

Competence to Waive Interrogation Rights and Adjudicative Competence in Adolescent Defendants: Cognitive Development, Attorney Contact, and Psychological Symptoms

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Although there is growing evidence of developmental differences in competency to waive interrogation rights and adjudicative competence, the correlates of adolescents' legal capacities remain unclear. This study examined the relationship of legal capacities to cognitive development, legal learning opportunities, and psychological symptoms. Participants were 152 male and female defendants aged 11–17, who completed Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights, the Fitness Interview Test (Revised Edition), the Woodcock-Johnson III Cognitive Assessment Battery, and the Brief Psychiatric Rating Scale for Children. Legal capacities relevant to interrogation and adjudication increased with age. These developmental differences were partially mediated or explained by cognitive development. Of the specific cognitive abilities examined (general intellectual ability, verbal ability, reasoning, long-term retrieval, attention, and executive functioning), verbal ability was a particularly strong predictor of performance on competency measures. Also, defendants obtained lower scores on competency measures if they showed evidence of attention deficits or hyperactivity, had spent limited time with their attorneys, and/or were from low socioeconomic backgrounds.

KEY WORDS: juvenile justice; adolescence; competence; *Miranda* rights; interrogation; adjudication.

To protect the fairness and dignity of legal proceedings, it has long been held that adults accused of a crime must have the capacity to understand and participate in legal proceedings against them. For adolescents, this requirement was historically considered unnecessary given the rehabilitative ideals of the early juvenile justice system (Bonnie & Grisso, 2000; Grisso, 1997). However, as the juvenile justice system

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has evolved to become more adult-like in nature, courts have required that juvenile defendants must be competent to waive their interrogation rights and stand trial (*In re Gault*, 1967; Grisso, 2003; Redding & Frost, 2001).

In extending these requirements to adolescents, courts have often presumed that youth, like adults, are competent (Redding & Frost, 2001; Scott & Grisso, 1997). This presumption is inconsistent with a growing body of research. In 1980, Grisso found that youth aged 14 and under had poorer understanding and appreciation of their interrogation rights than older adolescents and adults. Since then, several studies have provided additional support for the existence of developmental differences in capacities relevant to interrogation (Abramovitch, Peterson-Badali, & Rohan, 1995; Goldstein, Condie, Kalbeitzer, Osman, & Geier, 2003; Redlich, Silverman, & Steiner, 2003). Research findings on adjudicative competency have yielded similar developmental patterns (Burnett, Noblin, & Prossor, 2004; Grisso et al., 2003; Peterson-Badali & Abramovitch, 1992; Redlich et al., 2003; Savitsky & Karras, 1984).

While there is convincing evidence of developmental differences in legal capacities, possible sources of legal deficits in youth are less clear. The present study examined the relationship of legal capacities to three sets of legally relevant variables, namely cognitive abilities, psychological symptoms, and legal learning opportunities, such as prior legal experience. Courts have assumed that these variables may, at times, contribute to legal deficits. Specifically, throughout the history of adjudicative competency, courts have focused on the role of psychological symptoms and intellectual deficits as potential causes of legal deficits (Grisso, 2003). In judging the validity of decisions to waive interrogation rights, courts have typically considered prior legal experience in addition to psychological symptoms and intelligence (*Fare v. Michael*, 1979; Grisso, 2003). In the following sections, existing research on these potential correlates is reviewed, with a focus on the developmental relevance of these variables to juvenile defendants.

Cognitive Abilities

While studies have found that intelligence is a strong predictor of adolescents' legal capacities relevant to interrogation and adjudication (Goldstein et al., 2003; Grisso, 1980; Grisso et al., 2003; Peterson-Badali & Abramovitch, 1992), there are several significant gaps in our knowledge. First, research has not yet investigated the relationship between specific cognitive abilities and legal capacities. Many legal capacities, such as understanding of interrogation warnings and the ability to communicate with lawyers, appear to have a strong verbal component. Other cognitive and neuropsychological abilities, however, may also be needed (Kirkish & Sreenivasan, 1999; Martell, 1992; Nestor, Daggett, Haycock, & Price, 1999). Defendants may require attention and memory to comprehend what the police have told them about their interrogation rights and charges, and reasoning abilities to make rational legal decisions. Executive functioning, which is defined as "higher-order cognitive processes" such as initiation, planning, and self-regulation (Spren & Strauss, 1998, p. 171), may affect legal capacities such as the ability to manage courtroom behavior.

A second important research gap is that, thus far, research has not yet considered the possible influence of cognitive development on legal capacities. This is significant because there is empirical evidence that cognition and brain structures continue to mature during adolescence. Specifically, studies have found that during adolescence performance improves on measures of verbal fluency (e.g., Levin et al., 1991), memory and learning (e.g., Levin et al., 1991; Ryan, 1990), reasoning (e.g., Klaczynski, 2001), sustained attention (e.g., McKay, Halperin, Schwartz & Sharma, 1994), and executive abilities (e.g., Davies & Rose, 1999). Also, recent neuroimaging research has indicated that frontal brain structures continue to develop during adolescence and are not fully formed until early adulthood (Giedd et al., 1999; Sowell, Thompson, Holmes, Jernigan, & Toga, 1999). In light of this evidence for continued maturation, it is possible that adolescents have not yet acquired the cognitive abilities necessary to understand and participate in legal proceedings.

Psychological Symptoms

Although psychological symptoms are common in juvenile offenders (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Wasserman, McReynolds, Lucas, Fisher, & Santos, 2002), Grisso et al. (2003) failed to find an association between adolescents' adjudicative competency and broad psychological symptoms, including alcohol and drug use, anger and irritability, depression and anxiety, somatic complaints, suicidal ideation, and thought disturbance. While Grisso et al. (2003) examined the relationship between adolescents' adjudicative competency and psychological symptoms, research has not yet examined the relationship between adolescents' competency to waive Miranda rights and psychological symptoms.

