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ORIGINAL ARTICLE

An Analysis of Miranda Warnings and Waivers: Comprehension and Coverage

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Abstract Miranda warnings enshrine the constitutional rights of custodial suspects against self-incrimination. However, the wording and sentence complexity of Miranda warnings and waivers vary dramatically from jurisdiction to jurisdiction. This study is the first extensive investigation of Miranda warning variations examining 560 Miranda warnings from across the United States. With Flesch-Kincaid reading comprehension as a useful metric, Miranda warnings varied from very simple comprehension (i.e., grade 2.8) to requiring postgraduate education. Miranda warnings are composed of five components (e.g., silence and evidence against you); marked variations were also observed in the comprehensibility of individual components. On average, the Miranda warning component on "continuing rights" requires a reading comprehension level six grades higher than the comparatively simple expression of the right to silence. Similar analyses were conducted on Miranda waivers. The content of these warnings differed on such issues as communicating (a) when access to an attorney would be granted (e.g., 45.9% specified only "during questioning") and (b) explicitly that indigent legal services were free (e.g., 31.8% directly informed suspects). Finally, the study identified representative Miranda components at different levels of reading comprehension as a template for further research.

Keywords Miranda warnings · Confessions · Constitutional protections

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Introduction

The Supreme Court's landmark decision in *Miranda v. Arizona* (1966) established the principles and practices of procedural justice for suspects in custodial interrogation. Most importantly, the Court affirmed the constitutional right of a person in custodial police interrogation to remain silent, enshrined in the Fifth Amendment privilege against self-incrimination. It also expressed strong concerns that defendants might feel compelled to cooperate under the belief that "silence in the face of accusation is itself damning" (p. 467). These rights are presented in Miranda warnings consisting of five basic components: (a) right to silence, (b) use of any statements against the suspect, (c) right to counsel, (d) access to counsel for indigent suspects, and (e) assertion of rights at any time. As an important distinction, many jurisdictions also include formal Miranda waivers. These waivers range from simple questions (e.g., "Do you wish to talk with us?") to complex affirmations. In the latter case, they often include the suspect's level of understanding (e.g., "I fully understand what my rights are"), lack of external coercion (e.g., "that no promises or threats have been made to"), and voluntariness (e.g., "I am executing this waiver of rights freely and voluntarily").

Miranda required that the content of warnings be stated in "clear and unequivocal language" (p. 468). Otherwise, constitutional safeguards are merely "empty formalities" (*Miranda*, p. 466). However, it allowed individual jurisdictions to establish their specific wording so long as they convey the general requirements for warnings. As a result, Miranda warnings are unstandardized and vary dramatically in their language and sentence complexity. As summarized below, reading comprehension levels for Miranda warnings cover the full range from primary school to college graduate.

Subsequent case law has not established a rigid threshold for scrutinizing the language of Miranda warnings given in custodial interrogations (*Michigan v. Tucker*, 417 U.S. 433 [1974]). For example, in *California v. Prysock*, 453 U.S. 355 (1981), the Court rejected a defendant's argument that the warnings were ineffective when they were not given in the exact language of *Miranda*, noting that "no talismanic incantation was required to satisfy its strictures" (p. 359). Indeed, the Court has noted that the warnings themselves are not constitutionally protected; rather, it is the constitutional privilege against self-incrimination *Miranda* is intended to implement that is protected (*Duckworth v. Eagan*, 492 U.S. 195 [1989]). Although the Court has taken a flexible approach to Miranda warnings, it has flatly rejected a Congressional attempt to repeal *Miranda*, clarifying that the decision reflects a constitutional rule that "has become embedded in routine police practice to the point where the warnings have become part of our national culture" (*Dickerson v. United States*, 530 U.S. 428, 443 [2000]).

Much of the case law interpreting *Miranda* has focused on the requirements for a valid waiver of Miranda rights. According to *Colorado v. Spring* (479 U.S. 564 [1987], p. 573), Miranda waivers must be voluntary and based on rational comprehension: "First the relinquishment of the right must have been voluntary in the sense that it was the product of a free and deliberate choice rather than intimidation, coercion, or deception. Second, 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. Only if the 'totality of the circumstances surrounding the interrogation' reveal both an uncoerced choice and the requisite level of comprehension may a court properly conclude that the Miranda rights have been waived."

The ramifications of inculpatory statements, provided without an accurate understanding of both the Miranda warnings and the underlying constitutional rights, cannot be underestimated. Estimates of confessions by suspects during custodial interrogation range from 40 to 50% in the United States (Gudjonsson, 2003). Most confessions are given by suspects without the benefit of legal representation. When legal counsel is available, the percentage of confessions

drops dramatically (i.e., 3.3%; Rogers, 2005). Moreover, these confessions are often pivotal to subsequent convictions. According to Oberlander, Goldstein, and Goldstein (2003, p. 335), the introduction of a defendant's confession at trial is the "single most persuasive factor" in a subsequent guilty verdict. On this point, Wrightsman and Kassin (1993)[1] estimated that approximately 50% of criminal convictions were based primarily on confessions. Given these consequences, it is imperative that suspects understand their Miranda rights.

