

## Chapter 26

# Validation of a Driving Questionnaire for Patients with ADHD: The Jerome Driving Questionnaire (JDQ)

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### Development of the Instrument

During the pharmacological treatment of patients with ADHD, their spouses would often comment on an area of functional improvement that was not being asked about. They noted a significant improvement in the patients' driving style; specifically, the level of frustration with other drivers, speed, distractibility and general safety. These observations led to the development of a clinical instrument designed to capture the *functional* improvement in driving described by the patients and their relatives (Jerome and Segal, 2001). Recent literature documents the increased risk of driving problems, particularly in young drivers with untreated ADHD (Jerome, Segal and Habinski, 2006). In Canada, physicians now have a responsibility for identifying, and potentially reporting, problem drivers with ADHD (CMA Driver's Guide, 2007). No readily available metric exists. The Jerome Driving Questionnaire (JDQ) may have clinical utility in this area of medico-legal liability. Data in non-clinical populations will also be provided, indicating its potential use as a more general assessment instrument, with predictive validity in novice drivers (Jerome and Segal, 2008). This chapter describes the process of determining the psychometric properties of the JDQ.

### Demographics and Diagnostic Profile

#### *Overview*

The current study describes the validation of the JDQ. The JDQ is intended to measure driving risks for patients with ADHD and other psychiatric populations/disorders. The JDQ was administered to patients of an outpatient psychiatric clinic, including individuals with ADHD, as well as those with other psychiatric disorders. The clinic specialises in treating individuals with ADHD and is located in London, Ontario, Canada. The data was extracted from patient files in aggregate form, without any identifying information. Only those cases that met inclusion

criteria were part of the validation study. Analysis of the data involved testing for reliability and validity of the survey instrument.

### *Selection criteria for participants*

The criteria for participant inclusion in this study were adult patients, over the age of 18, who had a psychiatric diagnosis, a valid driver's licence, and had completed the JDQ at least once. All patients of the psychiatric clinic who met the inclusion criteria were included in the study.

The majority of the participants had a variety of psychiatric co-morbidities. It is recognised that it would be optimal to employ a more homogeneous sample in the analysis to enhance generalisability. Although originally designed for individuals with ADHD, the JDQ was found to be clinically useful in other psychiatric disorders seen in the clinic. In this clinical practice the JDQ is administered to all patients, independent of categorical diagnosis. Our hypothesis was that it would be useful in measuring the executive functions needed for driving, independent of categorical diagnosis. Therefore, two sets of analyses were initially undertaken, which included the entire psychiatric sample, as well as the ADHD sample, in order to identify whether the JDQ factor structure was similar for both groups.

### *Data collection and database*

Collection of data for the present study was approved by the Office of Research Ethics of the University of Western Ontario. Data employed for the purpose of this study had been collected from participants for clinical purposes, commencing in 1995. The data was collected as part of a routine clinical intake process. All patients were asked to complete various surveys and assessment measures, including the JDQ, on their second visit to the clinic. The instruments were filled out in the clinic waiting room. In 2005, the data was extracted from patient files by in-house staff, via chart reviews, and the anonymous aggregate data was provided to researchers for analysis.

### *Demographic and clinical data*

Information on demographics, diagnoses, as well as results from various psychological assessment tools, was extracted from patient files and entered into the database. Demographic variables included date of birth, gender, marital status, number of children and highest level of education. The primary diagnosis was recorded. Diagnoses were made on the basis of routine clinical interviews, which included assessment of DSM IV-TR symptoms, with additional scales measuring severity of mood and anxiety symptoms (American Psychiatric Association, 1994). The diagnosis of ADHD was also based on developmental history, including school reports (when available), and current and past functioning, with a variety of scales to determine DSM IV-TR criteria, retrospectively and currently. Data from clinical assessment tools was also extracted from patient files and used

for the purpose of this study. They include the Hospital Anxiety and Depression Scale (HADS), Beck Depression Inventory (BDI), and the ADHD Behaviour Rating Scale for Adults. These instruments were used for establishing the JDQ validity (see Table 26.1a, b and c, below).