Also, there are other psychological symptoms that may be fruitful to explore in examining adolescent competency. For example, research has not examined the relationship between competency and symptoms of attention-deficit/hyperactivity disorder (ADHD). Symptoms of ADHD are prevalent among adolescent offenders (Teplin et al., 2002), and may have plausible links to competency. Deficits in attention may make it difficult to attend to courtroom proceedings and lawyers' instructions, and hyperactivity may impair a defendant's ability to manage courtroom behavior.

Legal Learning Opportunities

It seems plausible that exposure to the legal system may be associated with better legal capacities in that it provides defendants with an opportunity to learn about the legal system. If this is the case, adolescent defendants may be at a disadvantage given that they are likely to have less legal experience than adult defendants. Studies, however, have yielded mixed results on the relationship between legal experience, as measured by arrests and/or convictions, and legal capacities (Grisso, 1997). One possible, but untested, reason why this relationship is not more robust is that perhaps defendants require a certain basal level of intelligence in order to benefit or learn from prior legal experience.

In addition to the potential learning opportunities provided by prior arrests, contact with attorneys might provide adolescent defendants with a more direct opportunity to learn about legal rights and processes. This possibility is noted by Buss (2000), who proposes that attorneys may improve youthful defendants' legal capacities by providing legal instruction and developing a collaborative relationship with them. As of yet, this hypothesis has not been empirically examined.

Purpose of this Study

This study examined the relationship of adolescents' legal capacities to cognitive abilities, legal learning opportunities, and psychological symptoms. Legal models of competence acknowledge that legal deficits in adults may stem from poor cognitive abilities, limited legal experience, and the presence of psychopathology (Grisso, 2003). While this general model may also be relevant to juvenile competency, the underlying relationships may operate differently. While psychopathology is the primary basis for legal impairments in adults, this is less likely to be the case with adolescents. Rather, legal deficits in young adolescents may more typically be attributable to immature cognitive development, particularly in verbal abilities, rather than solely mental retardation or psychopathology. These legal deficits might be mitigated by quality opportunities to learn about the legal system, such as through consultation with attorneys. However, it may be that youth require a certain level of intelligence in order to benefit from learning opportunities. The present study tested these hypotheses.

METHOD

Participants

Participants included 152 pretrial defendants (73 females and 79 males), aged 11–17 years ($M = 14.52$, $SD = 1.68$), held in a detention facility in the state of Washington. The majority of defendants remanded to this facility were 15 and older. To ensure that younger defendants were adequately represented, we stratified our sample by age (11–13, 14–15, and 16–17) by extending an equal number of invitations to participate to adolescents who were randomly selected from each of these age groups. The rate of agreement for participation was 94.4%. Defendants who did not participate ($n = 9$) appeared representative of the larger sample in terms of age, gender, race, and current charge. All participants indicated that English was their first language, or the language they spoke at home or at school.

The average IQ of participants was 82.57 ($SD = 13.91$). While low, this is comparable to other samples (see Grisso et al., 2003). Sixty percent of participants ($n = 92$) in the overall sample were non-Hispanic Caucasians, 26.3% ($n = 40$) were African American, 7.9% ($n = 12$) were Hispanic, 3.9% ($n = 6$) were Native Indian, and 1.3% ($n = 2$) were Asian. The majority of participants (66.7%, $n = 96$) were classified as being at the two lowest socioeconomic levels (levels IV and V) according to Hollingshead's classification system (1975). Socioeconomic level was coded based on the education and occupation level of the parent(s) with whom the youth

resided prior to detention. For 37.5% ($n = 57$) of participants the most serious charge was a violent offense against persons, for 36.8% ($n = 56$) it was a property offense, and for 25.7% ($n = 39$) it was another offense, such as a drug offense, obstruction, or failure to appear at court. Age groups did not significantly differ with respect to age-normed IQ score, gender, race/ethnicity, SES, and current charge.

Procedure

All study procedures were approved by the appropriate review boards of the university and the study facility, and were consistent with current ethical procedures. Information about the study was presented orally to individuals who expressed interest in participating and a form was also provided so that potential participants could read the information presented. Participants were tested, using an adapted version of the MacArthur Competence Assessment Tool for Clinical Research (MacCAT-CR; Appelbaum & Grisso, 2001), to assess if they understood and appreciated study procedures, and were able to make a stable choice about participation. If a participant showed inadequate comprehension of a concept, this concept was re-explained. In addition, the institutional administrator, in his role as legal guardian, provided consent for all participating defendants.

In the first test session, participants generally completed several measures of legal capacities, including Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights (hereinafter, "Grisso's Miranda Scales"; Grisso, 1998) and the Fitness Interview Test, Revised Edition (FIT; Roesch, Zapf, Eaves, & Webster, 1998). The order in which these instruments were presented was counterbalanced. In the following test sessions, the Woodcock-Johnson III Cognitive Assessment Battery (WJ III; Woodcock, McGrew, & Mather, 2001) and the Brief Psychiatric Rating Scale for Children (BPRS-C; Hughes, Rintelmann, Emslie, Lopez, & MacCabe, 2001) were administered. Legal standards of competency do not pertain to the actual legal decisions defendants make (e.g., whether to plead guilty or not guilty) but rather focus on legal capacities (e.g., understanding of legal proceeding). However, we examined legal decisions in a separate study, in which we administered an additional interview to this sample (Viljoen, Klaver, & Roesch, 2005).

