Schizophrenia and related disorders

Dr. Simon Surguladze
King's College London Institute of Psychiatry

sphasis@kcl.ac.uk

- What do we know?
- What makes it special?
- What makes it difficult?

Epidemiology

- Prevalence: 1.4-4.6 per 1,000
- Incidence: 0.17-0.54 per 1,000
- Age of onset: 15-45, in men 5 yrs earlier than in women
- Occurs equally in men and women
- Generally similar prevalence in different countries

Clinical features

- Positive symptoms (N.Andreasen)
  - Hallucinations
  - Delusions
  - Positive thought disorder
  - Bizarre behaviour
  - Inappropriate affect

Negative symptoms (N.Andreasen)

- Flat affect
- Poverty of speech (Alogia)
- Avolition - apathy
- Anhedonia – asociality
- Poor attention

Diagnostic criteria for DSM-IV

- **A** Characteristic symptoms of the active phase

  Two or more – for 1 month:

  – Delusions
  – Hallucinations
  – Disorganised speech
  – Disorg. or catatonic behaviour
  – Flat affect, alogia, avolition

Diagnostic criteria for DSM-IV cont.

- **B** Social/occupational dysfunction

  One or more areas of functioning are below the level prior to the onset

- **C** Duration

  Signs persist for at least 6 months, incl. 1month of symptoms from **A** plus prodromal and/or residual symptoms

Diagnostic criteria for DSM-IV cont.

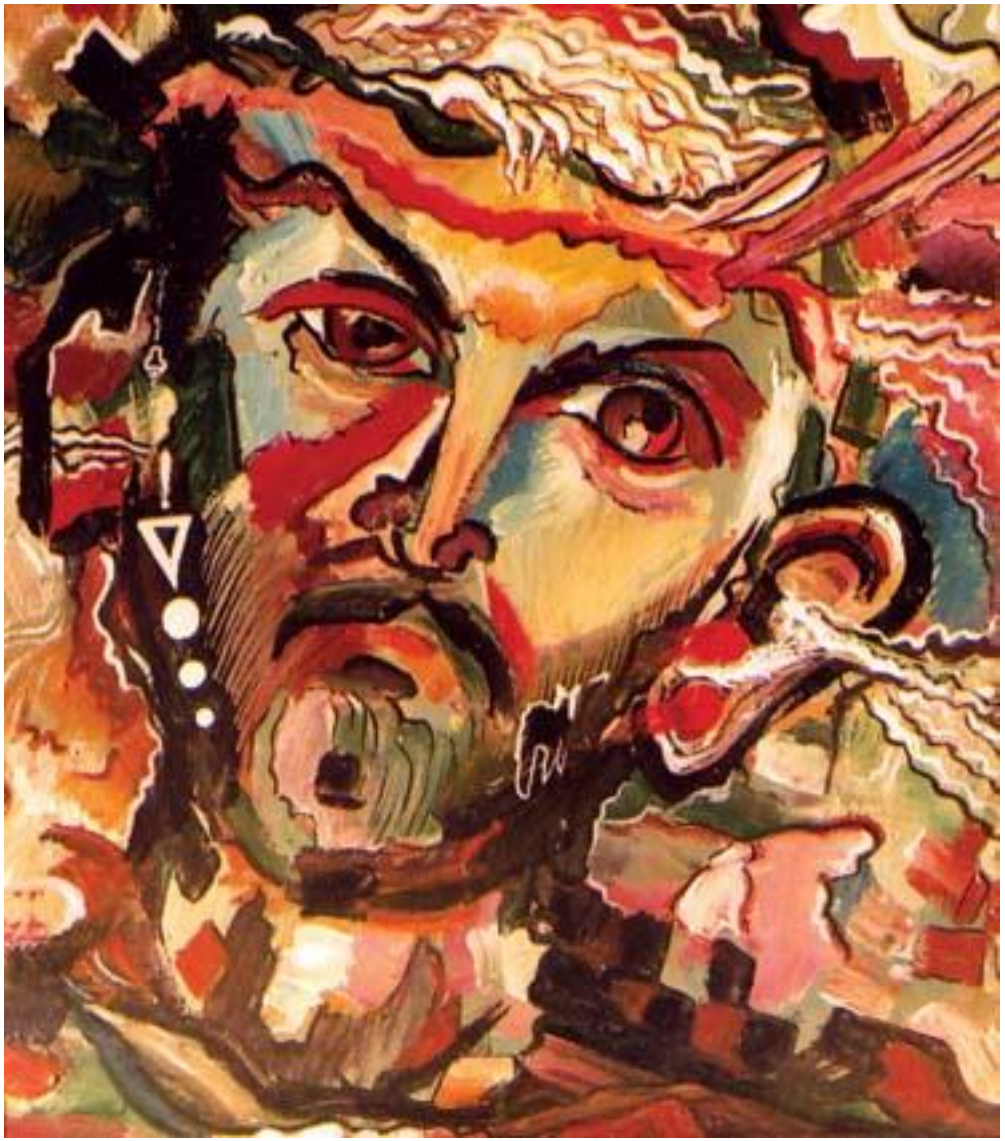
- **D** Schizoaffective and mood disorder exclusion
- **E** Substance/general medical condition exclusion
- **F** Relationship to a pervasive developmental disorder: acute symptoms for at least 1 month

