

TABLE S1. Longitudinal studies of neuropsychological functioning in first episode psychosis. Included are studies with or without a comparison groups with a follow-up durations of at least one year.

Study	N (Subjects)	Length of follow-up	Summary of findings
Scottish Schizophrenia Research Group (1988)(1)	28 FE patients	1 year	Improvement on Raven’s Progressive Matrices, Block Design and Digit copying; No change on Vocabulary and Similarities
Hoff et al. (1991)(2)	15 FE patients	2 years	Improvement on Executive, Concentration/Speed and Global scales
Bilder et al. (1991)(3)	28 FE patients	1 year	High stability of test scores overall; Improvement on tests of attentional, motor, and memory functions; Decline on Digit Span
Sweeney et al. (1991)(4)	15 FE patients	1 year	Improvement on psychomotor (Trails A and B, Digit Symbol and Finger Tapping), Judgment of Line Orientation and Rey AVLT tests. No change on Digit Span, Block Design, verbal fluency, verbal learning/recall and immediate/delayed visual memory.
Nopoulos et al. (1994)(5)	35 FE patients	1 (n=17)/2 (n=18) years	No change on most neuropsychological scores; Improvement on Trails B, Stroop Colored Dots and Stroop Interference.
Censits et al. (1997)(6)	30 FE patients	19 months	Stable performance on all neuropsychological tests.
Hoff et al. (1999)(7)	42 FE patients 16 healthy controls	3.6 years (FE), 3.8 (HC)	Patients showed no improvement on verbal memory and sensory-perceptual domains compared to controls and showed deterioration in verbal memory.
Gold et al. (1999)(8)	21 FE patients 33 recent onset patients	5 years	Improvement on performance IQ, full-scale IQ, letter-cancellation, logical memory free recall, WCST categories; Decline in finger tapping.

Table S1 Cont'

Study	N (Subjects)	Length of follow-up	Summary of findings
Hofer et al. (2000)(9)	16 FE patients	1 year	Normalization of neuropsychological performance over time.
Purdon et al. (2000)(10)	55 FE patients	1 year	Improvement or stability on all neuropsychological tests.
Albus et al. (2002)(11)	50 FE patients 50 healthy controls	2 years	Improvement in verbal learning; No change in semantic memory, visual-motor processing and attention, and abstraction/flexibility; Deterioration in visual memory.
Townsend et al. (2002)(12)	83 FE patients	1 year	Improvement on verbal and performance IQ, measures of verbal comprehension, perceptual organization, working memory, visual memory, auditory memory, WCST, Trails-A, CPT, word fluency; No change on Stroop and Trails-B.
Stirling et al. (2003)(13)	24 FE patients	10.6 years	Decline in performance on three out of nine tests: object assembly, picture completion, and memory for design. Stable performance on measures of executive/frontal function.
Hill et al. (2004)(14)	45 FE patients 33 healthy controls	1-2 years	No change in executive functions, motor skills; Less improvement than controls in attention and verbal memory; Improvement in visual memory and visual perception compared to controls.
Hoff et al. (2005)(15)	21 FE patients 8 healthy controls	10 years	High stability on most neuropsychological tests; Improvement in Verbal IQ, Stroop Color Word and Finger Tapping in both patients and controls; Greater improvement in patients compared to controls in Visual Reproduction-Immediate.
Addington et al. (2005)(16)	105 FE patients 66 healthy controls	Patients: 1,2 and 3 years HC: 1 year	Improvement in patients over three years in several tests, but failure to improve during the first year on verbal fluency, visual memory, trails A and the Stroop, compared to controls who did improve. Controls failed to improve on the RAVLT, letter-number, WCST and Pegboard-dominant.
Albus et al. (2006)(17)	71 FE patients 71 healthy controls	5 years	Both groups showed stability or improvement in the majority of cognitive domains. Patients showed deterioration in verbal fluency while controls improved, as well as a trend towards less improvement in semantic memory and retention rate compared to controls.
Keefe et al. (2006)(18)	58 and 26 FE patients	1 and 2 years	Improvement in attention, processing speed, verbal memory and working memory.
Kopala et al. (2006)(19)	20 FE patients	2 years	Improvement on measures of verbal learning, verbal fluency, attention, and executive function.