All tests were administered by a doctoral student in clinical psychology trained in the use of study instruments. Training on these instruments included familiarization with the test manual, viewing a training videotape (for the FIT), and completion of several practice protocols. Participants' performance on the dependent variables (Grisso's Miranda Scales and the FIT) was scored independent of and blind to all other participant information, such as age, cognitive development, and psychopathology. Upon completion of the study, participants were given 10 points as compensation for their time. These points could be used to pay for food and toiletry items at the facility.

Predictors

Cognitive Abilities

The Woodcock-Johnson III Cognitive Assessment Battery (WJ III; Woodcock et al., 2001) is based on the Cattell-Horn-Carroll theory of cognitive abilities. For

the present study, we examined general intelligence, and several broad cognitive clusters, including comprehension-knowledge or verbal ability (the ability to apply language and acquired knowledge), fluid reasoning (the ability to recognize patterns and make logical inferences), long-term retrieval (the ability to store and retrieve information), attention (the ability to attend to relevant information, and includes selective attention, sustained attention, divided attention, and attentional capacity), and executive processing (the ability to plan strategically, resist interference, and shift one's mental set). Research has demonstrated that the WJ III clusters have strong reliability and that the WJ III is adequately correlated with other measures of intellectual ability (McGrew & Woodcock, 2001). Also, this instrument has received very positive reviews in the *Mental Measurements Yearbook* (Cizek, 2003; Sandoval, 2003).

Psychological Symptoms

To measure psychopathology, the anchored version of the Brief Psychiatric Rating Scale for Children (BPRS-C; Hughes et al., 2001) was used. The BPRS-C is a widely used rating scale that is used to assess mental status in children and adolescents, and comprises 21 symptoms. BPRS-C items can be broken down into several subscales, including depression-anxiety (symptoms such as depressed mood and feelings of inferiority), psychomotor excitation (symptoms such as hyperactivity and distractibility), and behavior problems (symptoms such as hostility and manipulativeness) (Hughes et al., 2001). To rate BPRS-C items, the examiner conducted standardized mental status interviews that were 20–30 min in length, and reviewed institutional records on psychological disturbances and psychiatric medication use. Research has found the interscorer reliability of items and subscales on the BPRS-C to be adequate (Hughes et al., 2001; Lachar et al., 2001). In addition, theoretically consistent correlations have been found between the BPRS-C and other diagnostic instruments, such as the Child-Behavior Checklist (Hughes et al., 2001).

Legal Learning Opportunities

To measure legal experience, defendants were asked if they had ever been arrested before (coded as “0” for no prior arrests, “1” for one arrest, and “2” for two or more prior arrests). Participants were also asked how many times they had met with their lawyer about their case, how much time they had spent with their lawyer, and the type of lawyer they had (i.e., private lawyer or public defender).

Competency Measures

Instruments for Assessing Understanding and Appreciation of Miranda Rights

Understanding and appreciation of Miranda rights was examined with Grisso's Miranda Scales (Grisso, 1998). The first three measures on Grisso's Miranda Scales assess understanding of interrogation warnings. Comprehension of Miranda Rights (CMR) measures examinees' ability to paraphrase the elements of the interrogation warnings, Comprehension of Miranda Rights—Recognition (CMR-R) requires

examinees to recognize sentences that have the same meaning as a statement from the interrogation warnings, and Comprehension of Miranda Vocabulary (CMV) requires examinees to define words contained in the interrogation warnings. The final measure on this instrument, Function of Rights in Interrogation (FRI), assesses the appreciation of interrogation rights. It consists of three separate subscales, including Nature of Interrogation (NI), Right to Counsel (RC), and Right to Silence (RS). On the FRI measure, examinees are shown drawings and read short vignettes about various legal scenarios. They are then asked a series of questions about the vignettes.

As evidence of validity, subtests on Grisso's Miranda Scales have been found to correlate with other subtests on this measure and with IQ estimates (Fulero & Everington, 1995; Grisso, 1998). In addition, the interrater reliability of subscales has been found to be high (Grisso, 1998). For this study, 26 randomly selected protocols were re-coded by a second rater with similar experience. Intraclass correlation coefficients, which were calculated for single raters with a two-way random effects model (Model 2, McGraw & Wong, 1996), were found to be adequate (.91 for CMR, .94 for CMV, .88 for NI, .93 for RC, and .92 for RS).

Fitness Interview Test

Adjudicative competency (competency to stand trial) was measured with the Fitness Interview Test, Revised Edition (FIT; Roesch et al., 1998). The FIT is a semi-structured clinical interview, which comprises 16 items and takes approximately 30–45 min to administer. The first section, Understanding (factual knowledge), examines a defendant's understanding of the arrest process, current charges, role of key participants, legal process, pleas, and court procedures. The second section, Appreciation (understanding of the possible consequences of proceedings or rational understanding), examines a defendant's appreciation of the possible penalties, available legal defenses, and likely outcome. The third section, Communication with Counsel (participation), examines a defendant's ability to communicate facts, relate to lawyers, plan legal strategy, engage in the defense, challenge witnesses, testify relevantly, and manage courtroom behavior.

While the FIT was originally developed for adult defendants,⁴ recent research indicates that the FIT has adequate interrater reliability and construct validity in adolescent samples (Viljoen, Vincent, & Roesch, in press). In addition, in adult samples, the FIT shows high agreement with clinician judgments of competency to stand trial (Zapf, Roesch, & Viljoen, 2001), and is correlated with a second measure of adjudicative competency, the MacArthur Competency Assessment Tool-Criminal Adjudication (Zapf & Roesch, 2001). For this study, 26 randomly selected protocols were re-coded by second rater in order to check interrater reliability. Intraclass correlation coefficients were .91 for Understanding, .82, for Appreciation, and .83 for Communication (Model 2, McGraw & Wong, 1996).⁵

⁴To date, no adjudicative competency assessment instruments have been developed specifically for juvenile defendants.