**Table 26.1a Demographics and diagnostic profile**

Variable	Frequency	Per cent
<b>Age</b>		
18–25	39	8
26–35	121	24.8
36–45	132	27.1
46–55	158	32.4
55+	37	7.6
<b>Gender</b>		
Male	282	57.9
Female	205	42.1
<b>Primary diagnosis</b>		
Dementia (290)	1	0.2
Schizophrenia (295)	3	0.6
Depression (296)	47	9.6
Paranoid State (297)	1	0.2
Brief Psychotic Disorder (298)	1	0.2
Autism (299)	1	0.2
Anxiety Disorder (300)	129	26.4
Personality Disorder (301)	4	0.8
Alcoholism (303)	4	0.8
Substance Dependence (304)	1	0.2
Sleep disorder (307)	1	0.2
Separation Anxiety Disorder (309)	5	1
Behavioural Disorder (313)	13	2.7
Attention Deficit Hyperactivity Disorder (ADHD) (314)	191	39.1
Mental Retardation (319)	3	0.6
Marital Problems (898)	25	5.1
Parent/Child Relationship Difficulties (899)	45	9.2
Educational problem (902)	8	1.6
Missing values	5	1.0

**Table 26.1b Sample demographics and diagnoses (N = 487)**

Variable	Frequency	Per cent
<b>Further Education</b>		
High school or less	138	28.3
College	189	38.8
University	90	18.5
Postgraduate studies	29	6
Missing values	41	8.4
<b>Marital status</b>		
Married	189	38.8
Single	159	32.6
Divorced	43	8.8
Widowed	4	0.8
Common Law	31	6.4
Separated	34	7
Missing values	27	5.5
<b>Number of children</b>		
0	206	42.3
1	74	15.2
2	99	20.3
3	52	10.7
4	25	5.1
5+	7	1.4
Missing values	24	4.9

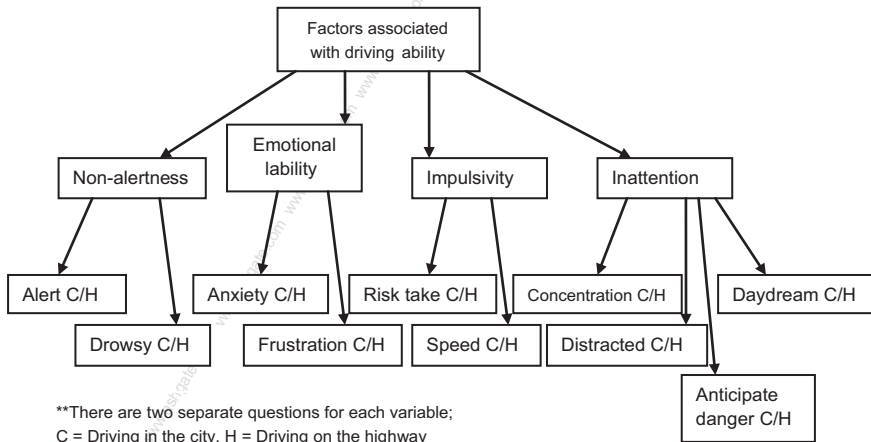
**Table 26.1c Mean scores and standard deviations for driving history variables (N = 487)**

	N	Mean	Std. deviation
Years driving	381	17.397	10.172
Collisions	395	1.802	2.108
Demerit points	327	1.792	4.335
Suspension	387	.292	1.030

## Jerome Driving Questionnaire

The original version of the JDQ was developed by Dr L. Jerome, a psychiatrist, and Dr A.U. Segal, a psychologist, who specialise in treating patients with ADHD. The measure was designed to identify and track the executive functions and functional impairments of driving. Part A of the JDQ included questions pertaining to demographics, medication and lifetime driving history. The driving history variables included length of time driving, number of accidents, demerit points and suspensions. These variables were self-reported. Part B of the JDQ included safety ratings and questions about driving behaviour and driving style. The instrument used a visual analogue scale, intended to gather information from participants on self-perceived driving behaviour, and on cognitive functioning while driving in the city and on highways. A copy of the current JDQ is included as an appendix at the end of this chapter.

Respondents were rated on a 10 cm visual analogue scale for each measure of driving style, both in the city and on the highway. These variables include: anticipating dangers, alertness, anxiety, concentration, daydreaming, distraction, drowsiness, frustration, risk-taking and speeding. Each variable was hypothesised to correspond with one of four separate domains: attention, impulsivity, alertness and emotional lability. A diagram of these relationships can be found below (Figure 26.1).



