

1 **Supplemental Material**

2 **The Relationship between Pre-morbid and Current Intellect Estimates in Schizophrenia:**

3 **Cognitive, Symptom and Functional Status**

4 Running Title: Pre-morbid and Current Intellect in Schizophrenia

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28 Wells et al. 2015 Supplemental Material

29 **Supplemental Material**

30 Methods

31 Clinically Derived Groups Method

32 To determine whether the resulting empirical groups were in agreement with clinically meaningful
33 criteria, patients were also categorized into three groups based on their decline from pre-morbid IQ
34 estimate (WTAR). A composite current global cognitive ability estimate was created by averaging the
35 WAIS-III LNS and RBANS Attention and Immediate Memory z-scores, with z-scores below negative 1
36 indicating performance more than one standard deviation below control means, and therefore
37 below the normal range. As per Weickert and colleagues⁶ patients were allocated to: (1) the
38 *preserved group*, WTAR scores ≥ 90 , and current global cognitive ability z-score > -1 ; (2) the
39 *deteriorated group*, WTAR scores ≥ 90 and current global cognitive ability z-score < -1 ; or (3) the
40 *compromised group*, WTAR score < 90 and current global cognitive ability z-score < -1 .

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42 **Supplemental Table S1. Frequency of antipsychotics prescribed in the previous month to patients**
 43 **with schizophrenia in each of the empirically derived subgroups.**

Medication	CIQ	DIQ	PIQ	Total
No antipsychotics	8	28	28	64
amisulpride	7	10	14	31
amisulpride & aripiprazole	2	1	2	5
amisulpride & aripiprazole & olanzapine & pericyazine & quetiapine fumerate & risperidone	0	1	0	1
amisulpride & chlorpromazine hydrochloride	0	1	0	1
amisulpride & chlorpromazine hydrochloride & clozapine	0	1	0	1
amisulpride & clozapine	3	7	3	13
amisulpride & clozapine & olanzapine	0	0	1	1
amisulpride & clozapine & quetiapine fumerate	0	1	0	1
amisulpride & flupenthixol decanoate	0	1	1	2
amisulpride & olanzapine	2	1	0	3
amisulpride & quetiapine fumerate	1	3	0	4
amisulpride & quetiapine fumerate & trifluoperazine hydrochloride	0	0	1	1
amisulpride & risperidone	1	0	0	1
amisulpride & risperidone consta	0	2	0	2
amisulpride & trifluoperazine hydrochloride	1	0	0	1
amisulpride & ziprasidone hydrochloride	0	1	1	2
aripiprazole	6	15	9	30
aripiprazole & clozapine	2	1	1	4
aripiprazole & olanzapine	1	3	1	5
aripiprazole & quetiapine fumerate	1	2	2	5
aripiprazole & risperidone consta	1	0	0	1
chlorpromazine hydrochloride	1	0	0	1
chlorpromazine hydrochloride & flupenthixol decanoate	1	0	0	1
chlorpromazine hydrochloride & olanzapine	0	0	1	1
chlorpromazine hydrochloride & risperidone & risperidone consta	1	0	0	1
chlorpromazine hydrochloride & thiothixene & olanzapine	0	0	1	1

clozapine	35	31	8	74
clozapine & amisulpride	0	1	0	1
clozapine & flupenthixol decanoate	0	0	1	1
clozapine & olanzapine	1	0	0	1
clozapine & quetiapine fumerate	0	2	0	2
clozapine & risperidone	1	2	0	3
clozapine & risperidone consta	0	2	1	3
clozapine & ziprasidone hydrochloride	1	1	0	2
clozapine & zuclopenthixol decanoate	1	1	0	2
flupenthixol decanoate	4	2	4	10
flupenthixol decanoate & olanzapine	2	1	0	3
flupenthixol decanoate & quetiapine fumerate	1	0	0	1
fluphenazine decanoate	1	1	0	2
fluphenazine decanoate & olanzapine	0	1	1	2
fluphenazine decanoate & quetiapine fumerate	0	1	0	1
fluphenazine decanoate & quetiapine fumerate & trifluoperazine hydrochloride	0	1	0	1
fluphenazine decanoate & thioridazine hydrochloride & olanzapine	0	0	1	1
haloperidol	0	3	2	5
haloperidol & olanzapine & ziprasidone hydrochloride	1	0	0	1
haloperidol & quetiapine fumerate	0	1	0	1
haloperidol decanoate	0	2	0	2
olanzapine	15	36	23	74
olanzapine & flupenthixol decanoate	1	0	0	1
olanzapine & quetiapine fumerate	2	3	0	5
olanzapine & quetiapine fumerate & risperidone	0	1	0	1
olanzapine & quetiapine fumerate & risperidone & thioridazine hydrochloride	0	1	0	1
olanzapine & risperidone	1	0	3	4
olanzapine & risperidone consta	1	3	0	4
olanzapine & ziprasidone hydrochloride	1	0	0	1
olanzapine & zuclopenthixol decanoate	2	1	1	4
pericyazine	0	2	0	2
quetiapine fumerate	7	16	14	37

