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Data supplement

Table DS1 Psychopathological assessment of the sample at baseline, 1 month and 6 months

	Risperidone (*n*=29)	Olanzapine (*n*=22)	Mixed (*n*=16)	No antipsychotic drug (*n*=10)	Total (*n*=77)	Statistic (*P*)
Baseline						
CASH, mean (s.d.)						
Mania	0.14 (0.58)	0.32 (1.04)	0.31 (0.79)	0.40 (0.84)	0.08 (0.51)	*F*=0.38 (0.769)[a]
Depressive	0.48 (1.12)	0.91 (1.54)	1.13 (1.54)	2.10 (1.29)	0.78 (1.24)	*F*=3.60 (0.017)[a,b]
Psychotic	3.90 (0.96)	2.79 (0.98)	3.22 (1.08)	3 (0.71)	1.14 (1.08)	*F*=6.04 (0.001)[a,c]
Negative	1.62 (1.35)	0.96 (1.16)	1.73 (1.39)	1.20 (1.27)	0.41 (0.86)	*F*=1.53 (0.213)[a]
Disorganisation	1.69 (1.12)	0.79 (0.86)	1.96 (1.33)	1.23 (0.65)	0.96 (1.10)	*F*=4.75 (0.004)[a,c]
1-month assessment						
CASH, mean (s.d.)						
Mania	0.14 (0.74)	0	0.13 (0.50)	0	0.08 (0.51)	*F*=0.42 (0.737)[a]
Depressive	0.90 (1.34)	0.59 (1.18)	0.56 (1.03)	1.20 (1.40)	0.78 (1.24)	*F*=0.79 (0.502)[a]
Psychotic	1.29 (1.28)	0.91 (0.68)	1.31 (1.19)	1.00 (1.05)	1.14 (1.08)	*F*=0.70 (0.553)[a]
Negative	1.18 (1.19)	0.48 (0.18)	1.06 (1.18)	1.25 (1.02)	0.41 (0.86)	*F*=2.15 (0.101)[a]
Disorganisation	0.58 (1.04)	0.07 (0.85)	0.81 (1.09)	0.23 (0.42)	0.96 (1.10)	*F*=2.74 (0.052)[a]
6-month assessment						
CASH, mean (s.d.)						
Mania	0	0	0	0	0	NA
Depressive	0.62 (1.23)	0.55 (1.01)	1.06 (1.34)	0.70 (1.16)	0.70 (1.18)	*F*=0.66 (0.578)[a]
Psychotic	0.86 (0.99)	0.54 (0.63)	0.56 (0.87)	0.70 (1.03)	0.69 (0.88)	*F*=0.67 (0.574)[a]
Negative	0.96 (0.99)	0.70 (0.94)	1.48 (1.08)	0.62 (1.01)	0.13 (0.32)	*F*=2.31 (0.083)[a]
Disorganisation	0.14 (0.32)	0.01 (0.07)	0.17 (0.27)	0.33 (0.54)	0.95 (1.02)	*F*=2.56 (0.061)[a]

CASH: Comprehensive Assessment of Symptoms and History; NA, not applicable.
a. One-way ANOVA.
b. Risperidone<no antipsychotic drug.
c. Risperidone>olanzapine.

Table DS2 Regression model of predictors of change in cognitive reliable change index[a]