**Figure 26.1** Hypothesised relationships between JDQ factors and variables

The items were chosen based on clinical knowledge of the areas where individuals with ADHD, as well as patients with other psychiatric disorders, reported driving behaviours having a relationship with driving risk. In the research literature, both impulsivity and inattention have been related to driving risks (Jonah, 2001, Treat et al., 1977) and are essential diagnostic features of ADHD in the DSM IV TR (APA, 1994). Aspects of inattention are also manifest in many other disorders, for example, Generalised Anxiety and Depression (APA, 1994). Emotional impulsiveness is considered an associated descriptive feature of ADHD, as it can involve 'low frustration tolerance, temper outbursts [...] and mood lability' (APA, 1994). In addition, disorders such as Generalised Anxiety and Depression, among others, can involve the inability to regulate mood/anxiety, irritability and frustration (APA, 1994). Emotional lability, particularly frustration, has been related to risk-taking behaviours (DuBois et al., 1992). These same factors are known to predict motor vehicle crashes (MVCs) (McKnight and McKnight, 2000). The non-alertness factor was designed to measure levels of arousal. Feeling sedated and lack of arousal is often a side effect of medications used to treat ADHD and other psychiatric and medical disorders, and is an important factor in assessing driving risks. While the four JDQ factors are primarily related to ADHD, and are not key diagnostic features for most psychiatric diagnoses, the hypothesised factors in the JDQ cut across categorical diagnoses in their relationship to driving risk. This will be discussed further in the assessment of content validity.

As is indicated above, the JDQ enquires about driving abilities, both in the city and on the highway. Distinguishing between driving in both of these locations was considered to be an important contextual variable by survey developers. Individuals may respond to city and highway driving in different ways, and their specific condition may play a role in ability to drive safely in each location. For example, individuals with Anxiety Disorders may drive more safely on highways, where they are less distracted, than in the cities, where there is an abundance of urban driving stimuli. The opposite may be true for individuals with ADHD, who can be worse drivers on highways, given the lack of stimulation and resulting inattention. It is considered important to distinguish between driving in cities and on highways in order to determine the differential effects, if any, of the driving setting, with the aim of developing more appropriate clinical interventions

## Hypotheses

The hypotheses for this study are as follows:

- a. JDQ variables are predicted to cluster into four factors, including: Inattention, Non-alertness, Impulsivity and Emotional Lability.
- b. Variables within the JDQ factor are expected to be internally consistent and have high alpha coefficients.

- c. JDQ variables and overall JDQ factors are hypothesised to have moderate correlations with psychological assessment tools. The JDQ factors and assessment scales are, for the most part, measuring similar, but not the same constructs.
- d. The JDQ inattention and impulsivity variables and factors are hypothesised to have stronger correlations with their corresponding psychological assessment scales than the emotional lability JDQ factor/variables and its corresponding scale.
- e. JDQ variables are not predicted to show significant mean differences between categorical diagnoses of depression and anxiety, and ADHD.

### Statistical Methods

A sample size calculation was conducted prior to data extraction, in order to ensure that the study would be sufficiently powered to produce results with a high level of accuracy. In studies evaluating psychometric properties, it is widely accepted that the sample size has a 1:10 item to participant ratio (Nunnally, 1978, Nunnally and Bernstein, 1994). Based on this rate, the required sample size for evaluating the JDQ, which has 20 items, is 200 participants. However, a larger sample size would result in a higher-powered study. Tabachnick and Fidel (2001) specified that studies involving factor analysis should include a minimum of 300 participants. The formula employed in this study follows Streiner and Norman (1995). The suggested formula is used specifically for reliability studies. The resulting sample size is the number of participants required to estimate a coefficient alpha with a 95 per cent Confidence Interval (CI) with a width of 0.10 (+/-0.05). A CI width of 0.10 was chosen because it is a narrow enough Interval to estimate coefficients with high precision. The formula is as follows:

$$N = [Z_{(1-\alpha)/2} / \text{CI width}]^2 + 3, \text{ Alpha} = 0.05$$

For Alpha = 0.05, the associated z-value is:  $Z_{(1-\alpha)/2} = 1.96$  (from Z table)

$$N = [1.96/0.10]^2 + 3$$

$$N = 387$$

It was estimated, therefore, that 387 participants would be required for the JDQ validation study, in order to ensure enough power to detect reliability coefficients within a narrow confidence interval.