The number of Miranda versions currently used in American jurisdictions is large but unknown. Considering only state police, at least 31 different versions of Miranda warnings are currently used (Helms, 2003). At the county level, Greenfield, Dougherty, Jackson, Podboy, and Zimmermann (2001) found that 16 different Miranda versions were used in New Jersey alone. Differences between Miranda versions range from minor variations in language to substantive disparities.

Reading comprehension is one useful metric in evaluating the complexity of Miranda warnings. Helms (2003) found that federal warnings varied from 5.4 reading grade for the Drug Enforcement Administration (DEA) to 9.9 for the Bureau of Alcohol, Tobacco, and Firearms (ATF), with a similar range (4.0 to 9.4) for state warnings. County versions in New Jersey yielded a remarkable range from grades 4 to 15 (Greenfield et al., 2001). However, the use of average reading levels can be misleading, because marked variability is observed within the same Miranda warning. On an earlier warning from St. Louis County (Grisso, 1998), the comprehensibility of one Miranda component (i.e., 16.0 grade) far exceeded the other components ($M = 6.5$ grade).

Problems with reading comprehension are exacerbated by the limited reading abilities of most offenders. Most adult offenders have not completed high school according to Bureau of Justice Statistics (Harlow, 2003); moreover, their reading levels are much lower than their years of completed education. For example, Klinge and Dorsey (1993) found that offenders were reading an average of four years below their academic level. Taken together, these data suggest that many adult offenders will have difficulty comprehending Miranda warnings written above the 7th grade level.

The current study is an extensive survey of Miranda warnings used in jurisdictions across the United States. Its first objective is the systematic analysis of reading comprehension. While past research has focused only on the total Miranda warning, it is important to examine variability in reading levels within each component of the warning. In addition to the warning per se, the written waiver of Miranda rights is equally important. Custodial suspects are typically asked to affirm their rational choices to waive their rights and deny any external influences on these decisions. These waivers may be subsequently introduced into court as evidence that suspects provided a knowing and intelligent waiver (*Iowa v. Tovar*, 2004) and were free from external coercion (*Colorado v. Connelly*, 1986). Therefore, the comprehensibility of Miranda waivers will also be examined. A second objective is a content analysis of Miranda warnings, examining the specific content for commonalities and differences in Miranda warnings.

An ancillary objective of the study was selection of representative Miranda components at different levels of reading comprehension. Because past studies were restricted to specific counties, the ability to generalize their findings across jurisdictions was severely constrained. This objective provides future investigators with two parallel scales comprised of representative warnings at different levels of comprehension and complexity.

[1] This estimate is based on criminal cases going to trial and excludes plea bargains (personal communication, Lawrence S. Wrightsman, Jr., May 1, 2006).

Method

The study was conceptualized as an extensive sample of Miranda warnings and waivers from U.S. jurisdictions. As subsequently described, multiple methods were employed to maximize the number of Miranda warnings that were available. Given the generally low response rates, we examined the representativeness of our data by systematically comparing surveyed and non-surveyed counties.

Sources of Miranda warnings

The principal source of Miranda warnings was sheriff's departments from U.S. counties. This information was supplemented by two additional sources: county public defender offices and warnings recently obtained by other investigators. Contact information for county sheriff and public defender offices was accessed through three websites: (a) the National Association of Counties (NACo; available at http://naco.org), (b) U.S. counties (www.us-counties.com) and (c) State and Local Governments (www.state/localgov.net). An additional source of information regarding public defenders was available via the National Legal Aid and Defender Association directory (www.nlada.org).

Procedure

The basic procedure was to contact relevant agencies and request that copies of Miranda warnings be sent that were used in that jurisdiction. All respondents were provided with three options for transmittal: faxes on a dedicated line, e-mails, and U.S. mail with stamped return envelopes.

Originally, telephone contacts were used to access county sheriffs and public defenders.[2] After approximately 200 phone calls, the continued challenge was gaining access to the appropriate personnel, who were rarely available and seldom returned phone calls to our research staff. For those eventually contacted, they frequently required administrative approval prior to transmitting the Miranda warnings. After six weeks, it became evident that this survey method produced a low response rate (i.e., 21 warnings or approximately 10.5%) and was frustrating research staff.

As the second step, we sent e-mails to 1,639 county sheriffs, which represented the entire listing in NACo that had e-mail addresses. We selected this approach because it was a time-efficient method of collecting Miranda versions. As expected, it had a modest yield of 222 separate warnings from 191 sheriff's offices[3] (11.7% response rate). We augmented with mailed surveys to 592 public defenders and two state organizations (i.e., the Arkansas Association of Criminal Defense Lawyers and the Oklahoma Indigent Defense System). We received a total of 210 separate warnings that represented 112 different counties (response rate 18.9%). Finally, we had access to data sets from two recent surveys by Cooper, Zapf, and Griffin (2003; $n = 44$) and Helms (2003; $n = 53$), and from a nationally known consultant on Miranda waivers (personal communication, Bruce I. Frumkin,[4] January 7, 2005; $n = 23$) and from the first author ($n = 4$). Together, these contributed warnings from an additional 124 jurisdictions.