Reliable change Index characteristics	Included variables	R^2	*F*	d.f.	*P*
Verbal fluency[b]					
Demographic	Scholastic performance	0.121	9.79	1,71	0.003
Clinical	–	–	–	–	–
Demographic+clinical+baseline	Baseline Verbal Fluency score	0.668	139.12	1,69	0.000
TMT–B[b]					
Demographic	Scholastic performance	0.173	11.57	2,70	0.000
	GAF–P	0.248			
Clinical	6-month chlorpromazine equivalent doses	0.055	4.21	1,73	0.044
Demographic+clinical+baseline	Baseline TMT–B score	0.548	35.96	3,67	0.000
	Scholastic performance	0.585			
	GAF–P	0.617			
WMS Total score[b]					
Demographic	Current IQ	0.102	7.96	1,70	0.006
Clinical	Baseline disorganisation score	0.092	6.15	2,71	0.003
	6-month chlorpromazine equivalent doses	0.148			
Demographic+clinical+baseline	Baseline WMS Total score	0.714	169.63	1,68	0.000
WMS Logical memory[b]					
Demographic	Scholastic performance	0.093	6.63	2,70	0.002
	GAF–P	0.159			
Clinical	Δ Positive score	0.073	5.07	2,72	0.009
	DSM–IV–TR diagnosis 6 month	0.123			
Demographic+clinical+baseline	Baseline WMS Logical memory score	0.683	81.51	2,68	0.000
	Baseline depression score	0.706			
WMS Digit memory[b]					
Demographic	Current IQ	0.062	4.73	1,71	0.033
Clinical	6-month chlorpromazine equivalent doses	0.054	4.19	1,73	0.044
Demographic+clinical+baseline	WMS Digit memory score	0.656	131.86	1,69	0.000
WMS Visual reproduction[b]					
Demographic	Current IQ	0.178	10.41	2,70	0.000
	Age	0.229			
Clinical	6-month chlorpromazine equivalent doses	0.060	5.21	2,72	0.008
	Baseline disorganisation score	0.126			
Demographic+clinical+baseline	Baseline WMS Visual reproduction score	0.706	165.84	1,69	0.000
WMS Associate learning[b]					
Demographic	Scholastic performance	0.096	7.51	1,71	0.008
Clinical	Δ Positive score	0.080	6.37	1,73	0.014
Demographic+clinical+baseline	Baseline WMS Associate learning score	0.751	84.58	3,69	0.000
	Δ Mania score	0.774			
	GAF–P	0.791			
COGLAB[b]					
Reaction time					
Demographic	GAF–P	0.085	6.56	1,71	0.013
Clinical	–	–	–	–	–
Demographic+clinical+baseline	Baseline reaction time score	0.539	47.32	2,68	0.000
	GAF–P	0.582			
RAD (reaction time)					
Demographic	–	–	–	–	–
Clinical	Baseline positive score	0.063	4.19	1,73	0.030
Demographic+clinical+baseline	Baseline RAD score	0.537	79.99	1,69	0.000
Backward masking total					
Demographic	–	–	–	–	–
Clinical	–	–	–	–	–
Demographic+clinical+baseline	Baseline backward masking score	0.723	174.99	1,67	0.000
WCST perseverative errors					
Demographic	Current IQ	0.056	4.18	1,70	0.045
Clinical	Baseline disorganisation score	0.141	11.80	1,72	0.001
Demographic+clinical+baseline	Baseline perseverative errors score	0.731	102.26	2,67	0.000
	Baseline disorganisation score	0.753			
WCST Total Trials					
Demographic	Current IQ	0.062	4.62	1,70	0.035
Clinical	Δ Positive score	0.054	4.14	1,72	0.046
Demographic+clinical+baseline	Baseline Total Trials score	0.682	145.85	1,68	0.000

(continued)

Table DS2 *(continued)*

Reliable change Index characteristics	Included variables	R^2	*F*	d.f.	*P*
Asarnow Total Hits					
Demographic	–	–	–	–	–
Clinical	–	–	–	–	–
Demographic+clinical+baseline	Baseline Asarnow Total Hits score	0.597	99.08	1,67	0.000
Asarnow Total False Alarms					
Demographic	–	–	–	–	–
Clinical	–	–	–	–	–
Demographic+clinical+baseline	Baseline Asarnow Total FA score	0.165	13.26	1,67	0.001
GCS[c]					
Demographic	Current IQ	0.086	6.40	1,68	0.014
Clinical	Δ Disorganisation score	0.064	5.44	2,69	0.006
	Baseline positive score	0.136			
Demographic+clinical+baseline	Baseline GCS score	0.674	79.55	2,65	0.000
	Gender	0.710			