quetiapine fumerate & risperidone	2	1	1	4
quetiapine fumerate & risperidone consta	1	0	1	2
quetiapine fumerate & trifluoperazine hydrochloride	0	1	2	3
quetiapine fumerate & ziprasidone hydrochloride	0	1	0	1
quetiapine fumerate & zuclopenthixol acetate	0	1	0	1
quetiapine fumerate & zuclopenthixol decanoate	1	0	0	1
risperidone	8	20	13	41
risperidone & risperidone consta	0	2	1	3
risperidone & trifluoperazine hydrochloride & ziprasidone hydrochloride	0	0	1	1
risperidone consta	5	5	7	17
trifluoperazine hydrochloride	0	3	3	6
ziprasidone hydrochloride	1	6	1	8
ziprasidone hydrochloride & zuclopenthixol decanoate	0	1	0	1
zuclopenthixol decanoate	3	3	1	7
zuclopenthixol dihydrochloride	0	0	1	1
Total	138	239	157	534

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45 Number of patients in each group on each antipsychotic medication, or combination of antipsychotic
46 medications.

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48 **Supplemental Table S2. Demographic Characteristics of Clinically Derived Groups**

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	CIQ (n=147)	DIQ (n=227)	PIQ (n=160)	HC (n=635)	<i>F/χ²</i>	<i>p</i>	CIQ < DIQ (<i>p</i>)	CIQ < PIQ (<i>p</i>)	DIQ < PIQ (<i>p</i>)	CIQ < HC (<i>p</i>)	DIQ < HC (<i>p</i>)	PIQ < HC (<i>p</i>)
Age (years)	39.6 (10.0)	37.8 (10.0)	40.8 (11.3)	41.9 (13.5)	6.91	<0.001	<0.163	0.379	0.016	0.036	<0.001	0.298
Education (years)	11.0 (2.5)	13.1 (2.5)	14.3 (2.7)	15.1 (3.1)	97.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Age of Onset	23.8 (7.0)	22.4 (6.0)	24.1 (6.7)		3.71	0.025	0.047	0.676	0.013			
Illness Duration	15.8 (9.6)	15.4 (9.6)	16.7 (10.5)		0.88	0.416	0.680	0.419	0.188			
Gender (M/F)	70.7%/29.3%	67.0%/33.0%	61.9%/38.1%	44.7%/55.3%	57.87	<0.001	0.411	0.101	0.302	<0.001	<0.001	<0.001

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51 Notes: Means provided with standard deviation in parentheses with the exception of gender where percentages are provided. CIQ: Compromised group;
 52 DIQ: Deteriorated group; PIQ: Preserved group; HC: Healthy control group.

53 Supplemental Table S3. Clinically Derived Group Performance on Cognitive Tests

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Cognitive Test	CIQ	DIQ	PIQ	HC	Group		CIQ	CIQ	DIQ	CIQ	DIQ	PIQ
	(n=147)	(n=227)	(n=160)	(n=635)	<i>F</i> / χ^2	<i>p</i>	< DIQ <i>d</i>	< PIQ <i>d</i>	< PIQ <i>d</i>	< HC <i>d</i>	< HC <i>d</i>	< HC <i>d</i>
Visuospatial Constructional	-1.2 (0.9)	-0.7 (1.0)	-0.2 (1.0)	0.0 (1.0)	252.35	<0.001	0.4	0.8	0.4	1	0.6	0.2 ^a
Language ^b	-1.4 (0.9)	-1.2 (0.9)	-0.6 (0.9)	-.15 (1.0)	300.64	<0.001	0.2 ^a	0.6	0.4	1.3	1.1	0.8^a
Delayed Verbal Memory ^b	-1.8 (1.5)	-1.5 (1.4)	-0.4 (1.1)	.02 (1.0)	474.05	<0.001	0.2	1.1	0.8	1.6	1.4	0.7
Verbal Fluency	-1.2 (0.8)	-0.8 (0.8)	-0.3 (0.8)	0 (0.86)	108.63	<0.001	0.3	0.9	0.5	1.2	0.8	0.3