Data was extracted from 504 patient files after the sample size calculations had been conducted. All of the extracted data, as opposed to the exact sample size resulting from the original sample size calculation (387), were used in the study, as resources were available to extract more data than was initially required. A larger

sample size would result in a higher-powered study, as both Type 1 and Type 2 errors decrease with increased sample size (Aday, 1996), and hence the entire population was employed. A downside to including the entire sample is that the study may be overpowered. Significance testing is partially based on sample size and an overly large sample size could result in clinically insignificant relationships becoming statistically significant. This was considered in the evaluation of results by looking at the strength of identified associations alongside significance tests.

## Results

### *Content validity: expert opinion and literature review*

Content validity of the JDQ was assessed during survey construction, prior to commencing this study. Dr Jerome, a psychiatrist and Dr Segal, a psychologist, designed the measure based on the available literature regarding knowledge of functional impairments in ADHD, as they are related to driving.

In this study, items in the JDQ were analysed and critiqued based on a review of pertinent literature on ADHD, driving, self-report driving surveys, as well as principles for generating survey questions.

Internal consistency, reliability and factor structure are shown in Table 26.2.

**Table 26.2 Internal consistency and reliability**

Variables*	Component			
	1	2	3	4
Frustration C	.269	.449	.034	<b>.593</b>
Frustration H	.124	.296	.130	<b>.742</b>
Risk-taking C	.301	<b>.742</b>	.152	.233
Risk-taking H	.237	<b>.740</b>	.198	.202
Speeding C	.219	<b>.808</b>	.157	.185
Speeding H	.148	<b>.827</b>	.144	.154
Anxiety C	.316	.216	.091	<b>.723</b>
Anxiety H	.231	.073	.099	<b>.831</b>
Concentration C	<b>.693</b>	.123	.259	.246
Concentration H	<b>.693</b>	.064	.317	.310
Alert C	.271	.168	<b>.794</b>	.185
Alert H	.306	.157	<b>.761</b>	.187
Distracted C	<b>.781</b>	.207	.119	.187



Distracted H	<b>.808</b>	.171	.071	.209
Daydreaming C	<b>.670</b>	.298	.237	.112
Daydreaming H	<b>.700</b>	.357	.222	.105
Drowsy C	<b>.514</b>	.099	.295	.156
Drowsy H	<b>.621</b>	.175	.139	.096
Anticipating dangers C	.148	.149	<b>.841</b>	.010
Anticipating dangers H	.226	.146	<b>.839</b>	.018

\* C = driving in the city, H = driving on the highway

#### *Final four-factor model from varimax rotation*

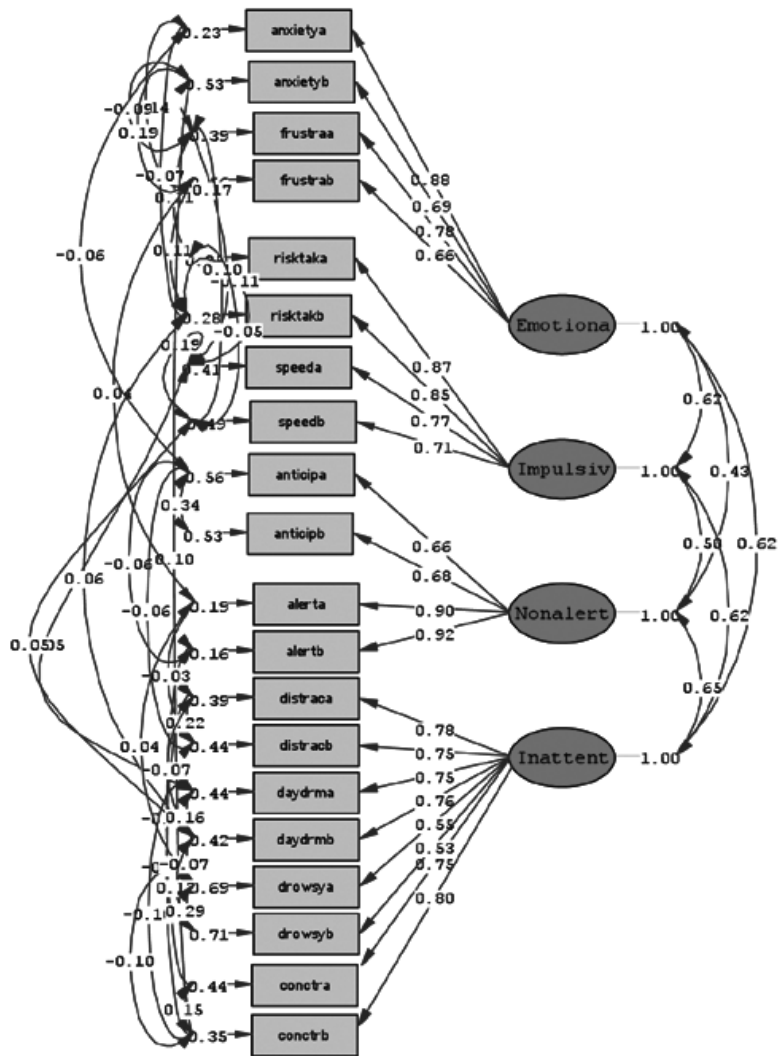
The final, best fitting, model consisted of the 20 manifest variables, their error variances (20), four latent variables, covariance between the latent variables (6), as well as 34 added errors of covariance. The final model is displayed pictorially in Figure 26.1. The goodness of fit statistics in the final model indicated that the model fitted the data well. The weighted least squares chi-square statistic was significant at  $\alpha = 0.05$  and had a value of 257.65.