[2] Phase II for the data is planned which will include a systematic survey of district attorneys and prosecutors.

[3] Some sheriff's offices use more than one Miranda warning.

[4] These Miranda warnings are very recent; his earlier consultations are kept in storage.

The use of multiple methods yielded 577 Miranda warnings written in English and intended for general (i.e., non-juvenile) suspects.[5] For each county, we removed any redundant warnings (i.e., those with identical wording). With 17 redundant warnings removed, the refined total was 560 Miranda warnings. The current study focuses entirely on the general English versions. However, we also collected 65 juvenile warnings, 70 general warnings written in Spanish, and 3 juvenile warnings written in Spanish.

The NACo database allowed access to 2000 Census data (see also www.quickfacts.census.gov), including county size (i.e., population and area), financial means (i.e., median income and percentage of poverty), and self-identified ethnicity. We also included several variables of particular relevance to Miranda understanding: acculturation (percentage of first-generation immigrants) and language (percentage of residents with limited or no English[6]).

Analyses of reading comprehension

Miranda warnings were entered into an Excel spreadsheet in two forms: (a) the total caution (i.e., the warning and waiver), and (b) individual components. In the latter case, the versions were organized into six categories (i.e., the five required components of the Miranda warning and the Miranda waiver). Analysis of comprehension levels was conducted Miranda components, Miranda warnings, and total cautions. The reason for the more detailed analysis is the marked variability within a particular Miranda version that commonly ranges 5–6 grade levels (e.g., grade 5 to grade 11 in the same warning). As considered in the Discussion, reading estimates on short passages are less reliable than longer samples.

Several reading analyses were performed to address different aspects of reading comprehension. These analyses include the Flesch-Reading Ease, the Flesch Grade Level, and the SMOG formula.

Flesch reading ease

The Flesch Reading Ease (FRE; **Flesch, 1948**) is a highly reliable measure (England, Thomas, & Patterson, 1953) used to evaluate the comprehension of legal rights among defendants in Great Britain (Gudjonsson, 1991). FRE provides a general estimate regarding what proportion of the adult population will be able to comprehend reading passages. We selected as a basic criterion "fairly easy reading material" (FRE $>$ 70), which should be understood by 80% of the general population.

Flesch-Kincaid

The Flesch-Kincaid (Flesch, 1950) estimates the needed grade level for comprehension via a formula that combines sentence length with the average number of syllables per word. It is considered the most reliable estimate of required reading comprehension with a high level of consistency across writing samples (Paasche-Orlow, Taylor, & Brancati, 2003). As a result, it has been adopted by the Department of Defense (Schinka & Borum, 1993) and has been used in competency research (Passche-Orlow et al., 2003).

[5] General warnings should not be construed as "adult" warnings. None of the general warnings specify for adults only. Based on the current data, it appears that many jurisdictions routinely use general warnings with juveniles.

[6] These percentages reflect the proportion of residents whose primary language is not English.

SMOG

The SMOG (**McLaughlin, 1969**) formula was developed for use in public education to calculate reading levels required for a full comprehension (90 to 100%) of written materials. Its estimates are based on the complexity of words within written material and should not be used with brief passages. It is a reliable measure with a standard error of measurement of approximately 1.5 grades.

Content analysis

The five Miranda components include material that is critical to the understanding of Miranda rights (see Rogers & Shuman, 2005). Content analysis was used to operationalize these key components in developing basic categorical distinctions (Krippendorf, 2004). To simplify the process, duplicative components were removed. Of the original 2,800 (i.e., 5 components $\times$ 560 warnings), only 783 components (28.0%) were unique. These unique components were organized from simple to more complex, based on Flesch-Kincaid reading levels. Three researchers independently reviewed the warnings and established basic categorical distinctions. As an example of categorical distinctions, Miranda warnings might inform defendants regarding *when* they could have access to an attorney; options include: "during questioning" or "prior to and during questioning." To evaluate the interrater reliability of the categorical distinctions, components of 30 of the 560 (5.4%) Miranda warnings were randomly selected and independently scored by two research assistants. Reliable categories were established for individual Miranda components; kappas averaged .88 with a range from .82 to .96.