Diagnostic criteria for ICD-10

- Duration of symptoms – 1month
- a) thought echo, insertion, withdrawal
- b,d) delusions of control, influence
- c) 3-rd person hallucinations
- e) persistent hall. in any modality
- f) thought disorder
- g) catatonic behaviour
- h) apathy, flat affect, social withdrawal

One of these

Two of these



Development of concept

- Morel (1852): demence precoce
- Kraepelin (1893-1919): dementia praecox
  - dementia paranoides
  - katatonia
  - hebephrenia
  - simple
- Bleuler (1911): schizophrenia
- fundamental symptoms
  - Autism
  - Loose associations
  - Affective deficit

From E.Esquirol, Maladies Mentales, Paris, 1836

MADMAN TIED TO CHAIR, PRINT BY AMBROISE TARDIEU IN « DES MALADIES MENTALES », BY ÉTIENNE ESQUIROL, PARIS, 1836

Abb. 81. Schizophrenie.
Ratloser Gesichtsausdruck.

From O.Bumke, Handbook of Mental Disorders, 1924

Abb. 95. Katatonie. Stereotype Haltungen.

From O.Bumke, Handbook of Mental Disorders, 1924

Abb. 1. Halluzinant. Leipzig.
(Hört aus der Weckuhr die Stimme seiner Frau.)