Evaluating factor structure and goodness of fit, using a type of structural equation modelling, was performed by constructing a four-factor measurement model, based on the empirical results from exploratory factor analysis and testing its fit; a varimax rotation produced the four-factor model (Figure 26.2).

#### *Construct validity*

Participants reported highest scores for frustration, while driving in the city ( $5.2 \pm 3.0$ ), followed by speeding, while driving on the highway ( $4.6 \pm 2.9$ ), and anxiety, distraction and speeding, while driving in the city ( $4.2 \pm 3.2$ ,  $4.2 \pm 3.1$ ,  $4.2 \pm 2.9$ , respectively). Patients appeared to have the lowest scores for drowsiness, while driving in the city ( $1.9 \pm 2.2$ ), anticipating dangers in the city and on the highway ( $2.0 \pm 2.1$ ;  $2.2 \pm 2.2$ , respectively), and alertness on the highway and in the city ( $2.3 \pm 2.3$ ;  $2.2 \pm 2.3$ , respectively).

Comparisons of means found no significant differences between groups with Anxiety, Depression and ADHD, for any of the JDQ variables. In other words, the JDQ did not differentiate between the diagnostic categories of ADHD, anxiety and depression (see Table 26.3).



Chi-Square=257.65, df=131, P-value=0.00000, RMSEA=0.045

Figure 26.2 Varimax rotation: four-factor solution

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**Table 26.3 Mean scores and standard deviations for items in the JDQ according to diagnosis (N = 484)**

Variable*	Depression Mean (SD)	Anxiety Mean (SD)	ADHD Mean (SD)	All diagnoses Mean (SD)
<b>Factor 1: Emotional Lability</b>				
Frustration C	5.457 (3.370)	5.253 (2.776)	5.267 (3.078)	5.159 (3.006)
Frustration H	3.030 (2.526)	3.225 (2.463)	2.865 (2.508)	2.999 (2.476)
<i>Anchors: 0 = No Frustration 10 = High Frustration</i>				
Anxiety C	4.946 (3.657)	4.150 (3.008)	4.325 (3.194)	4.162 (3.165)
Anxiety H	3.534 (2.980)	3.472 (2.684)	3.477 (2.723)	3.444 (2.759)
<i>Anchors: 0 = No Anxiety 10 = High Anxiety</i>				
<b>Factor 2: Impulsivity</b>				
Risk-taking C	3.734 (3.167)	3.515 (2.801)	3.822 (3.003)	3.679 (2.923)
Risk-taking H	2.880 (2.659)	2.882 (2.561)	3.298 (2.861)	3.108 (2.738)
<i>Anchors: 0 = No Risk-taking 10 = High Risk-taking</i>				
Speeding C	3.952 (3.079)	3.707 (2.767)	4.551 (2.972)	4.178 (2.925)
Speeding H	4.142 (2.416)	4.198 (2.965)	5.043 (2.916)	4.568 (2.879)
<i>Anchors: 0 = No Speeding 10 = Excessive Speeding</i>				
<b>Factor 3: Non-alertness</b>				
Alert to sudden changes in driving condition C		2.196 (2.240)	2.448 (2.416)	2.230 (2.290)
Alert to sudden changes in driving condition H		2.307 (2.354)	2.488 (2.435)	2.259 (2.293)
<i>Anchors: 0 = Alert 10 = Not alert</i>				
Drowsiness C	1.893 (2.519)	1.718 (1.951)	1.916 (2.355)	1.862 (2.194)
Drowsiness H	3.014 (3.019)	2.833 (2.711)	3.424 (3.072)	3.230 (2.945)
<i>Anchors: 0 = No Drowsiness 10 = Major Drowsiness</i>				