⁵In this study, we used summary scores of sections rather than structured clinical judgments of sections, as summary scores had better interrater reliability (Viljoen, Vincent, & Roesch, in press).

Data Analysis

Overview of Analyses

First, developmental differences in cognitive abilities were examined using multiple analysis of variance (MANOVA). Given that we did not find any age differences in demographic variables, including IQ, gender, race/ethnicity, SES, and current charge, we did not need to control for these demographic variables when we examined age differences in legal capacities. Games-Howell post hoc comparisons, which do not assume equality of variances across groups, were calculated. Following this, the relationship between performance on competency measures and predictors were investigated using linear regression. Specific mediator and moderator hypotheses were tested using regression analyses.

In our analyses, performance on measures of legal capacities was examined as a continuous variable rather than a dichotomous variable (i.e., competent versus incompetent). This is consistent with other research (e.g., Grisso & Appelbaum, 1995; Grisso et al., 2003). While courts are concerned primarily about dichotomous judgments of competence, developing dichotomous cut-off scores is difficult and fairly arbitrary because legal standards and the measures used in this study do not specify cut-off points (see Grisso & Appelbaum, 1995). Valid cut-off scores are particularly difficult to establish for youth because legal standards for juvenile competency are vague and varied (Redding & Frost, 2001). Therefore, the purpose of our analyses was to inform legal policies by examining correlates of legal capacities, rather than the correlates of hypothesized court judgments of competence.

Moderator Analyses

A variable is said to moderate a relationship between a predictor and outcome if it “affects the direction and/or strength of a relation” between the predictor and outcome (Baron & Kenny, 1986, p. 1174). In conducting moderator analyses, predictor and moderator variables, which were continuous, were first standardized to enhance the interpretability of results (Cohen, Cohen, West, & Aiken, 2003). Then, the standardized (z -scores) predictors and moderators were multiplied to form product terms that represented the interaction between the predictor and moderator. To test for moderation, the predictor and moderator were entered into regression equations, followed by product term (see Baron & Kenny, 1986; Holmbeck, 1997).

Mediator Analyses

A variable is said to mediate a relationship between a predictor and outcome if it helps to explain or account for the relationship between the predictor and the outcome. Mediator analyses were conducted using regression analysis in the four-step procedure outlined by Baron, Kenny, and Judd (Baron & Kenny, 1986; Judd & Kenny, 1981). Using this procedure, the associations between the predictor and outcome (Step 1), predictor and mediator (Step 2), and mediator and outcome (Step 3)

Table 1. Mean (SD) Age Differences in Cognitive Abilities

	Age groups			F (2, 150)
	11-13 (n = 50)	14-15 (n = 51)	16-17 (n = 51)	
GIA	498.93 (10.23) ^a	501.65 (9.94) ^a	507.10 (11.71) ^b	7.39**
Cognitive clusters				
Verbal	500.42 (11.33) ^a	504.22 (10.86) ^{a,b}	509.25 (12.13) ^b	7.21**
Retrieval	496.89 (5.20)	497.61 (5.89)	498.90 (5.05)	1.73
Fluid reasoning	494.62 (14.20)	497.10 (14.77)	499.14 (14.92)	1.14
Attention	503.00 (10.30) ^a	507.73 (9.02) ^a	513.31 (11.74) ^b	11.81***
Executive ability	500.82 (8.82) ^a	504.08 (9.16) ^{a,b}	508.06 (9.16) ^b	7.70**

Note. Mean *W* scores are listed, followed by standard deviation in parentheses. Superscripts refer to age groups comparisons using Games-Howell post hoc comparisons. Age groups with different superscripts differed significantly from each at *p* < .05. *W* scores are centered at a value of 500, which is the average performance of a 10-year old (McGrew & Woodcock, 2001). **p* < .05. ***p* < .01. ****p* < .001.

must be examined for significance. If these associations are significant, then the association between the predictor and outcome is examined after the mediator is added to the model (Step 4). If there is mediation, the association between the predictor and outcome will be substantially reduced when the mediator is added. The significance of the mediated effect was tested using the *z*-score test developed by Kenny, Kashy, and Bolger (1998).⁶

RESULTS

Cognitive Development

Are There Developmental Differences in Cognitive Abilities? Cognitive abilities on the WJ III across age groups (11–13, 14–15, and 16–17) were examined with a MANOVA. *W* scores, which provide a measure of cognitive development (McGrew & Woodcock, 2001), were used as the unit of measurement for cognitive abilities. *W* scores are centered at a value of 500, which is the average performance of a 10-year old. Age group positively predicted performance on general intellectual ability (GIA), verbal abilities, attention, and executive ability (see Table 1). On GIA and attention, defendants aged 11–13 and those aged 14–15 scored significantly lower than defendants aged 16–17. On verbal and executive abilities, defendants aged 11–13 scored significantly lower than defendants aged 16–17.

Does Development in General Intellectual Ability Explain the Relationship Between Age and Legal Capacities? We hypothesized that GIA (*W* scores) may mediate or partially explain the relationship between age and legal capacities. The conditions for partial mediation were met for all legal capacities except NI. Specifically, age, which was treated as a continuous variable, significantly predicted performance

⁶The product of *a* and *b* is divided by the square root of $b^2sa^2 + a^2sb^2 + sa^2sb^2$, in which *a* and *b* are unstandardized regression coefficients and *sa* and *sb* are their standard errors.