Representative warnings

Three legal consultants, completely separate from other aspects of the research program, were used in the prototypical analysis to select representative Miranda warnings at different levels of reading comprehension. These consultants were dually trained as both attorneys and psychologists and have specialized knowledge of Miranda. Eric Drogin, J.D., Ph.D., is a consultant to the American Bar Association on mental health issues and has extensive experience in evaluating defendants on Miranda and competency-to-confess issues. Kathy LaFortune, J.D., Ph.D., counsel and chief of forensic psychological services for the Oklahoma Indigent Defense System, has extensive experience with the full spectrum of pretrial issues. Steven Erickson, J.D., Ph.D. recently completed his post-doctoral fellowship in forensic psychology and is pursuing further legal training at Harvard University; Dr. Erickson was chosen for both his legal expertise and his professional experiences with Miranda warnings as a police officer.

The legal consultants were provided with the 783 unique Miranda components; all identifiers (e.g., county or state) were removed to avoid any potential biases. The Miranda components were categorized into five groups based on Flesch-Kincaid reading levels: (a) below Grade 6, (b) Grades 6–7 (i.e., Grades 6.0 through 7.9), (c) Grades 8–9 (i.e., Grades 8.0 through 9.9), (d) Grades 10–11 (i.e., Grades 10.0 through 11.9), and (e) Grades 12 and above. Each legal consultant independently selected two warnings per group based on two criteria: representativeness and content diversity. Specifically, each expert identified two representative components at each of the five reading levels for each of the five Miranda components. We opted for two representative components at each reading level so that two comparable research scales could eventually be developed. The first iteration identified those Miranda warnings selected by at least one expert.

The second iteration was used to choose representative warnings; the basic criterion for selection was the independent nomination by at least two experts.

Results

The initial analyses examined the comparability between surveyed and non-surveyed counties. Given the large number of counties, even minor differences can easily achieve statistical significance (Huck, 2004). Therefore, we chose to examine the magnitude of the differences using Cohen's *d* as a measure of effect sizes. Surveyed counties were substantially more populated ($d = .42$; see Table 1) than their non-surveyed counterparts. Ethnically, surveyed counties tended to have slightly greater representations of minority groups; however, differences were very small (i.e., <1.5%) across groups. Regarding acculturation, surveyed counties had slightly lower percentages than their non-surveyed counterparts of 1st generation immigrants and percentage of homes in which English is not the primary language. Regarding socioeconomic status, the surveyed counties had a substantially higher income (Cohen's $d = .35$), although the percentages in poverty differed by only 1.0%. The surveyed counties were also more likely to complete high school; however, the magnitude of this difference is quite small ($d = .21$).

In summary, the surveyed counties tended to be more urbanized with higher populations, higher incomes, and more minority representation than non-surveyed counties. The question remains whether these differences are reflected in reading comprehension and content of Miranda warnings. After completing the primary analyses for the study, post-hoc comparisons were performed on the Flesch-Kincaid reading levels of Miranda

Table 1 Comparisons of surveyed and non-surveyed counties in the Miranda survey

Variables	Surveyed		Non-surveyed		*F*	*d*
	M	*SD*	*M*	*SD*		
General						
Area (sq. miles)	997.40	1221.30	984.79	2299.24	.01	.02
Population	208354.40	670361.05	73416.38	231414.97	58.14***	.42
Ethnicity (%)						
African Am.	9.84	15.31	8.63	14.35	2.23	.08
Asian Am.	1.18	2.27	.75	1.94	14.72***	.22
European Am.	81.93	15.76	85.17	16.23	12.94***	.20
Native Am.	2.26	4.86	1.72	7.37	1.83	.08
Other	2.80	4.80	2.58	4.90	.68	.05
Biracial	2.00	1.91	1.34	1.23	79.06***	.50
Acculturation						
1st Generation	4.37	5.63	3.26	4.54	17.92***	.24
Percentage of other home language	8.91	9.76	8.36	11.13	.83	.06
SES						
Income	37981.11	10400.38	34917.73	8492.32	39.62***	.35
Percentage of poverty	13.27	5.80	14.27	6.61	7.72**	.16
Percentage of high school	78.96	8.08	77.13	8.86	13.95***	.21

Note. Am.: American; SES: socio-economic status. According to the U.S. Census Bureau dataset, Hispanic Americans may be of any race; they are included in the applicable race categories. For *F* ratios.

*$p < .05$; **$p < .01$; ***$p < .001$.

warnings. Specifically, we examined differences in reading levels between upper and lower quartiles with respect to county population, income, high school education, and minority representation.

Reading comprehension

Miranda warnings and waivers evidenced remarkable differences in reading levels, the number of versions, and the length of these versions (see Table 2). For example, Component 3 (right to an attorney) was composed of 142 variations. Some jurisdictions express this right simply (<6th grade) using few words (<10 words). Others use easily understood versions (<6th grade) with more detailed explanations (>25 words). Similar patterns are observed in more challenging variations. Of those requiring at least the education of a high school senior ($\geq$ 12 grade), the complexity of the warnings varies from 21 to 44 words. As an example, the suspect is informed "That you have the right to consult with, and have present, prior to, and during interrogation, an attorney either retained or appointed."