\* C = driving in the city, H = driving on the highway

There is evidence for the construct validity of most JDQ items and factors that were assessed via correlation with other known and widely used psychological assessment scales. The JDQ 'inattention' and 'anxiety' variables show the highest

degree of construct validity. Most of the clinical assessment measures employed in this study were not measuring exactly the same concepts as the JDQ and, therefore, the many weak and non-significant relationships identified in this study were not surprising. It would appear that the JDQ may be measuring a more general higher-order 'strategic' factor of executive function, related to driving skill, that was not directly measured by the symptom-specific instruments employed and, therefore, the JDQ was indifferent with respect to diagnostic category (Table 26.4).

**Table 26.4 Correlations between overall JDQ factor scores and clinical assessment variables (N = 480)**

Factor	ADHD Behaviour checklist for adults – Inattention	ADHD Behaviour checklist for adults – Impulsivity/Hyperactivity	Hospital Anxiety & Depression Scale Depression Sub-scale	Hospital Anxiety & Depression Scale Anxiety Sub-scale	Beck Depression Inventory II
Inattention Factor Pearson Correlation Sig. (2-tailed)	.468(**) .000	.398(**) .000	.152(**) .001	.198(**) .000	.184(**) .000
Impulsivity Factor Pearson Correlation Sig. (2-tailed)	-.086 0.059	.060 .192	.054 .235	.118(*) .010	.062 .175
Non-Alertness Factor Pearson Correlation Sig. (2-tailed)	-.083 .070	-.057 .210	-.136(**) .003	-.178(**) .000	-.138(**) .002
Emotional Lability Factor Pearson Correlation Sig. (2-tailed)	-.060 .192	-.059 .194	.157(**) .001	.185(**) .000	.180(**) .000

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

*Criterion validity: retrospective and prospective findings*

*Retrospective findings* In the clinical sample only the collateral report on the JDQ significantly correlated with drivers' self-reported history of MVCs (Table 26.5). This suggests the possibility that collateral observers report higher levels of pathology and functional impairment in ADHD patients than they observe in themselves. This finding suggests that obtaining collateral driving data from observers who drive with the patient may provide a more accurate assessment of current and past driving risk. Replication of this finding is, however, required.

**Table 26.5 Retrospective collateral JDQ report and self-reported motor vehicle collisions**

JDQ Variable		
	Frustration – City	Frustration – Highway
R	0.22	0.115
N	306	306
P	**	*
	Risk Taking – City	Risk Taking – Highway
R	0.252	0.154
N	306	306
P	**	**
	Speeding – City	Speeding – Highway
R	0.235	0.119
N	306	306
P	**	*
	Anxiety – City	Anxiety – Highway
R	0.207	0.117
N	306	306
P	**	*
	Concentration – City	
R	0.184	
N	306	
P	**	

*Prospective findings* The JDQ was used in a prospective study of 90 healthy, young, novice drivers, who were followed for over two years. Outcome was assessed with self-report measures and Ministry of Transportation MVC data.

Linear regression procedures were applied to the Total Driving Incidents data. The model incorporated all of the identified human factor predictors, accounting for 32 per cent of the common variance (using the Adjusted  $R^2$ ) (Table 26.6). The linear regression model for collisions only identified the JDQ-risk taking variable, accounting for 6 per cent of the variance. The JDQ-daydreaming variable and male gender were related to violations, accounting for approximately 37 per cent of the common variation (Jerome and Segal, 2008).