GAF–P: Global Assessment of Functioning over past year; GCS, Global Cognitive Score; RAD, Redundancy-Associated Deficit; TMT–B, Trail Making Test–B; WCST, Wisconsin Card Sorting Test; WMS, Wechsler Memory Scale; Δ, 6-month to baseline score change.
a. Variables entered in regression analyses: (a) independent demographic variables in the first subset of regression procedures: age, age at onset, years of education, parent's years of education, gender, civil status (single *v.* non-single), scholastic performance (scored from 1 to 5 reflecting excellent to failing mean qualifications), GAF–P and current IQ (TONI–2 Test). (b) Independent clinical variables in the second subset of regression procedures: baseline scores for psychotic, negative, disorganisation, and mania and depression syndromes; differences between 6-month and baseline assessments on these five scores; treatment group (categorised as patients on treatment (risperidone, olanzapine and mixed groups) *v.* untreated patients (no-antipsychotic group)); chlorpromazine equivalent doses of antipsychotic drugs and biperidene mean at 6 months and DSM–IV–TR diagnosis at 6 months (categorised as acute or brief psychotic disorder *v.* remaining diagnoses).
b. *z*-transformation.
c. Factorial transformation.

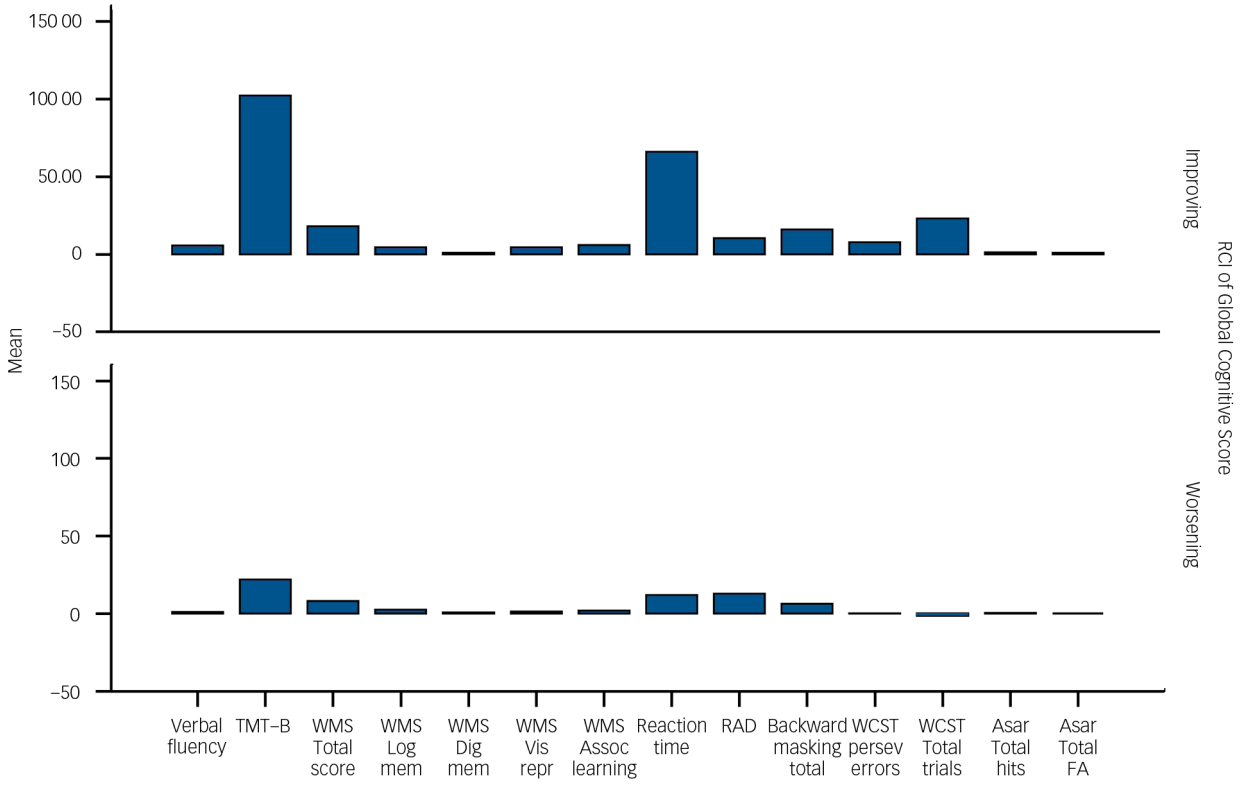

Fig. DS1 Differences between improving *v.* worsening patients on Global Cognitive Score.

Asar Total FA, Asarnow Total False Alarms; Asar Total Hits, Asarnow Total Hits; RAD, Redundancy-Associated Deficit; RCI, reliable change index; TMT–B, Trail Making Test–B; WCST persev errors, perseverative errors of Wisconsin Card Sorting Test; WCST Total Trials, total trials of Wisconsin Card Sorting Test; WMS Assoc learning, paired associate learning subscale of Wechsler Memory Scale; WMS Digit mem: digit memory subscale of Wechsler Memory Scale; WMS Log mem, logical memory subscale of Wechsler Memory Scale; WMS Total score, total score of Wechsler Memory Scale; WMS Vis Reprod, visual reproduction subscale of Wechsler Memory Scale.

Formulas for reliable change index

In the present study, we used two reliable change index (RCI) forms: RCI–simple (RCI–s) and RCI–practice (RCI–p). The formulas used were the following. First,

