

Supplemental Information

Associations of mismatch negativity with psychotic symptoms and functioning
transdiagnostically across psychotic disorders

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Methods

Study Inclusion

Participants in the clinical cohort were recruited at first hospital admission and followed up longitudinally; data in the present analyses were collected in the 20th year of the study.

Inclusion criteria for age-, gender-, and race-matched neighbors included no history of psychotic disorder or psychiatric hospitalization; non-psychotic Axis I diagnoses were not considered an exclusionary criterion.

Clinical Ratings

Symptoms were assessed using the Scale for the Assessment of Positive Symptoms (SAPS; Andreasen, 1984) and the Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1989). Functioning was assessed using clinician-administered interviews. Measures of cognitive functioning utilized in the present analyses were determined through a neuropsychological testing battery, including tests of executive functioning and working memory (Stroop: Trenerry, 1989; Trails-B: Reitan, 1955), attention (Trails-A; Reitan, 1992), episodic memory (assessed through the visual and auditory modalities; Wechsler, 1987), and overall academic abilities (as measured by the WRAT-3; Wilkinson, 1993). Interviews and assessments

were conducted by a clinical psychologist, psychiatrist, or trained interviewer, and diagnostic consensus was reached by staff psychiatrists.

References

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- Andreasen, N. C. (1989). The Scale for the Assessment of Negative Symptoms (SANS): conceptual and theoretical foundations. *The British Journal of Psychiatry*, 155(S7), 49-52.
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- Trenerry, M. R., Crosson, B., DeBoe, J., & Leber, W. R. (1989). Stroop neuropsychological screening test. *Psychological Assessment Resources*.
- Wechsler, D. (1987). *Manual for Wechsler Memory Scale-Revised*. Psychological Corporation. San Antonio, Tex, USA.
- Wilkinson, G. S. (1993). *WRAT-3: Wide range achievement test administration manual*: Wide Range, Incorporated.

Tables*Supplemental Table 1. Comparison of Correlations in Cases*

	Frequency MMN	Duration MMN	Fishers r to z
<i>Symptoms</i>			
Auditory Hallucinations	-.03	.14*	2.17*
SAPS-D	.01	.14*	1.65*
<i>Real-world Functioning</i>			
Occupational Functioning	.20**	.10	1.28
<i>Neuropsychological Functioning</i>			
Episodic Memory	-	-	
Visual	-.22**	-.11	-1.42
Auditory	-.15*	-.04	-1.40
Cognitive/Academic Ability	-	-	
WRAT 3	-.16*	-.11	-0.64

*Indicates $p < .05$ difference between correlation coefficients

Supplemental Table 2. Frequency Hierarchical Regression

Model	Predictors	R^2	ΔR^2	p value
<i>Functioning</i>				
Occupational Functioning	Demographics ¹	.02	.02	.215
	Functioning	.04	.03	.015*
	Diagnosis	.05	.00	.590
	Interaction	.05	.00	.609
<i>Cognition</i>				
Auditory Episodic Memory	Demographics	.01	.01	.274
	Auditory EM	.03	.02	.057
	Diagnosis	.03	.00	.777
	Interaction	.06	.03	.068
Visual Episodic Memory	Demographics	.01	.01	.259
	Visual EM	.05	.04	.004**
	Diagnosis	.06	.00	.804
	Interaction	.07	.01	.266
Trails B	Demographics	.02	.02	.152
	Trails B	.03	.01	.138
	Diagnosis	.03	.00	.906
	Interaction	.03	.00	.922
Stroop	Demographics	.02	.02	.194
	Stroop	.03	.02	.081
	Diagnosis	.03	.00	.858
	Interaction	.04	.00	.755
WRAT 3	Demographics	.01	.01	.241
	WRAT 3	.03	.02	.038*
	Diagnosis	.04	.00	.882
	Interaction	.05	.01	.293

¹Consisting of gender and antipsychotic medication use, the two demographic variables on which these groups differed significantly; * $p < .05$; ** $p < .01$

Supplemental Table 3. Duration Hierarchical Regression

Model	Predictors	R^2	ΔR^2	p value
<i>Symptoms</i>				
SAPS D	Demographics ¹	.00	.00	.749
	SAPS-D	.02	.02	.043*
	Diagnosis	.03	.01	.399
	Interaction	.03	.00	.716
Auditory Hallucinations	Demographics	.00	.00	.762
	AH	.02	.02	.051
	Diagnosis	.03	.01	.382
	Interaction	.04	.01	.361
<i>Cognition</i>				
Trails B	Demographics	.00	.00	.669
	Trails B	.02	.02	.048*
	Diagnosis	.03	.01	.388
	Interaction	.04	.00	.800
Stroop	Demographics	.01	.01	.591
	Stroop	.03	.03	.022*
	Diagnosis	.04	.01	.430
	Interaction	.04	.00	.967

¹Consisting of gender and antipsychotic medication use, the two demographic variables on which these groups differed significantly; * $p < .05$

Supplemental Table 4. Hierarchical Regression Across Populations

Model	Predictors	R^2	ΔR^2	p value
<i>Frequency MMN</i>				
Visual EM	Group	.02	.02	.003**
	Visual EM	.06	.04	.000***
	Interaction	.06	.00	.421
Auditory EM	Group	.02	.02	.003**
	Auditory EM	.04	.02	.002**
	Interaction	.04	.00	.817
Trails B	Group	.02	.02	.006**
	Trails B	.04	.03	.001**
	Interaction	.04	.00	.310
Trails A	Group	.02	.02	.003**
	Trails A	.03	.01	.011*
	Interaction	.04	.00	.259
Stroop	Group	.02	.02	.009**
	Stroop	.05	.03	.000***
	Interaction	.05	.00	.222
<i>Duration MMN</i>				
Visual EM	Group	.03	.03	.000***
	Visual EM	.05	.02	.005*
	Interaction	.05	.00	.241
Auditory EM	Group	.03	.03	.000***
	Auditory EM	.05	.01	.013*
	Interaction	.05	.01	.050*
Trails B	Group	.03	.03	.000***
	Trails B	.04	.01	.012*
	Interaction	.04	.00	.772
Stroop	Group	.03	.03	.000***
	Stroop	.08	.04	.000***
	Interaction	.08	.01	.070

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