**Table 26.6** Prospective criterion validity: correlation with history of MTO reported motor vehicle collisions and violations, and self-report JDQ

*a) Total driving incidents*

Predictors	Correlation	
Gender	.384	$p < .001$
JDQ-risk taking (b)	.403	$p < .001$
JDQ- anger (b)	.326	$p < .01$
JDQ-daydreaming	.325	$p < .01$
TCI-sentimentality	-.253	$p < .04$
TCI-cooperation	-.293	$p < .01$
TCI-compassion	-.303	$p < .01$
Barkley-inattentive	.292	$p < .02$
Barkley-total	.315	$p < .01$
CPT-variability	.250	$p < .04$

*b) Collisions*

Predictors	Correlation	
JDQ-risk taking (a)	.282	$p < .02$
JDQ-risk taking (b)	.237	$p < .05$
JDQ-alertness (b)	.279	$p < .03$

## c) Violations

Predictors	Correlation	
Gender	.380	$p < .002$
Grade average	-.291	$p < .01$
JDQ-anger (b)	.364	$p < .004$
JDQ-daydreaming	.477	$p < .0001$
JDQ-risk taking (b)	.383	$p < .002$
TCI-disorderliness	.275	$p < .02$
TCI-cooperation	.283	$p < .02$
Barkley-Inattentive	.369	$p < .005$
Barkley-Total	.368	$p < .005$

### Conclusions and Discussion

The psychometric properties of the instrument show internal reliability and content, criterion and construct validity, in an ecologically correct convenience sample of older adult outpatients, who had been driving for a number of years, presenting with a range of psychiatric symptomology.

In a sample of young, novice, normal drivers, the instrument shows predictive validity in relation to MVCs and moving violations at three years, based on Ministry of Transportation data.

Collateral reports, but not self-report on the JDQ in the older clinical sample, correlated with self-reported lifetime histories of MVCs.

In clinical practice the JDQ has proved to be an easily administered metric, providing both a retrospective and a prospective driving history, and a current (strategic) driving style profile, from both driver and collateral observer. The findings of this research argue for an independent construct of executive function deficits measured by the JDQ, which is independent of categorical diagnosis, and can be seen in novice normal drivers.

The previous literature on problem driving in ADHD has reported problems in younger drivers in their teens and early twenties. This study extends the clinical literature to include older, more experienced, drivers, who still show ongoing problem driving behaviour and problematic driving styles, not resolved with age alone. Future diagnostic criteria for Adult ADHD may include problem driving as a criterion. The use of a standardised metric will likely have utility for both diagnostic purposes, as well as for clinical documentation of enquiry, regarding problem driving. This is likely to have increasing medico-legal importance in the evolving field of evaluating risks for driving in ADHD populations, and psychiatric populations in general.

Clinical experience has suggested that the JDQ is very sensitive to the effects of psychotropic medications on self and collateral reported driving. We hope to report the benefit of stimulant and antidepressant medications on improving driving in this general psychiatric population, as measured by improvement in the JDQ in a later study. We believe that the findings in this preliminary study argue for the primacy of problems in executive functional impairments underlying problem driving, in clinical as well as normal populations.

The instrument is available in the public domain on the web for clinician use, at [www.adhddriving.com](http://www.adhddriving.com), and on the Canadian ADHD Resource Alliance (CADDRA) web site, at [www.caddra.ca](http://www.caddra.ca). A copy of the instrument can be found at the end of this chapter (see Appendix).

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## Appendix

	Clinician Stamp/Signature:
	MRN/File Number:

## JEROME DRIVING QUESTIONNAIRE (JDQ)© 2010 To be completed by the driver

Name of Driver:		
Date of Birth: DD MM YY	Date completed: DD MM YY	
Please list all your medications and dosages, including over-the-counter medicines with mg doses if known:		
1.	2.	3.
4.	5.	6.
7.	8.	9.
10.		

**Instructions:** This section should be completed by the driver. Rate yourself on the following questions regarding past and current driving history.