Table 2. Mean (SD) Age Differences in Legal Abilities

	F (2,149)	Adolescent age groups			Adult norms
		11–13 (<i>n</i> = 50)	14–15 (<i>n</i> = 51)	16–17 (<i>n</i> = 51)	
Grisso's Miranda Scales					
CMR	13.67***	3.94 (2.13) ^a	5.00 (2.25) ^b	6.24 (1.53) ^c	6.78 (1.44)
CMR-R	4.58*	8.10 (2.06) ^a	8.77 (1.81) ^{a,b}	9.54 (1.86) ^b	10.39 (2.05)
CMV	17.20***	5.94 (2.49) ^a	6.78 (2.94) ^a	9.04 (1.92) ^b	9.35 (2.38)
NI	1.91	9.24 (1.12)	8.83 (1.51)	9.35 (1.28)	9.60 (1.04)
RC	4.93**	6.76 (2.18) ^a	7.20 (2.38) ^{a,b}	8.18 (1.76) ^b	9.25 (1.31)
RS	11.94***	3.67 (2.88) ^a	4.84 (2.61) ^a	6.22 (2.51) ^b	7.48 (2.07)
FIT					
Understanding	15.82***	5.30 (3.14) ^a	7.16 (2.74) ^b	8.53 (2.58) ^c	11.03 (1.44)
Appreciation	13.75***	2.92 (1.87) ^a	4.16 (1.80) ^b	4.67 (1.26) ^b	5.16 (1.37)
Communication	15.08***	7.62 (3.18) ^a	9.94 (2.72) ^b	11.02 (2.96) ^b	12.88 (1.59)

Note. Differences between the adolescent age groups were tested with Games-Howell post hoc tests; age groups with different superscripts differed significantly at $p < .05$. The total possible score on CMR is 8, CMR-R and CMV is 12, and NI, RC, and RS is 10. The total possible score on Understanding is 12, Appreciation is 6, and Communication is 14. Adult norms on Grisso's Miranda Scales are taken from Grisso (1998), and adult norms for the FIT are taken from Viljoen and Zapf (2002).

on all legal measures, except for NI (see Table 2);⁷ there were significant associations between age and GIA, and between GIA and legal capacities; and the association between age and legal capacities significantly decreased when GIA, in addition to age, was entered in regression equations (see Table 3).

Does Age Moderate the Relationship Between GIA and Legal Capacities? We hypothesized that GIA may be a particularly strong predictor of legal capacities in young adolescents. To test this, GIA (*W* scores) and age (treated as a continuous variable), followed by the interaction between GIA and age, were entered as predictors in regression equations, with legal measures as the outcomes. The association between GIA and legal capacities *decreased* with age on CMR, $B = -.34$, $t(145) = -2.22$, $p = .028$, Appreciation, $B = -.29$, $t(145) = -2.09$, $p = .039$, and Communication, $B = -.47$, $t(145) = -2.04$, $p = .043$. The association between GIA and NI, in contrast, increased with age, $B = .29$, $t(145) = 2.62$, $p = .010$.

Which Specific Cognitive Abilities Are Most Predictive of Legal Capacities? *W* scores on verbal ability, long-term retrieval, fluid reasoning, attention, and executive functioning were entered simultaneously in regression equations. Verbal abilities significantly predicted performance on all of the legal measures except for NI (see Table 4). Attention predicted scores on CMR, NI, Appreciation, and Communication.

⁷In Table 2, mean scores and standard deviations are reported for defendants in our sample aged 11–13, 14–15, and 16–17. These age groups were chosen for their developmental relevance (Grisso et al., 2003) and to facilitate comparison to other research. Effect sizes, which were calculated with Cohen's *d* formula (Cohen, 1988), were large by Cohen's standards for comparisons between defendants aged 11–13 and those aged 16–17.

Table 3. Mediation Influence of GIA (*W* scores) on the Association Between Age and Legal Capacities

	Equation 1: Relationship between age and legal capacities		Equation 2: Relationship between age and legal capacities once GIA is added		Mediated effect test (<i>z</i>)
	β	<i>t</i> -test	β	<i>t</i> -test	
Grisso's Miranda Scales					
CMR	.44	5.98***	.34	4.76***	3.44***
CMR-R	.33	4.27***	.21	2.67**	3.19**
CMV	.50	7.09***	.37	5.68***	3.55***
NI	.04	0.48	-.02	-0.21	2.34
RC	.29	3.65***	.22	2.71**	2.74**
RS	.37	4.93***	.32	4.06***	2.72**
FIT					
Understanding	.44	5.99***	.33	4.46***	3.25**
Appreciation	.40	5.31***	.30	3.99***	3.20**
Communication	.46	6.36***	.37	5.25***	3.36***

Note. Equation 1 is the direct relationship between age and the legal measures. Equation 2 is the relationship between age and the legal measures once GIA *W* scores (cognitive development) are included in the equations. The significance of the mediated effect was tested using the *z*-score test developed by Kenny, Kashy, and Bolger (1998).

p* < .05. *p* < .01. ****p* < .001.

Legal Learning Opportunities

Do Prior Arrests Explain the Relationship Between Age and Legal Capacities? Arrests significantly predicted performance on RC, $\beta = .19, t(150) = 2.42, p = .017$, and Understanding, $\beta = .21, t(150) = 2.56, p = .011$, but none of the other legal capacities. While there was a significant association between age (treated as a continuous variable) and arrests, $\beta = .21, t(150) = 2.59, p = .010$, in that younger defendants had fewer prior arrests, arrests did not significantly mediate the relationship between age and any of the legal capacities examined.