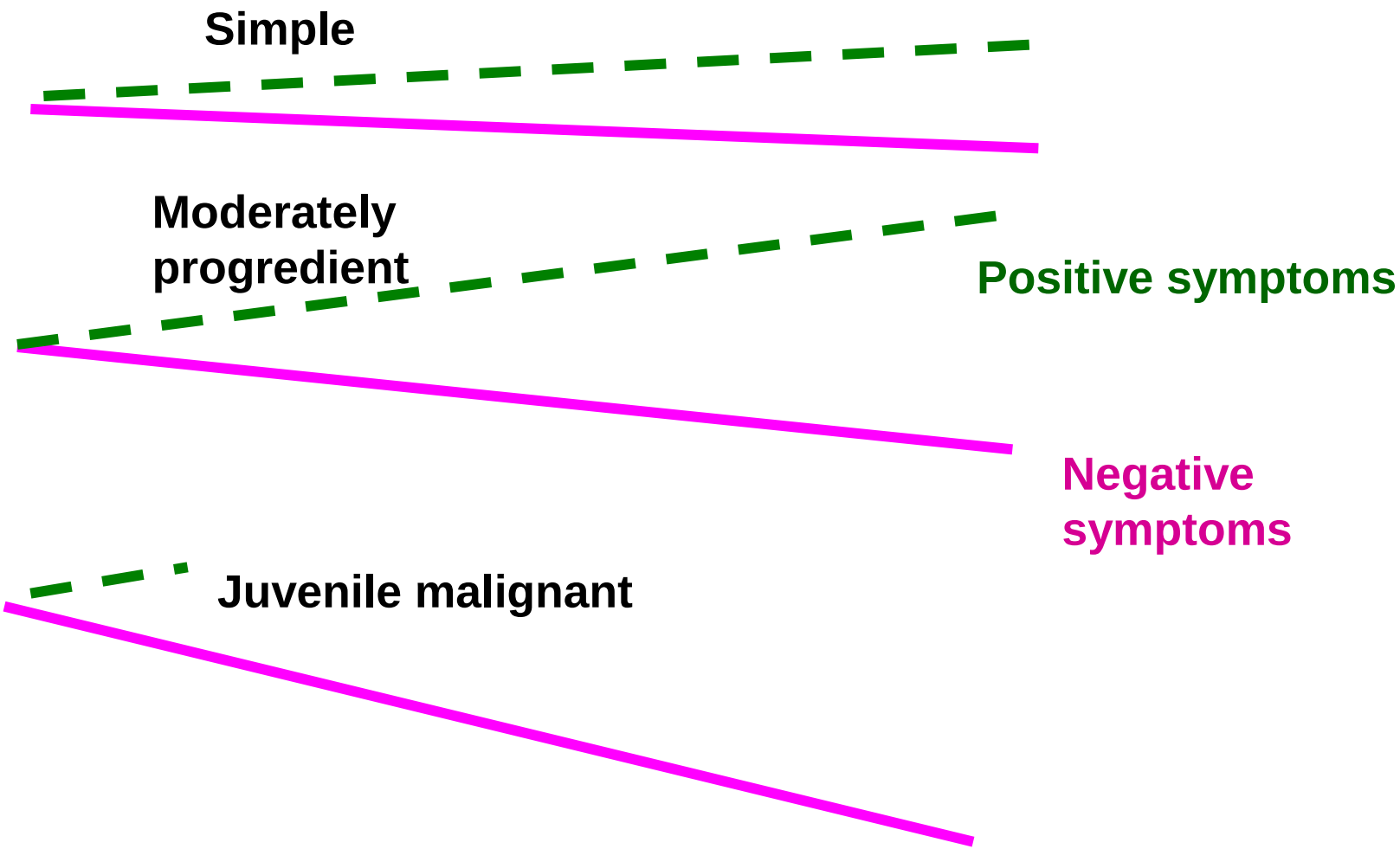
Abb. 12. Flexibilitas cerea.