Table 2 A summary of 560 adult English Miranda warnings: Reading level, versions, and length

Miranda component or waiver	Reading level	Versions	Jurisdictions (%)	Length in words
1. Silence	<6	30	90.5	4–43
	6–7.9	8	5.5	8–25
	8–9.9	4	2.0	15–23
	10–11.9	5	1.4	21–30
	≥12	4	0.7	29–32
2. Evidence against you	<6	28	80.5	8–20
	6–7.9	26	11.6	8–31
	8–9.9	10	5.2	17–26
	10–11.9	4	1.3	24–27
	≥12	4	1.4	29–33
3. Attorney	<6	12	4.1	6–35
	6–7.9	41	43.7	9–30
	8–9.9	31	27.6	14–34
	10–11.9	35	17.2	20–32
	≥12	23	7.3	21–44
4. Free legal services	<6	5	1.8	10–16
	6–7.9	35	8.6	12–46
	8–9.9	53	27.0	13–39
	10–11.9	50	48.9	13–26
	≥12	31	13.7	18–50
5. Continuing rights	<6	17	14.0	8–26
	6–7.9	21	9.0	7–52
	8–9.9	29	52.6	10–49
	10–11.9	20	11.0	19–50
	≥12	32	13.3	23–58
6. Waiver	<6	106	61.9	6–103
	6–7.9	48	14.0	9–138
	8–9.9	35	8.4	12–110
	10–11.9	14	5.4	15–102
	≥12	22	10.3	22–218

Table 3 A descriptive analysis of 560 adult English Miranda warnings

Miranda	Length (words)			Minimum grade for reading comprehension: Flesch-Kincaid[a]			SMOG[b]			Flesch >70
	M	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range	%
1. Silence	9.41	5.20	4–43	3.15	1.94	1–13	3.90	2.12	3–13	93.4
2. Evidence against you	14.98	4.51	8–35	4.95	1.74	4–15	8.96	1.17	3–16	53.9
3. Attorney	21.51	4.30	7–44	8.38	2.13	1–15	7.25	3.64	3–15	50.7
4. Free legal services	21.94	6.26	9–72	10.22	2.04	4–18	11.74	1.92	3–18	11.1
5. Continuing rights	24.95	11.24	7–69	9.42	3.03	3–18	9.86	2.55	3–18	40.0
6. Waiver	42.38	27.39	6–184	6.09	3.60	1–18	9.01	2.81	3–18	77.3
Total warning	92.64	22.90	34–227	7.16	1.96	3–18	9.16	1.47	3–18	77.5
Total warning/waiver	146.16	60.14	49–547	6.20	1.95	3–18	8.95	1.40	3–18	82.3

Note. Flesch >70: the percentage of jurisdictions with at least "fairly easy reading material" that should be understood by 80% of the general population. The upper range of reading estimates was occasionally extreme (e.g., doctoral level). Because these estimates are less accurate, we imposed an upper limit of grade 18.

[a]Represents the grade level required to be able to understand most of the material.

[b]Represents the grade level required to be able to understand even most difficult portions of the material.

Table 2 also includes the percentage of jurisdictions using Miranda components at each reading level. A comparison across Miranda components is very instructive. For the first two components (i.e., silence and evidence against you), most jurisdictions present the material in easily comprehensible material. In stark contrast, the fourth component (i.e., free legal services) requires at least a 10th grade reading level in the large majority (62.6%) of jurisdictions.

Waivers surpass warnings in the number of variations (i.e., 225 versions) and their differences in length. Regarding the latter, many versions exceed 100 words; however, the increased length should not be equated with higher reading levels. On the contrary, nearly half (106 or 47.1%) of the waivers are written at an easily comprehensible level (i.e., < 6th grade).

The total passages for Miranda warnings and waivers also reveal dramatic differences in the length of the material (see Table 3). On average, custodial suspects are expected to comprehend 146 words with a range from 49 to 547; longer passages challenge suspects' recall and comprehension. Miller's (1956) seminal work suggested that information processing could only consider 7 ± 2 concepts; even taking into account the chunking of information, it is unlikely that more than 75 words can be adequately processed.[7] This estimate suggests that most suspects, even under optimal conditions, cannot adequately process the average Miranda warning of 92 words. Interestingly, sentence length is only modestly correlated with reading comprehension on the Flesch-Kincaid ($r = .29, p < .01$). As previously noted with waivers, some longer passages are written in comparatively simple sentences.

A notable observation from Table 3 is that Miranda components differ substantially in their comprehensibility. On average, the first two components require less than a 6th grade Flesch-Kincaid reading level, whereas the last two components generally necessitate reading at the 9th grade level. The magnitude of these differences is very large with Cohen's *d*s ranging from 1.81 to 3.55.