Table S1 Cont'

Study	N (Subjects)	Length of follow-up	Summary of findings
Keefe et al. (2007)(20)	81 FE patients	1 year	Improvement across neuropsychological tests.
Rund et al. (2007)(21)	138 FE patients (1 year) 111 FE patients (2 years)	1 and 2 years	Improvement in working memory and verbal learning dimensions.
Rodriguez-Sanchez et al. (2008)(22)	112 FE patients 22 healthy controls	1 year	Equivalent improvement in patients and controls in all cognitive domains, except verbal memory where controls showed greater improvement than controls.
Mayoral et al. (2008)(23)	22 FE patients 29 healthy controls	2 years	Patients and controls showed improvement in global cognitive performance and attention, and no change in working memory. Patients, but not controls showed improvement in learning and memory, and no change in executive function. Controls, but not patients, showed improvement in executive function, and no change in learning and memory.
Zipparo et al. (2008)(24)	32 FE patients	2-3 years	Stability on the majority of cognitive tests; Improvement in full-scale and performance IQ, and visual memory; A trend towards decline in verbal knowledge, attention and visuospatial ability.
Crespo-Facorro et al. (2009)(25)	104 FE patients 37 healthy controls	1 year	Patients, but not controls, showed improvement on measures of motor speed, executive function and long-term recall; Similar improvement in patients and controls on all other cognitive measures.
Leeson et al. (2009)(26)	104 FE patients 25 healthy controls 31 FE patients	1 and 3 years 6 years	Patients showed deterioration in attentional set shifting task performance from baseline to 1 year, but no difference between baseline and 3 or 6 years; Controls showed no change over time.
de Mello Ayres et al. (2010)(27)	56 FE patients 70 healthy controls	1.6 years (patients), 1.9 years (controls)	Similar improvement on digit span forward, digit span backward, and verbal fluency in patients and controls.
Popolo et al. (2010)(28)	15 FE patients	1 year	No significant change over time.
Leeson et al. (2011)(29)	78 FE patients 27 healthy controls 60 FE patients 27 healthy controls	1 year 3 years	Patients with normal IQ at baseline showed similar IQ improvement as controls; patients with low IQ at baseline showed less improvement than other patients and controls; All patients showed similar improvement in memory and executive function as controls.

Table S1 Cont'

Study	N (Subjects)	Length of follow-up	Summary of findings
Liu et al. (2011)(30)	31 FE patients	1 and 3 years	Stability and improvement on measures of executive function.
Barder et al. (2012)(31)	62 FE patients	1, 2 and 5 years	Improvement in working memory and impulsivity in the first two years, followed by no change over the next three years; Decrease in motor speed from 2 to 5 years; No change in verbal learning and executive function.
Ayesa-Arriola et al. (2013)(32)	79 FE patients 41 healthy controls	3 years	Patients and controls showed improvement in most cognitive scores; Less improvement in patients compared to controls on measures of verbal memory and processing speed.
Rodríguez-Sánchez et al. (2013)(33)	155 FE patients 43 healthy controls	3 years	Increasing deviation of patients from controls in measures of verbal and visual memory; Similar improvement in patients and controls on measures of motor dexterity and attention.
Chang et al. (2014)(34)	93 FE patients	1, 2 and 3 years	Improvement in measures of working memory, logical memory, visual reproduction and WCST; No change in category fluency.
Rund et al. (2015)(35)	167 FE patients (1 year) 159 FE patients (2 years) 101 FE patients (5 years) 114 FE patients (10 years)	1, 2, 5 and 10 years	Stability in composite score of neurocognitive function over time.
Amoretti et al. (2016)(36)	45 FE patients 41 healthy controls	2 years	Improvement in verbal memory and attention; measures of working memory and executive function remained stable .
Bergh et al. (2016)(37)	171 FE patients	5 and 10 years	Performance on cognitive tests (of executive function) did not change significantly over time.
Kenney et al. (2016)(38)	23 FE patients 21 healthy controls	4 years	Patients showed less improvement than controls on measures of processing speed and verbal learning; there were no group difference in change on the remaining cognitive metrics.
Labad et al. (2016)(39)	36 FE patients	1 year	Performance on cognitive tests (of processing speed, attention, working memory, verbal/visual learning and reasoning) did not change significantly over time.