From O.Bumke, Handbook of Mental Disorders, 1924

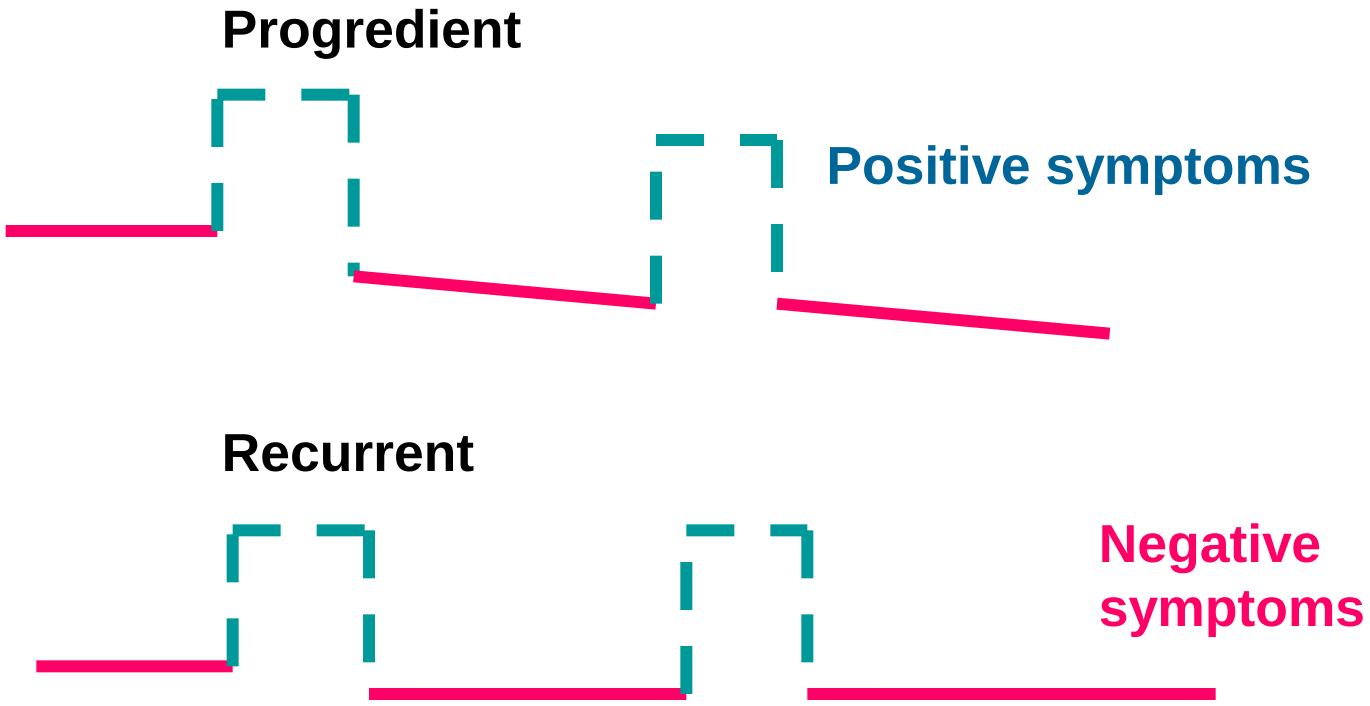
Abb. 97. Gruppe von schizophrenen Endzuständen.

From O.Bumke, Handbook of Mental Disorders, 1924

Continuous schizophrenia



Episodic schizophrenia



Course and prognosis

Good prognosis	Poor prognosis
Older age at onset	Younger age at onset
Acute onset	Insidious onset
Affective symptoms	Negative symptoms
Married	Single
No abnormalities of personality	Abnormal personality
Low expressed emotion	High expressed emotion

Frequency of symptoms, % (IPSS, 1973)

Lack of insight	97
Auditory hallucinations	74
Ideas of reference	70
Suspiciousness	66
Flatness of affect	66
Delusional mood	64
Delusions of persecution	64
Thought alienation	52
Thoughts spoken aloud	50

Therapeutic dialogue

- Video on Compliance therapy

Neurocognitive deficits in schizophrenia

Test or construct	*Pts below Mdn*
Global verbal memory	78
Performance IQ	77
Continuous performance	75
Word fluency	75
Stroop test	74
WAIS-R IQ	74
WCST	69