Table 4. Regression Equations for Cognitive Clusters

	Adjusted <i>R</i> ²	Standardized coefficients for predictors (β)				
		Verbal	Retrieval	Fluid	Attention	Executive
Grisso's Miranda Scales						
CMR	.33***	.39***	.12	-.10	.24*	.02
CMR-R	.24***	.39***	-.09	.12	.09	.04
CMV	.43***	.51**	.05	.00	.20	-.02
NI	.08**	-.19	.11	.20	.30*	-.11
RC	.13***	.27*	.01	.10	.13	-.05
RS	.14***	.38**	-.07	-.03	.12	.02
FIT						
Understanding	.32***	.50***	-.07	.05	.15	-.03
Appreciation	.24***	.21*	.10	-.02	.38**	-.12
Communication	.32***	.32**	-.01	-.11	.37**	.05

Note. **p* < .05. ***p* < .01. ****p* < .001.

Does GIA Moderate the Relationship Between Arrests and Legal Capacities?

We predicted that arrests would be a stronger predictor of legal capacities among defendants with higher intelligence scores. To test this, arrests and GIA, followed by the interaction between arrests and GIA (*W* scores), were entered as predictors in regression equations, with performance on legal measures as the outcome. The interaction between arrests and GIA did not reach significance for any of the legal measures, indicating that GIA did not affect (moderate) the relationship between arrests and legal capacities.

Does Contact with Attorneys Predict Legal Capacities? Reported time spent with attorneys ranged from 0 min to 6 hr, with a mean of 25.18 min ($SD = 44.12$). When time spent with attorney was entered as a predictor in regression equations, it was found to predict higher scores on CMR, $\beta = .26$, $t(150) = 3.33$, $p = .001$, CMV, $\beta = .18$, $t(150) = 2.18$, $p = .031$, RC, $\beta = .18$, $t(150) = 2.28$, $p = .024$, RS, $\beta = .17$, $t(150) = 2.12$, $p = .036$, Understanding, $\beta = .31$, $t(150) = 3.98$, $p < .001$, Appreciation, $\beta = .24$, $t(150) = 3.02$, $p = .003$, and Communication, $\beta = .21$, $t(150) = 2.62$, $p = .010$. Given that it is possible that defendants may have had difficulty accurately estimating the time they spent with attorneys, we conducted an additional series of regression equations in which contact with attorneys was entered as a dichotomous variable. Defendants were coded as "1" if they had met with their attorney about their case, and "0" if they had not. When coded this way, we obtained comparable results.

Does GIA or Age Moderate the Relationship Between Contact with Attorneys and Legal Capacities? To test whether defendants with poor general intellectual ability might be less likely to benefit from spending time with attorneys, moderator analyses were conducted in which time and GIA (*W* scores), followed by the interaction between time and GIA, were entered as predictors in regression equations, with performance on legal measures as the outcome. Time spent with attorneys was a stronger predictor of legal capacities in defendants with lower IQ scores for CMR, $B = -.34$, $t(145) = -2.47$, $p = .015$, and Appreciation, $B = -.28$, $t(145) = -2.32$, $p = .022$. Separate moderator analyses, which were conducted for age (treated as a continuous variable), indicated that age did not significantly moderate the relationship between time spent with attorneys and legal capacities.

Psychological Symptoms

Do Psychological Symptoms Predict Legal Capacities? The mean scores on the BPRS-C were 8.19 for depression-anxiety ($SD = 6.30$, Range = 0–25), 3.04 for psychomotor excitation ($SD = 3.48$, Range = 0–15), and 9.72 for behavior problems ($SD = 3.23$, Range = 1–16). Although the BPRS-C also has a scale that measures thought disturbance, we did not analyze the association between this scale and legal capacities, given the low prevalence of symptoms on this scale ($M = 0.95$, $Mdn = 0$, Mode = 0). Thirty-four defendants (22.4%) were classified by the detention facility as having a psychological or emotional disturbance. Depression-anxiety, psychomotor excitation (ADHD symptoms), behavior problems, and institutional classification (as having a psychological/emotional disturbance) were entered simultaneously

Table 5. Regression Equations for Psychopathology Variables

	Adjusted R^2	Standardized coefficients for predictors (β)			
		Depression/ Anxiety	Excitation	Behavior problems	Institution classification
Grisso's Miranda Scales					
CMR	.03	.00	-.24*	.02	-.04
CMR-R	.02	.11	-.17*	.11	-.05
CMV	.01	.00	-.16	.11	-.02
NI	.02	-.16	-.04	.14	-.07
RC	.01	-.09	-.10	.07	-.09
RS	.01	-.04	-.07	.07	-.05
FIT					
Understanding	.00	-.02	-.15	.10	-.01
Appreciation	.04*	.05	-.25**	.01	-.03
Communication	.17***	-.08	-.40***	-.11	.01

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

in regression equations. Psychomotor excitation inversely predicted performance on CMR, CMR-R, Appreciation, and Communication (see Table 5).

Other Analyses

Are There Differences in Legal Capacities by Gender, Ethnicity, and SES? Although not a primary focus of this study, we examined the relationship of gender (male v. female), ethnicity (non-Hispanic Caucasian defendants v. other groups), and SES (classes I–III v. classes IV–V) to legal capacities using regression analyses. Given that these variables are associated with differences in intellectual ability, GIA (W scores) was added to regression equations to control for intellectual differences. Female gender was associated with lower scores on RS, $\beta = -.22$, $t(145) = -2.72$, $p = .007$, and Understanding, $\beta = -.23$, $t(145) = -3.09$, $p = .002$. Low SES was associated with lower scores on CMR, $\beta = -.24$, $t(145) = -3.41$, $p = .001$, CMR-R, $\beta = -.18$, $t(145) = -2.35$, $p = .020$, CMV, $\beta = -.18$, $t(145) = -2.57$, $p = .011$, NI, $\beta = -.20$, $t(145) = -2.40$, $p = .018$, RS, $\beta = -.24$, $t(145) = -3.09$, $p = .002$, and Understanding, $\beta = -.24$, $t(145) = -3.29$, $p = .001$. Ethnicity was not a significant predictor.