$$\text{RCI}=(X_2-X_1)/\text{s.e.diff},$$

where X_2 and X_1 were the 6-month and baseline direct scores respectively. The standard error of the difference (s.e.diff) was obtained from a *t*-test examining the differences between baseline and 6-month cognitive performance for each cognitive measure. The RCI–s provides a criterion value, which is the confidence interval (CI) of the s.e.diff, which is obtained by multiplying the s.e.diff by a value from the *z*-distribution (1.96 for a 95% CI, $P>0.025$ in each tail). For an individual

$$\text{RCI–s} \geq \text{RCI–s} \times \frac{95}{100} \times (1.96 \times \text{s.e.diff})$$

is indicative of a statistically significant pattern of improvement or reliable improvement and

$$\text{RCI–s} \leq \text{RCI–s} \times \frac{95}{100} \times (-1.96 \times \text{s.e.diff})$$

reflects a statistically significant worsening pattern or reliable decline, which both are likely to occur randomly in only 5% of the population. If the RCI–s lies between the limits of the CI, the RCI–s suggests a stable cognitive pattern or a non-reliable change.

Second,

$$\text{RCI–p}=(X_2-X_1)-(\mu_2-\mu_1)+\text{practice effect/s.e.diff},$$

where X_2 and X_1 were the 6-month and baseline direct scores respectively; μ_2 was the retest mean score, and μ_1 was the baseline mean score. As a measure of practice effect in the absence of a healthy control group and owing to the fact that prediction models in non-clinical samples may not be transferable to patients with schizophrenia,[1,2] we used the mean difference between 6-month and 1-month assessment points to avoid the effect of the acute episode on baseline neuropsychological performance.

References

1 Heaton RK, Temkin N, Dikmen S, Avitable N, Taylor MJ, Marcotte TD, et al. Detecting change: a comparison of three neuropsychological methods, using normal and clinical samples. *Arch Clin Neuropsychol* 2001; **16**: 75–91.

2 Collie A, Maruff P, Makdissi M, McStephen M, Darby DG, McCrory P. Statistical procedures for determining the extent of cognitive change following concussion. *Br J Sports Med* 2004; **38**: 273–8.