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TABLE S2. Neuropsychological Performance Among Patients with Schizophrenia and Other Psychoses at Baseline and Follow-Up^a

Measure	Schizophrenia		Other Psychoses	
	Baseline	Follow up	Baseline	Follow up
IQ	-1.05	-1.29	-0.61	-0.63
Learning	-1.11	-1.18	-0.61	-0.84
Immediate Recall	-0.75	-1.14	-0.29	-0.46
Delayed Recall	-0.87	-1.07	-0.32	-0.52
Visual Recall	-0.55	-0.95	-0.49	-0.88
Vocabulary	-1.04	-1.25	-0.56	-0.71
Comprehension	-0.62	-1.29	-0.62	-0.68
TMT-A	-1.06	-0.96	-0.69	-0.44
Digit Symbol	-1.25	-1.18	-0.56	-0.47
TMT-B	-0.68	-0.89	-0.73	-0.793
LNS	-0.88	-0.77	-0.56	-0.62
Letter Fluency	-0.32	-0.42	-0.18	-0.17
Category Fluency	-1.08	-0.96	-0.58	-0.735
Block Design	-0.89	-0.91	-0.62	-0.528

^a Unadjusted effect sizes (expressed in standardized [z] scores) of difference from comparison subjects at baseline and follow up. Comparison subjects set to zero.

TABLE S3. Association between severity of psychosis at baseline, change in severity of psychosis from baseline to follow-up and change in cognitive performance in individuals with schizophrenia or other psychoses

	Schizophrenia		Other psychoses	
	Baseline severity ^a	Change in severity ^b	Baseline severity ^a	Change in severity ^b
Full-scale IQ	0.18	-0.22	-0.08	0.06
Verbal learning	0.25	-0.20	0.12	-0.02
Verbal immediate recall	0.11	-0.10	-0.19	0.12
Verbal delayed recall	-0.25	0.09	0.04	-0.08
Visual delayed recall	0.34*	-0.27	0.38	-0.31
Vocabulary	0.06	-0.12	-0.12	-0.08
Comprehension	0.18	-0.18	-0.13	-0.03
Trail Making Test, Part A	-0.10	0.04	0.12	0.02
Digit symbol coding	0.26	-0.32*	-0.20	0.12
Trail Making Test, Part B	0.12	-0.07	0.33	-0.12
Letter-number span	0.27	-0.25	0.16	0.03
Letter fluency	0.00	0.08	0.14	-0.02
Category fluency	-0.10	0.14	-0.06	0.11
Block design	-0.03	-0.16	0.18	-0.44*