Brain abnormalities

Brain structural abnormalities in schizophrenia

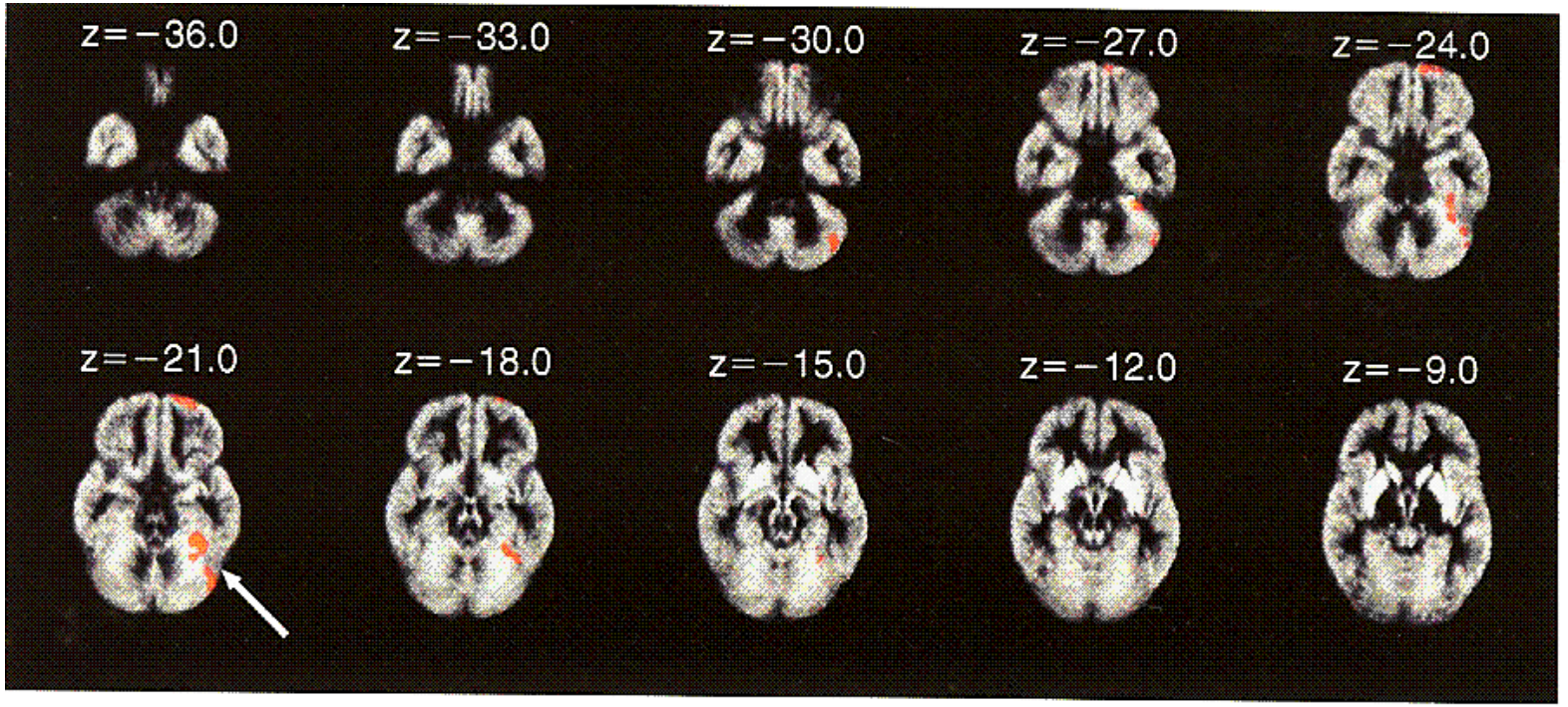
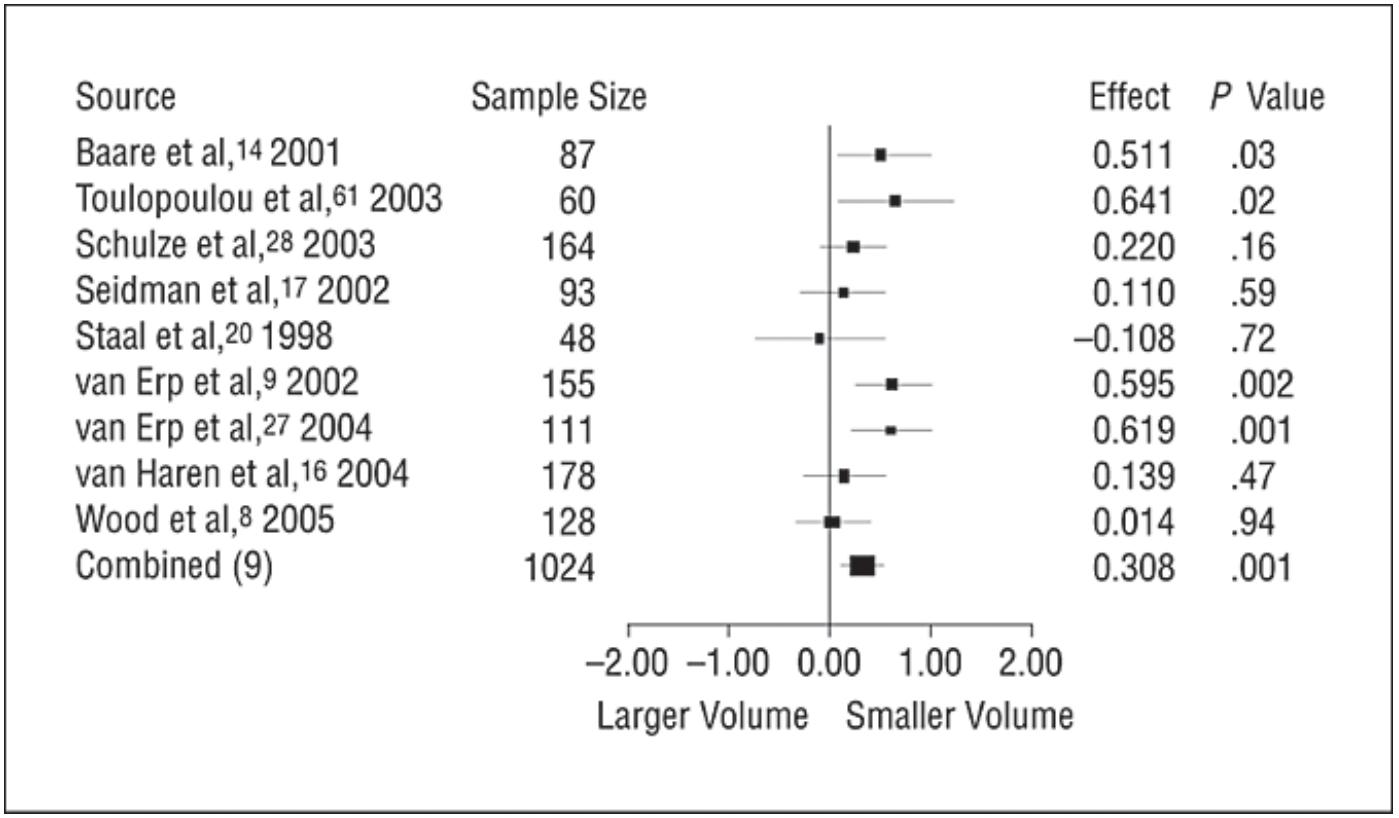