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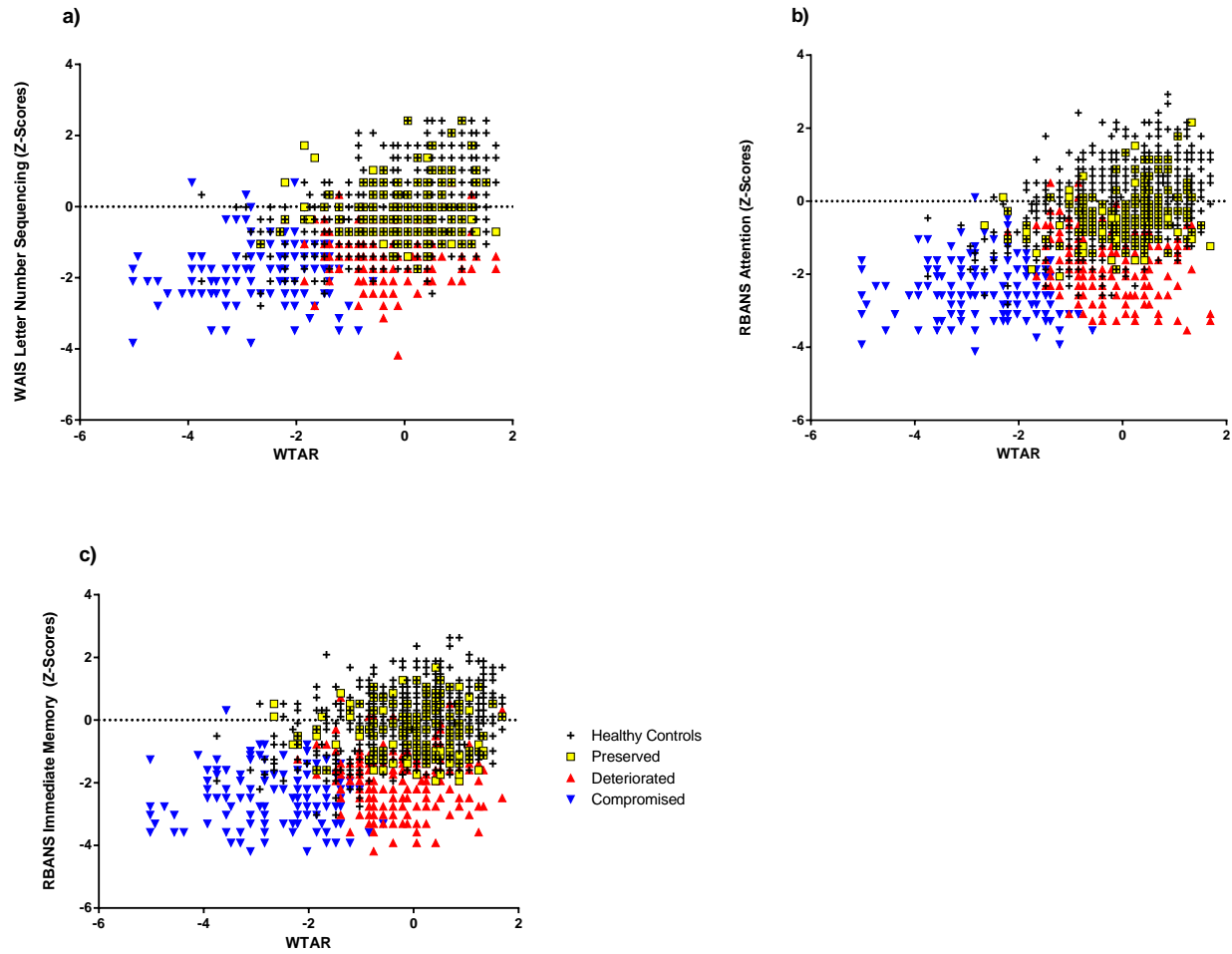
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61 Notes: Means with standard deviation in parentheses provided. All tests significant after Bonferroni correction $p < 0.002$ to $p = .05$ unless indicated. ^a
 62 Indicates pairwise comparison is not significant. *d* indicates Cohen's *d* effect size (large effects > 0.8 in bold. CIQ = Compromised group; DIQ = Deteriorated
 63 group; PIQ = Preserved group; HC = Healthy control group. Visuospatial / Constructional = The Repeatable Battery for the Assessment of Neuropsychological
 64 Status (RBANS) visuospatial/ constructional Index; Language = RBANS language index; Delayed verbal memory = RBANS delayed memory subtest. Verbal
 65 Fluency = Controlled Oral Word Association Test. ^b Indicates medians and Kruskal-Wallis Test performed due to non-normal distributions.

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68 Supplemental Figure S1. Scatter Plots of Current Cognitive Function Variables and WTAR displaying Individuals in each Group



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70 Scatter plots display data points for each individual comparing current cognitive function variables to an estimate of pre-morbid IQ (WTAR). Individuals from
71 each group of the empirical clustering procedure can be observed to cluster together. The compromised group showing low current and low pre-morbid
72 scores; the deteriorated group showing low current and average-high pre-morbid scores; the preserved group showing average-high scores on both current
73 and pre-morbid measures. WTAR, Wechsler Test of Adult Reading. a) Letter Number Sequencing subtest (WAIS-III) and WTAR. b) Attention: Attention
74 subtest of RBANS and WTAR. c) Immediate Memory: Immediate memory subtest of RBANS and WTAR.