Which Predictors Emerge as the Strongest? To examine the independent influence of each variable once shared variance was accounted for, the variables found to be important predictors in previous analyses were entered simultaneously in regression models. These variables included age (treated as a continuous variable), GIA, verbal ability, attention, psychomotor excitation, time spent with attorneys, and SES (classes I–III v. classes IV–V). Age, verbal ability, time spent with attorneys, and SES continued to be important predictors of legal capacities, and psychomotor excitation was inversely associated with Communication (see Table 6). GIA generally was not a significant predictor, although it was inversely associated with Understanding and appeared to act as a suppressor variable in extracting error variance (Conger, 1974).

Table 6. Combined Regression Models

	Adjusted R^2	Standardized coefficients for predictors (β)						
		Age	GIA	Verbal	Attention	Excitation	Time	SES
Grisso's Miranda Scales								
CMR	.48***	.21**	-.14	.39***	.28*	-.07	.23***	-.20**
CMR-R	.27***	.13	-.20	.47***	.21	.02	.10	-.12
CMV	.55***	.30***	-.11	.52***	.19	.05	.14*	-.12*
NI	.11**	-.08	.11	-.19	.34*	.02	.05	-.24**
RC	.20***	.14	-.25	.37**	.26	.03	.16*	-.15
RS	.27***	.25**	-.33	.44***	.24	.08	.13	-.17*
FIT								
Understanding	.50***	.21**	-.38*	.61***	.29*	.03	.27***	-.17*
Appreciation	.33***	.19*	-.26	.31*	.40**	-.08	.21**	-.02
Communication	.49***	.22**	-.27	.37***	.37**	-.25***	.19**	-.05

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

DISCUSSION

Although research has provided convincing evidence that adolescents aged 15 and under are more likely to have impaired legal capacities than older adolescents and adults (Grisso, 1980; Grisso et al., 2003), relatively little is known about risk factors for legal deficits in youth. The present study examined the relationship of cognitive development, legal learning opportunities, and psychological symptoms to the legal capacities relevant to interrogation and adjudication.

Cognitive Development

Consistent with a growing body of research (e.g., Grisso et al., 2003), our results indicate that performance on measures of legal capacities continues to improve during adolescence. As predicted, cognitive development partially explained these age-based differences in legal capacities. Youth's general intellectual ability, verbal ability, attention, and executive functioning increased with age. This indicates that young adolescents may not yet have acquired the cognitive abilities necessary to adequately understand and participate in legal proceedings. Importantly, however, overall cognitive development did not entirely account for age-based differences in legal capacities.

While cognitive ability was an important predictor of legal capacities across age groups, it was a particularly strong predictor of certain abilities (i.e., understanding of interrogation warnings, appreciation of adjudicative proceedings, and the ability to communicate with counsel) among preadolescent and young adolescent defendants. Although older adolescents with low intelligence might have adequate legal capacities, it is less likely that younger adolescents with low intelligence would have adequate legal capacities. With age, legal abilities may become more ingrained and consolidated, and therefore less related to cognitive ability.

Intelligence includes not only a global component, but also multiple, specific abilities (Sternberg & Kaufman, 1998). Of the cognitive abilities examined, verbal ability emerged as a particularly strong predictor of performance on competency

measures, and attention predicted performance on a number of legal measures. Many aspects of competency, such as communication with counsel and understanding of interrogation warnings, intuitively appear to have a substantial verbal component and as such, the relationship between verbal abilities and legal capacities is not surprising. Also, attentional abilities may be necessary to adequately attend to and comprehend interrogation rights and adjudicative proceedings. However, another potential explanation for these results is that individuals must have high levels of verbal abilities and attention, which may be unrelated to the actual construct of competency, to perform well on measures of competency. We believe this explanation is unlikely to account for our findings. Various competency measures were used in this study, each of which appeared to place different demands on cognitive abilities (e.g., recall and recognition tests), yet we obtained consistent results across measures.

Legal Learning Opportunities

Although it seems plausible that legal experience could be associated with better legal capacities, research has generally found that previous arrests is not a particularly strong predictor of performance on competency measures (Grisso, 1997). In this study, previous arrests were associated with higher scores on only two of the legal measures examined, appreciation of the right to counsel and understanding of adjudicative proceedings. While young defendants were less likely to have previous arrests, this did not significantly account for developmental differences on these legal measures. Although we hypothesized that perhaps only defendants with adequate cognitive abilities may be able to benefit from legal experience, our results did not support this hypothesis.

An intriguing finding of the present study was that contact with attorneys, when coded as a continuous variable (time spent with attorney) or as a dichotomous variable (defendant had or had not met with an attorney), was a strong predictor of the legal capacities relevant to police interrogation and adjudication. This was true even for defendants with poor cognitive abilities and young adolescents. In fact, time spent with attorneys was a stronger predictor of understanding of interrogation rights and appreciation of adjudicative proceedings in defendants with poor cognitive abilities than in those with higher cognitive abilities, perhaps because these defendants have greater room for improvement, and are less able to learn without assistance.

There are several possible explanations for the strong relationship between time spent with attorneys and legal capacities. First, it may be that contact with attorneys increases clients' legal capacities. This interpretation is consistent with sociocultural models of cognitive development, which emphasize the importance of others in guiding cognitive growth and learning (Flavell, Miller, & Miller, 1993; Vygotsky, 1978), and recent legal models, which have theorized that lawyers can enhance clients' legal capacities by providing instruction and support (Bonnie, 1992; Buss, 2000). Second, it could be that attorneys spend less time with low functioning clients. This explanation did not appear to account for our results however. In follow up analyses, general intellectual ability, age, and SES were not significantly

correlated with time spent with attorneys.⁸ Also, attorney contact continued to predict legal capacities after these factors were controlled.

