 219.22, p < .001$) Miranda components.

Good comprehension of Miranda components relies on several clinical predictors. Key variables entering the discriminant function were reading comprehension and overall impairment. This finding suggests that determinations of Miranda comprehension should effectively evaluate two domains: cognitive abilities and Axis I impairment. More extensive evaluations of diagnostic data will likely be helpful in pinpointing specific areas of impairment critical to Miranda comprehension.

Miranda reasoning

Bonnie (1992, 1993) formulated a conceptual model for decisional competence that incorporates four components: understanding, reasoning, appreciation, and decision-making. As the first step in ascertaining decisional competence, our current data are narrowly focused on reasoning. Our findings address the defendant's ability to consider reasons for two basic courses of action, specifically the capacity to generate reasons regarding whether to exercise or waive Miranda rights. Given the elapsed time since their arrests, we did not attempt to reconstruct their own thinking at the time of arrest.[4] Instead, we focused on their present abilities to generate reasons, which could be compared directly to their current cognitive and psychological functioning.

The majority of defendants (63.6%) appeared to appreciate the adversarial process at least as it applies to exercising the right to silence to avoid incrimination. Some defendants expressed concerns about the police's probity and tactics. Such concerns may be justified because law enforcement is allowed to engage in deceptive practices (see *Miranda v. United States*, 1966).

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[4] The MRS does ask for the defendant's reasons for talking or not talking to law enforcement; these data were not analyzed because of the extended interval.

Most defendants (83.2%) recognize in general terms that legal expertise may assist them in their cases. Regarding specific reasons, these defendants emphasize the outcome (e.g., conviction and sentencing) and the process (e.g., bail and delays). Relatively few (11.2%) expressed protection against self-incrimination as reason to exercise the right to counsel.

Blatant misestimation of abilities appears to be the most prominent theme in generating reasons for waiving Miranda protections. Salient examples include defendants' beliefs they could handle the case themselves (19.6%) and prove their innocence (17.8%). This latter finding appears to stem from a "naïve belief in the power of their own innocence to set them free" (Kassin, 2005, p. 218). Despite their recent exposure to Miranda warnings, many defendants apparently had difficulty in applying key information (i.e., free legal assistance) to their own case. A major reason for not requesting an attorney was the inaccurate belief that the defendant was responsible for covering the legal fees. If extensively cross-validated, the impact of this belief may be profound, potentially affecting one in six mentally disordered defendants.

Small numbers of defendants may be motivated to waive their Miranda right to silence as an appeasement to police investigators. Such appeasements may reflect either a desire to appear cooperative or an avoidance of negative perceptions. The role of placating reasons in Miranda decision making deserves further investigation, especially in light of research on suggestibility and compliance (Gudjonsson, 2003).

An important and unexpected finding was that different clinical variables appear to affect defendants' capacity to generate nonpsychotic reasons for exercising and waiving Miranda rights. For exercising Miranda rights, Verbal IQ was the strongest zero-order predictor followed by listening comprehension. Even when several other variables are considered, Verbal IQ continues to add incremental usefulness. However, diagnostic variables also play a significant role. When all other variables are considered, GAF and the Mania subscale contribute unique variance.[5] Despite the importance of verbal abilities and comprehension, practitioners should systematically evaluate diagnostic issues with coverage of Axis I and Axis II disorders and their concomitant impairment.

Linguistic and cultural issues must be considered in the comprehensive assessment of Miranda-related abilities (Johnson & Torres, 1992). In the current study, English as a second language consistently predicted a decreased ability to generate reasons for exercising Miranda rights. Even when all clinical variables were considered, non-English contributed unique variance. This finding could reflect decreased linguistic abilities and problems with vocabulary.[6] Alternatively, first and second-generation Mexican Americans may have different views of police, arrests, and interrogations (Crowle, 2006). Although the majority Non-English defendants (54.5%) were Hispanic, we do not have data to test this hypothesis.