Both Flesch-Kincaid and SMOG readings levels are reported in Table 3. Although less stable because of short passages, the purpose of SMOG is to examine what reading level is likely

[7] Baddeley (1994) reviewed research with verbal chunking ranging from 6 to 12 syllables. With representative Miranda warnings averaging 1.48 syllables per word, the outer limit could be estimated at 9 chunks (i.e., 7 + 2) × 12 syllables ÷ 1.48 syllables per word = 72.97 words.

needed for a complete understanding of the material rather than a general comprehension (i.e., Flesch-Kincaid). A full understanding of Component 2 may require an additional four grades of reading comprehension (8.96 vs. 4.95; $d = 2.70$). Similarly, the Miranda waiver requires almost an additional 3 grades (9.06 vs. 6.22; $d = .90$). Because descriptive statistics sometimes obscure important differences in Miranda comprehension, we also reported the percentage of jurisdictions that have at least "fairly easy reading material" (i.e., Flesch Reading Ease scores >70). Almost all versions (93.4%) of the right to silence are easily understood. For three components (#2, 3, and 5), roughly one-half the Miranda warnings are easily comprehensible. In stark contrast, the provisions of free legal services to indigent defendants (#4) are more challenging to comprehend. Only 11.1% were easily understood.

Content analysis

Most of the 45 categorical distinctions involved minor details[8] that are unlikely to significantly affect suspects' comprehension of their Miranda rights. Therefore, we selected nine major variations in the content coverage of Miranda warnings (see Table 4). One important consideration is whether Miranda rights are simply mentioned or are clearly explained. Most warnings (69.5%) simply disclose that suspects have the "right to silence" without explaining that this protection ensures that they have no obligation to talk with police investigators. The clarity of provided explanations also varies substantially. One-half of the warnings simply state that suspects have the right for an attorney to "be present" but avoid any description of an active role (e.g., advising or consulting). For the reassertion of rights, most warnings provide a clear explanation, although nearly one-fourth use legalistic terms (e.g., "exercise your rights at any time" or "waiver of rights is not final").

The time framework for Miranda rights is sometimes specified. In 45.9% of Miranda warnings, suspects are told only that an attorney can be available *during* questioning. Most warnings assure suspects that they can reassert their rights at anytime; however, a very small proportion links the reassertion of rights to only the questioning period (i.e., during, 5.5%; before and during, 2.5%). Related to time, an unexpected finding was that 16.6% of Miranda described the right to silence in conditional terms; silence could be re-asserted *until* counsel was available.

The Miranda decision articulates several mechanisms to protect the constitutional privilege against self-incrimination including that (a) the assertion of rights will stop further interrogation and (b) the exercising of rights cannot be used as incriminating evidence. The Supreme Court did not specify whether these protections needed to be expressed to custodial suspects. We found that they remain unexplained in almost all Miranda warnings (98.2%).

Representative warnings

Three legal experts reviewed a total of 783 unique Miranda components and selected two most representative versions for each reading level. The goal was to select the 50 most representative components (i.e., 5 Miranda components × 2 representative versions × 5 reading levels). The standard for inclusion was independent agreement by at least two of the three experts. In the first iteration, 123 Miranda components were selected by at least one expert and 660 were eliminated from further consideration. In the second iteration, 49 of the 50 (98.0%) unique components were selected by at least two experts. To resolve one "tie" (i.e., two alternatives were nominated

[8] For an example from the second component (evidence against you), one categorical distinction was the form of communication: speaking, writing, and actions.

Table 4 Content analysis of Miranda warnings: Major variations for each Miranda component

Major variations	Percentage of warnings
Right to silence	
Unexplained	69.5
Not have to answer questions	8.2
Not have to talk or answer questions	22.3
Evidence against you	
Unspecified context	4.8
Evidence in court, trial etc	95.2
Right to an attorney	
Purpose is unexplained	5.7
Passive function only: "be present"	50.2
Active function: "advise" or "consult"	42.1
Timing of attorney access	
During questioning only	45.9
Before and during questioning	49.5
At anytime	3.4
Access to free legal services	
Possible cost to client is not addressed	68.2
Free services are specified	31.8
Reassertion of rights	
Legalistic only (e.g., "withdraw your waiver" or "exercise rights")	22.5
Simple (e.g., "stop at anytime")	77.5
Timing of reassertion	
During questioning only	5.5
Before and during questioning	2.5
At anytime	69.5
Limits on right to silence	
Limited reassertion of silence: can remain silent *until* counsel is available	16.6
Not limited	83.4
Constitutional protections	
Unexplained	98.2
Assertion of rights stops the interrogation	1.8
Assertion of rights cannot be used as evidence of guilt	0.0[a]

[a]It was present with 1 warning (0.002%).

by two experts), the experts rank-ordered the alternatives. The final set of 50 representative Miranda components was composed of 41 independently selected by two experts and 9 by all three experts.

The representative items were used to develop the Miranda Statements Scale (MSS), a research scale composed of five Miranda warnings with representative components at each level of reading difficulty. To further enable research, two parallel versions (MSS-A and MSS-B) were constructed by randomly selecting one of the two representative components from each grade-level component. As expected, the overall reading levels for MSS-A and MSS-B were virtually identical (Flesch-Kincaid estimates of 7.8 and 8.0 respectively) with average sentence lengths differing by less than one word.