Psychological Symptoms

Consistent with Grisso et al. (2003), we failed to find an association between adjudicative competency and depression, anxiety, and behavior problems. Competency to waive interrogation rights also was not significantly associated with these factors. This finding is perhaps unsurprising given that these types of symptoms have been found to be uncorrelated with legal capacities in adults (Hoge et al., 1997; Viljoen et al., 2002; Viljoen, Zapf, & Roesch, 2003). Symptoms of ADHD, however, were associated with deficits on the measure of capacity to communicate with counsel. This measure includes items that could very plausibly be affected by ADHD symptoms, such as capacity to manage courtroom behavior, testify relevantly, and relate to lawyers.

Demographic Characteristics

Defendants from low socioeconomic backgrounds scored significantly lower on a number of legal measures, particularly understanding and appreciation of interrogation rights, even after cognitive abilities, psychological symptoms, and attorney contact were controlled. This may be because children from lower socioeconomic backgrounds are less likely to grow up believing they are entitled to rights, and may have fewer opportunities to try out social roles in which they are able to assert their rights (Melton, 1980).

While Grisso et al. (2003) did not find gender differences in legal capacities, females in this study scored significantly lower on understanding of adjudicative proceedings and appreciation of the right to silence. This could, in part, stem from female adolescents' lower reported rates of contact with their attorneys.⁹ Attorneys may have spent less time meeting with female youth because they tended to have less serious charges than the male youth (see Poythress, Bonnie, Hoge, Monahan, & Oberlander, 1994).

Limitations and Research Recommendations

While the measures of legal capacities chosen for this study are supported by empirical research and derived from case law, they have several important limitations. The FIT, like all other existing measures of adjudicative competency, does not actually observe defendants during adjudicative proceedings (Grisso, 2003), and Grisso's Miranda Scales are unlikely to capture the stressful nature of real-life interrogation settings, during which time comprehension of rights may be more

⁸Pearson *r* correlations were .025 ($p = .768$) between GIA and time with attorneys, and .095 ($p = .246$) between age and time with attorneys. The Spearman-Brown correlation was $-.062$ ($p = .450$) between SES and time with attorneys.

⁹Female defendants reported that they had spent significantly less time with their attorneys than male defendants, $t(143) = 2.52, p = .013$.

limited (Grisso, 2003). In addition, the wording for interrogation warnings varies across jurisdictions, which could limit our ability to generalize our results to other wordings.

A second set of study limitations relates to our sample. Given that our goal was to investigate predictors of legal capacities among youth involved in justice proceedings, we did not include a sample of adult defendants or a community sample of youth. Research has found that adolescents aged 16 and older perform similarly to adults on legal measures, and that developmental patterns are consistent across detained and community samples (Grisso, 1980; Grisso et al., 2003). Nevertheless, predictors of legal capacities in these samples may differ, and therefore, our findings should not be generalized to adult and community samples without further investigation. Given that the legal criteria for the pretrial detention of youth are vague, it is unclear how our sample might differ from non-detained adolescent offenders. Youth may be detained pretrial for various reasons, such as risk of reoffending, risk of absconding, and/or improper supervision or care at their home (Davis, Scott, Wadlington, & Whitebread, 2004).

Implications

Courts have increasingly applied requirements for competency to juvenile defendants (Redding & Frost, 2001). The applied standards for adjudicative competency often state or infer that legal deficits must be due to a mental disorder (Bonnie & Grisso, 2000). With the exception of ADHD symptoms, we did not find a relationship between competency and the psychological symptoms common in young defendants. Psychotic symptoms, which are associated with legal deficits in adults (Viljoen et al., 2002), are less likely to occur in adolescents (American Psychological Association, 2000).

Instead of stemming from psychopathology, adolescents' legal deficits may often be related to cognitive immaturity. These developmental differences in cognitive abilities merit greater attention by both forensic clinicians and courts. Current legal standards often do not explicitly recognize that developmental immaturity may lead to legal deficits (Bonnie & Grisso, 2000). Also, in evaluating a defendant's legal capacities, clinicians often consider only global IQ scores. However, IQ scores judge intelligence by comparing an individual to his or her same-age peers, therefore concealing important developmental differences in cognitive abilities. For instance, a 13-year old with an IQ score of 100 has lower absolute cognitive abilities than a 17-year old with an IQ score of 100. Therefore, even if a 13-year is *not* developmentally delayed, his/her cognitive abilities' are, on average, significantly poorer than that of older adolescents and adults.

While our results suggest that adolescents' legal capacities could potentially be facilitated by attorney contact, these results require replication. In practice, adolescents may have little opportunity to consult with attorneys because many waive the right to counsel, and because juvenile lawyers are typically required to carry large caseloads, which leaves them with little time to spend with individual clients (American Bar Association Juvenile Justice Center, 1995; Feld, 2000). If future research similarly shows an association between legal capacities and

attorney contact, it may suggest the need for policy changes that enable greater attorney-client contact.

ACKNOWLEDGMENTS

This study was supported by a Social Sciences and Humanities Research Council of Canada Doctoral Fellowship, an American Psychology-Law Society Grant-in-Aid, and an American Academy of Forensic Psychology Dissertation Grant awarded to the first author. The authors would like to thank Daniel Erker, the staff at Remann Hall Juvenile Detention Facility, and our study participants. We would also like to thank Dr. Thomas Grisso for his helpful comments on an earlier draft of this manuscript.

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