The ability to generate nonpsychotic reasons to possibly waive Miranda rights is best predicted by the defendant's reading and listening comprehension. Surprisingly, none of the diagnostic variables correlated with reasons to waive and were excluded from further analyses. Verbal IQ was salient at the zero-order level but appeared far less important when other variables, such as comprehension, were considered. Gender contributed substantially to unique variance (4.1%) with women generating more reasons to waive rights. Even when normative data are available (Grisso, 1998), gender differences have remained uninvestigated. This finding raises interesting

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[5] The de-emphasis of cognitive variables in explaining unique variance is at least partially a methodological artifact. As expected, Verbal and Performance IQ are strongly correlated correlated ($r = .65$, $p < .001$) as are reading and listening comprehension ($r = .72$, $p < 001$).

[6] As a preliminary analysis, however, we found no significant differences ($F [1, 93] = 1.52$, $p = .22$) between English ($M = 34.29$, $SD = 10.80$) and Non-English ($M = 30.09$, $SD = 8.78$) defendants on the WASI Vocabulary scores.

possibilities, such as the possibility of increased compliance (Gudjonsson & Sigurdsson, 2003) affecting female defendants' interest and ability to generate reasons to waive rights and cooperate with police investigations.

Methodological considerations

The current study is likely to overestimate the abilities of mentally disordered defendants to understand and apply Miranda warnings. While using defendants detained in a maximum security facility, no effort was made to approximate the external pressures exerted during the pre-interrogation process (Kassin & Gudjonsson, 2004). Such research would face formidable ethical challenges, given the vulnerabilities of this population. In addition, the current research was conducted in an unhurried manner in a nonadversarial setting. Further decrements in Miranda-related abilities could be expected in those jurisdictions where the delivery of the Miranda warning is "rapid and rote" (Oberlander & Goldstein, 2001, p. 459).

A limitation of the current study is that we did not attempt to retrospectively evaluate the defendant's functioning at the time of the Miranda decision. For this research to be effective, a time-lapse model for evaluating Miranda-related abilities is recommended (Rogers, Jordan, & Harrison, 2004). Using this research paradigm, defendants would be evaluated (a) contemporaneously (i.e., immediately following their Miranda warnings), and (b) retrospectively (i.e., their recounting of their comprehension at the Miranda warnings) after a several month interval.

We were concerned that our use of mentally disordered defendants from a competency restoration unit would limit our sample to severely impaired individuals. However, the defendants in the current study averaged in the midrange for overall impairment (GAF $M = 43.70$) and ranged across the full spectrum in their psychological functioning. The presence in our sample of multiple Axis I disorders with the co-occurrence of substance abuse diagnoses is characteristic of clinical populations. Even in community samples, psychotic disorders are typically accompanied by multiple Axis I diagnoses (see Kessler et al., 2005).

Concluding remarks

Defendants with severe mental disorders have been largely overlooked in Miranda research, despite their large numbers estimated conservatively at 695,000 annually. This neglect is unfortunate, because even the highest quartile of mental disordered offenders have limited comprehension of the Miranda warnings. The study underscores the importance of focusing specifically on mentally disordered offenders and other clinical samples. Past studies of cognitive deficits do not generalize to mentally disordered offenders. Likewise, our current findings should not be extrapolated to youth or mentally retarded populations.

The widespread use of Flesch-Kincaid estimates to ascertain the requisite levels of reading comprehension for Miranda warnings and waivers deserves further investigation. In the current study, the lower categories (<6th grade and 6.0 to 7.9 grades) underestimated the needed abilities at reading comprehension. Conversely, higher levels (8.0 to 9.9 and 10.0 to 11.9 grade levels) appeared to overestimate the requisite reading level. The current data suggest that most mentally disordered defendants are likely to need at least a 7th grade reading level to understand even simple Miranda warnings.

Defense attorneys may assume that criminal defendants have sufficient understanding of the Miranda rights and waivers based on their educational level and extensive contacts with the criminal justice system (Rogers, 2006). The current findings question these assumptions, at least in the case of mentally disordered defendants. On average, defendants with the poorest understanding had completed the 10th grade and had 10 prior arrests.

Comprehension of Miranda rights and the capacity for basic reasoning about Miranda rights appear to be complex multi-determined processes. With both Miranda comprehension and reasoning, verbal abilities and psychological impairment appear to play important roles that differ with the specific process (e.g., reasons to exercise vs. waive rights). Adding further to this complexity, the defendant's background may also contribute to Miranda decisions. In looking forward, a critical issue will be studying how Miranda comprehension and basic reasoning affect actual decisions in Miranda-waiver cases.

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