Table 5 Comparisons of Flesch-Kincaid reading levels for highest and lowest quartiles based on county populations, income, and percentage of minorities

	Reading comprehension (Flesch-Kincaid) of total Miranda warnings and waivers					
	Highest quartile		Lowest quartile			
Variable	*M*	*SD*	*M*	*SD*	*F*	*d*
Population	6.25	1.62	6.68	1.99	1.89	.24
Percentage of minorities	6.15	1.96	6.11	1.49	.01	.02
Percentage of high school	5.99	1.59	6.31	2.21	1.12	.17
Income	6.07	1.65	6.15	2.23	.08	.04

Note. All *F* ratios are nonsignificant.

Generalizability to non-surveyed counties

As noted at the beginning of Results, an important question is whether these findings are generalizable to counties with low populations, low income, and low percentages of minorities. Because these variables were not highly correlated (i.e., rs $< .50$), we examined each variable separately and compared the highest and lowest quartiles. As summarized in Table 5, no significant differences were found. Income and percentages of minorities were virtually identical (ds $< .05$). A nonsignificant trend towards higher reading requirements for sparsely populated counties was observed, but the magnitude of the difference (i.e., less than 1/2 grade; $d = .24$) is quite small. Comparisons based on percentage of high school completion produced slight, non-significant differences (i.e., less than 1/3 grade; $d = .17$).

Discussion

The results of the current investigation appear widely generalizable to federal, state, and county jurisdictions throughout the United States. On key issues of Miranda understanding (e.g., language and education), the differences were minimal. We have no reason to conclude that Miranda warnings can be systematically differentiated on the basis of demographic characteristics. For the application of these findings to individual counties, we recommend that researchers calculate Flesch-Kincaid reading estimates and exercise caution in applying these results to statistical outliers.

We approach this issue lacking a partisan bias and assume that both the state and the defendant share an interest in clear and unequivocal warnings. The defendant is interested in making an informed tactical choice protected by the safeguards that *Miranda* puts in place. Accordingly, these findings should be of interest to defendants challenging the warnings or waiver in a specific case or seeking systemic reforms. The state has an interest in the public perception that the criminal justice system is fairly administered and that the rules governing criminal investigations are clear and comprehensible to the police who must apply them correctly or risk committing reversible error. Accordingly, we assume that our research should be of interest to the prosecution for what it reveals about individual cases as well as its systemic implications.

Comprehension of Miranda warnings

The Supreme Court was emphatic that Miranda warnings should be presented in "clear and unequivocal language" (*Miranda*, 1966, p. 468) but declined to specify its exact wording

noting that "no talismanic incantation was required" (*California v. Prysock*, 1981, p. 359). Few attorneys or social scientists could ever have envisioned the myriad of Miranda warnings that have proliferated during the last four decades. The warnings vary remarkably in their length, complexity, and comprehensibility. Succinct and simple warnings of fewer than 60 words are easy to understand but may omit important clarifications. Some extended warnings, greater than 300 words, are simply written but may overwhelm defendants with marginally relevant details. Other extended warnings combine length with complex languages; they run a considerable risk of obscuring rather than clarifying Miranda rights.

Contested Miranda waivers must take into account case-specific information in examining the totality of the circumstances. Nomothetically, an important dimension of knowing waivers is whether most defendants could have possibly comprehended their waivers of Miranda rights. At the extreme, four (0.7%) Miranda warnings require several years of college education to comprehend most of the material as estimated by Flesch-Kincaid. We suspect that a general consensus could be reached about the appropriateness of such Miranda warnings, marked by such erudition and complexity. A potentially more contentious issue is the establishment of optimum comprehension levels for Miranda warnings. In this regard, National Adult Literacy Survey (Haigler, Harlow, O'Connor, & Campbell, 1992) provides the most extensive investigation of basic achievement levels for offender populations. In evaluating the literacy skills of 1,150 inmates from 80 federal and state correctional facilities, they found marked deficits in functional literacy. As a general estimate, approximately 70% of inmates functioned at or below the 6th grade. Using less than 6th grade as a benchmark poses no particular difficulty with approximately half (304 or 54.3%) meeting this criterion. We found that lower levels of reading comprehension are easily achievable: 26 (4.6%) can be comprehended with less than a 4th grade reading level and include the basic information.

An alternative approach is an individual-component analysis in addition to the examination of total warnings. From this approach, each component would be required to meet specific benchmarks (e.g., 4th or 6th grade levels). The obvious limitation of this approach is that reading formulas are generally assumed to be less accurate[9] with short passages. If used in conjunction with total warnings, however, its benefit would be as an additional safeguard by removing potentially problematic Miranda components.