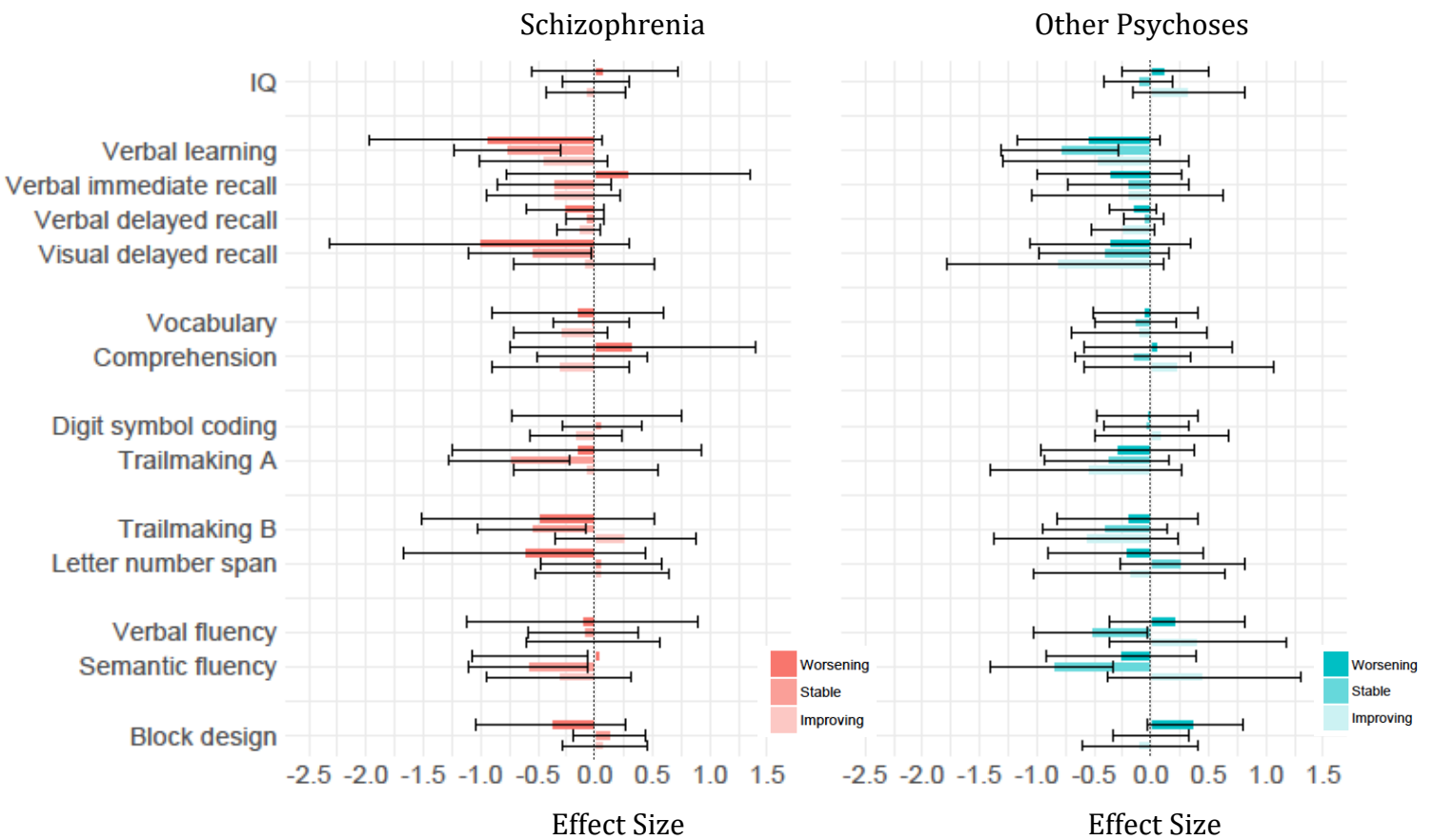
The table lists the partial correlation coefficients between severity of psychotic symptoms at baseline and change in cognitive functioning between baseline and follow up, and the correlation coefficients between change in severity of psychotic symptoms and change in cognitive functioning from baseline to follow up for each group. The partial correlations were calculated between severity of psychotic symptoms at baseline and change in severity of symptoms and change in normative-adjusted IQ and specific neuropsychological tests, controlling for time from baseline assessment and baseline test score. Correlation coefficients of 0.10, 0.30, and 0.50 reflect small, medium, and large effect sizes, respectively (33).

^a - A positive coefficient indicates more severe symptoms at baseline are associated with increasing cognitive impairment from baseline to follow up.

^b - A positive coefficient indicates that increasing severity of symptoms from baseline to follow up is associated with increasing cognitive impairment.

* p<0.05

FIGURE S1. Change in Neuropsychological Performance Among Patients With Schizophrenia and Other Psychoses in Relation to Change in Symptom Severity^a



^a Presented are effect sizes and 95% Confidence Intervals of difference in change from baseline to follow up between the diagnostic group and comparison group as a function of change in symptom severity. 95% Confidence Intervals that do not include zero indicate statistical significance level $p < 0.05$. Effect sizes are adjusted for age, sex, ethnicity, level of education, time from baseline assessment and baseline test score. Trailmaking A=Trail Making Test, Part A; Trailmaking B=Trail Making Test, Part B.