Driving History Part A

1. At what age did you obtain your driver's license?	years	months
2. How many times did you take to pass your final driving test?	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> or more
3. How long have you been driving?	years	
4. On average, how much time per day do you spend driving?	<input type="checkbox"/> < 1 hour	<input type="checkbox"/> 1 - 2 hours <input type="checkbox"/> > 2 hours
5.(a) Estimate kilometres/miles driven in the last month (city):	km	
(b) Estimate kilometres/miles driven in the last month (highway):	km	
6.(a) How many motor vehicle collisions have you been in as a passenger?	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> or more
(b) How many motor vehicle collisions have you been in as a driver?	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	<input type="checkbox"/> or more
7. How many times since you have been driving have you been determined to be at fault in an accident?		
8.(a) How many times since you have been driving have you had your licence revoked or suspended?		
(b) How many times have you driven when your licence was suspended?	<input type="checkbox"/> Never <input type="checkbox"/> Once	<input type="checkbox"/> Twice <input type="checkbox"/> Three or more
9. Did you ever go joy riding in a car? (Select all that apply)		
<input type="checkbox"/> As a driver before you held a valid license?	<input type="checkbox"/> As a passenger with a driver without a valid license?	
<input type="checkbox"/> As a passenger when the driver was intoxicated with alcohol and /or drugs?	<input type="checkbox"/> As a driver when intoxicated with alcohol and/or drugs?	
10. How many times since you have been driving have you received a parking ticket?	times	
11. How many times since you have been driving have you received a speeding ticket?	times	
12. How many times since you have been driving have you been given a ticket for failing to stop at a stop signal or sign?	times	
13. How many times since you have been driving have you been given a ticket for reckless driving?	times	

14. How many times since you have been driving have you struck a pedestrian or cyclist while driving?	
15. How many times since you have been driving have you been given a ticket for driving while intoxicated?	
16. Have insurance rates increased as a result of driving problems?	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Has car insurance been denied because of driving problems?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**JEROME DRIVING QUESTIONNAIRE PART B ©2010**

This form can be completed either by you the driver or a close friend or relative who observes you drive.

Date completed: \_\_\_\_\_ Completed by: \_\_\_\_\_

Instructions

The following questions are about your usual driving style over the last month. Try to answer all the questions. There are no right or wrong answers. Please put a mark "X" on the horizontal scale to indicate your rating regarding driving in the last month when out driving (a) in the city; (b) on the highway.

Select the correct answer to the following two questions:

In the last month have you driven (or driven with the driver) in the city?

Yes  No

In the last month have you driven (or driven with the driver) on the highway?

Yes  No

Since you last completed this questionnaire have you had any motor vehicle violations such as speeding or parking tickets or collisions?

Yes  No

Motor vehicle violations:  Yes  No;

Collision(s):  Yes  No

1. Frustration:

a. City

no frustration \_\_\_\_\_ high frustration

b. Highway

no frustration \_\_\_\_\_ high frustration

2. Risk taking:

a. City

no risk taking \_\_\_\_\_ high risk taking

b. Highway

no risk taking \_\_\_\_\_ high risk taking

3. Show anger verbally or physically to other drivers:

a. City

no risk taking \_\_\_\_\_ high risk taking

b. Highway

no risk taking \_\_\_\_\_ high risk taking

4. Speeding:

a. City

no speeding \_\_\_\_\_ excessive speeding

b. Highway

no speeding \_\_\_\_\_ excessive speeding

5. Anxiety:

a. City

no anxiety \_\_\_\_\_ high anxiety

b. Highway

no anxiety \_\_\_\_\_ high anxiety

6. Experiences Panic:

a. City

no panic

extreme panic

b. Highway

no panic

extreme panic

7. Concentration on Road:

a. City

no concentration problems

major concentration problems

b. Highway

no concentration problems

major concentration problems

8. Alert to sudden changes in driving conditions:

a. City

alert

not alert

b. Highway

alert

not alert

9. Easily distracted by sights or sounds in the car or off to the side of the road:

a. City

no distraction

high distraction

b. Highway

no distraction

high distraction

10. Daydreaming:

a. City

no daydreaming

frequent daydreaming

b. Highway

no daydreaming

frequent daydreaming

11. Drowsiness:

a. City

no drowsiness

major drowsiness

b. Highway

no drowsiness

major drowsiness

12. Anticipating potential dangers from other cars or pedestrians (looking ahead):

a. City

always anticipating

never anticipating

b. Highway

always anticipating

never anticipating

Please note if any of your answers would be changed by driving with passengers. Please describe:

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