A shortcoming of our analyses is that they focus entirely on reading comprehension and do not address listening comprehension. While reading and listening comprehension are moderately correlated (Savage, 2001), listening comprehension places additional demands on the individuals processing the information. Listeners focus mostly on the gist of the material. When complex information is presented orally, the "competent listener engages in a psycholinguistic guess game" (Rubin, Hafer, & Arata, 2000, p. 123). As part of the Miranda research program, we are currently investigating the role of listening comprehension in the understanding of Miranda rights. We encourage further studies to examine the differences in the method of Miranda administration. Community arrests may involve only listening comprehension whereas formal interrogations may involve a combination of listening and reading comprehension.

Content of Miranda warnings

The content of Miranda warnings can be examined on two general parameters, namely clarity and public policy issues. Beginning with clarity, many professionals are likely to assume that

[9] We are uncertain regarding the empirical basis of this statement. With the Flesch-Kincaid, for example, 100-word passages were used in its validation. We are unaware of any systematic comparisons with shorter passages.

everyone has been inundated with countless police shows and has a commonsensical knowledge of their Miranda rights and the meaning of these rights. We can easily imagine open incredulity at any assertion that a particular defendant did not know that the right to silence meant he or she was under no obligation to communicate further with the authorities. Anecdotally, informal surveys suggest that college students do not understand the term "right" as a *protection*. Instead, the large majority of students construed "right" as simply an *option*, but an option for which they will be severely penalized (i.e., their non-cooperation will be used in court as incriminating evidence). Needless to say, we should not be satisfied with such anecdotal accounts, but demand empirical investigations.

Legalistic phrases may lack sufficient clarity to communicate Miranda rights clearly and unequivocally. The most salient examples occur with the reassertion of rights. Phrases, such as "withdraw your waiver" or "exercise your rights," do not explicitly communicate the concrete actions (e.g., request an attorney) or their direct consequences (e.g., stopping of interrogation). Clarity is easily achieved by the avoidance of legal terms and abstract concepts.

Incomplete though accurate information has a real potential to mislead custodial suspects. Suspects unquestionably have the right to having an attorney *physically present* during interrogation. The Court in *Miranda* appears to have envisioned a far more active role than the mere physical presence of defense counsel. The Supreme Court held "the Fifth Amendment privilege comprehends not merely the right to *consult with counsel prior to questioning*, but also to have the counsel present during any questioning" (*Miranda*, p. 470; emphasis added).

Scholars may wish to debate matters of public policy and case law. As researchers, our role is narrowly focused. We attempt to frame three issues that are worthy of further deliberation: focused descriptions of the right to an attorney, a conditional right to silence, and explication of Miranda protections. We pose these issues in the form of questions:

1. *What is the clearest description of a suspect's access to an attorney?* At present, Miranda warnings indicate either general (2.5%; e.g., "at any time during the proceedings") or specific access. Specific access is divided almost evenly into "before and during questioning" (49.5%) or "during questioning" (45.9%). As noted in a recent decision (*Roberts v. State*, 2004), the specification limited to "during questioning" has a range of appellate decisions on its constitutional merits. However, the basic issue for scholarly consideration is whether specific examples are helpful in illustrating access to counsel or are unduly narrow in their construction. Conversely, do generalities about proceedings accurately reflect the immediacy and specificity of attorney access as they apply to the suspect's current circumstances?
2. *In the reassertion of rights, are conditional phrases misunderstood by custodial suspects?* Most Miranda warnings (83.4%) simply describe the reassertion of rights, whereas a small minority uses a conditional clause (e.g., *until* counsel is available) in explaining the right to silence. The unresolved issue is whether this terminology is simply semantics or a cognitive reframing of *when* the suspect must communicate with his or her interrogators.
3. *Should the protections afforded by the Miranda rights be explicated?* The Supreme Court in *Iowa v. Tovar* (2004, p. 1387) held that "a waiver of counsel is intelligent when the defendant knows what he is doing and his choice is made with eyes open." The point of contention is a matter of magnitude: How wide open? In addition to the Fifth Amendment privilege, *Miranda* describes two additional protections afforded via the participation of an attorney (see p. 470). First, they reduce "the likelihood that the police will practice coercion." Second, they "help to guarantee" that the accused's statement is "rightly reported by the prosecution at trial." Scholars may debate whether the eyes-wide-open waiver should include these protections for suspects.

Concluding remarks

Miranda rights are fundamental to the American criminal justice system. The current findings document the extraordinary array (or possible disarray) of Miranda warnings and waivers across a broad representation of American jurisdictions. The study suggests that several straightforward principles, such as clarity and comprehension, might serve to define general parameters of what is likely to be understood by most criminal defendants. It also helps to frame possibly more contentious issues, including the content of Miranda warnings and the use of potentially misleading statements.

We are struck by the paradox that Miranda rights eclipse all other pretrial issues, applying to an estimated 390,000 defendants per year, yet remain virtually unresearched. An important step will be collaborative research that is not bound to a single jurisdiction. Measurement is critical to this progress. The MSS scale, undergoing further validation, is one initial effort in what we hope will be a broad-based research on Miranda comprehension and the requisite rational abilities for Miranda waivers.

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