Figure 1.2 *Evidence of progressive changes associated with the transition from the 'at risk mental state' to psychosis. A longitudinal reduction in volume was particularly evident in the left medial temporal lobe (arrow). (Reproduced from Pantelis C et al[10] with permission.)*

Pantelis et al, *Lancet*, 2003;361:281-88

Mean total hippocampal volume in relatives



Boos, H. B. M. et al. Arch Gen Psychiatry 2007;64:297-304.

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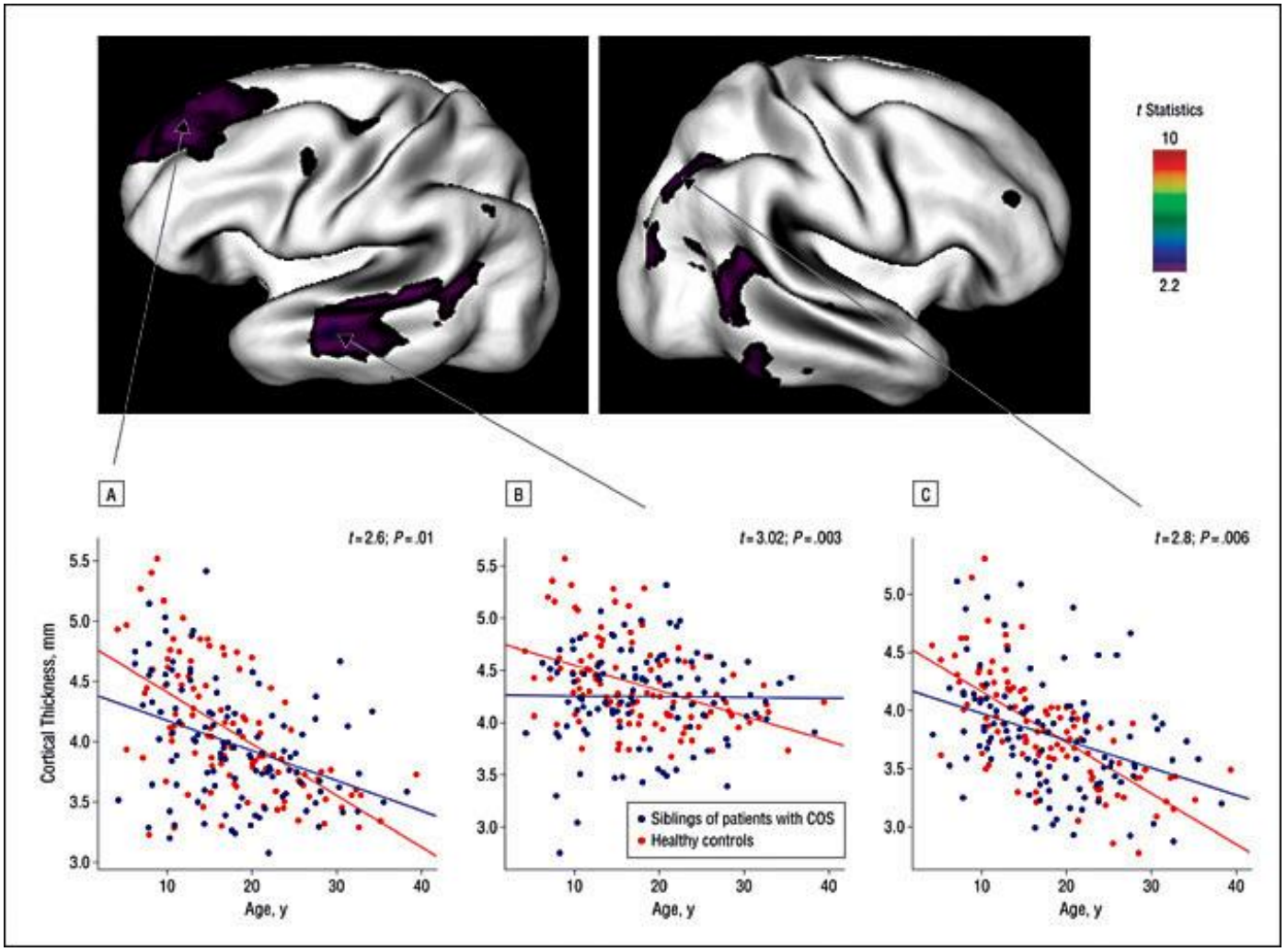
Longitudinal trajectories (slopes) of selected regional cortical gray matter thickness in siblings of patients with childhood-onset schizophrenia (COS) compared with those for the same regions for healthy controls, showing group x age interaction effects



Gogtay, N. et al. Arch Gen Psychiatry 2007;64:772-780.

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Heritability of Changes in Brain Volume Over Time in Twin Pairs Discordant for Schizophrenia

- In a longitudinal study with a 5-year interval, MZ and DZ twin pairs discordant for schizophrenia were compared with healthy twin pairs.
- Progressive gray matter volume decreases in whole brain and frontal and temporal lobe volumes were found both in patients with schizophrenia and in their unaffected co-twins compared with the healthy twin pairs.
- at least 51% of the variation in whole-brain volume loss that is associated with schizophrenia could be explained by genetic factors.

Brans, R. G. H. et al. Arch Gen Psychiatry 2008;65:1259-1268.

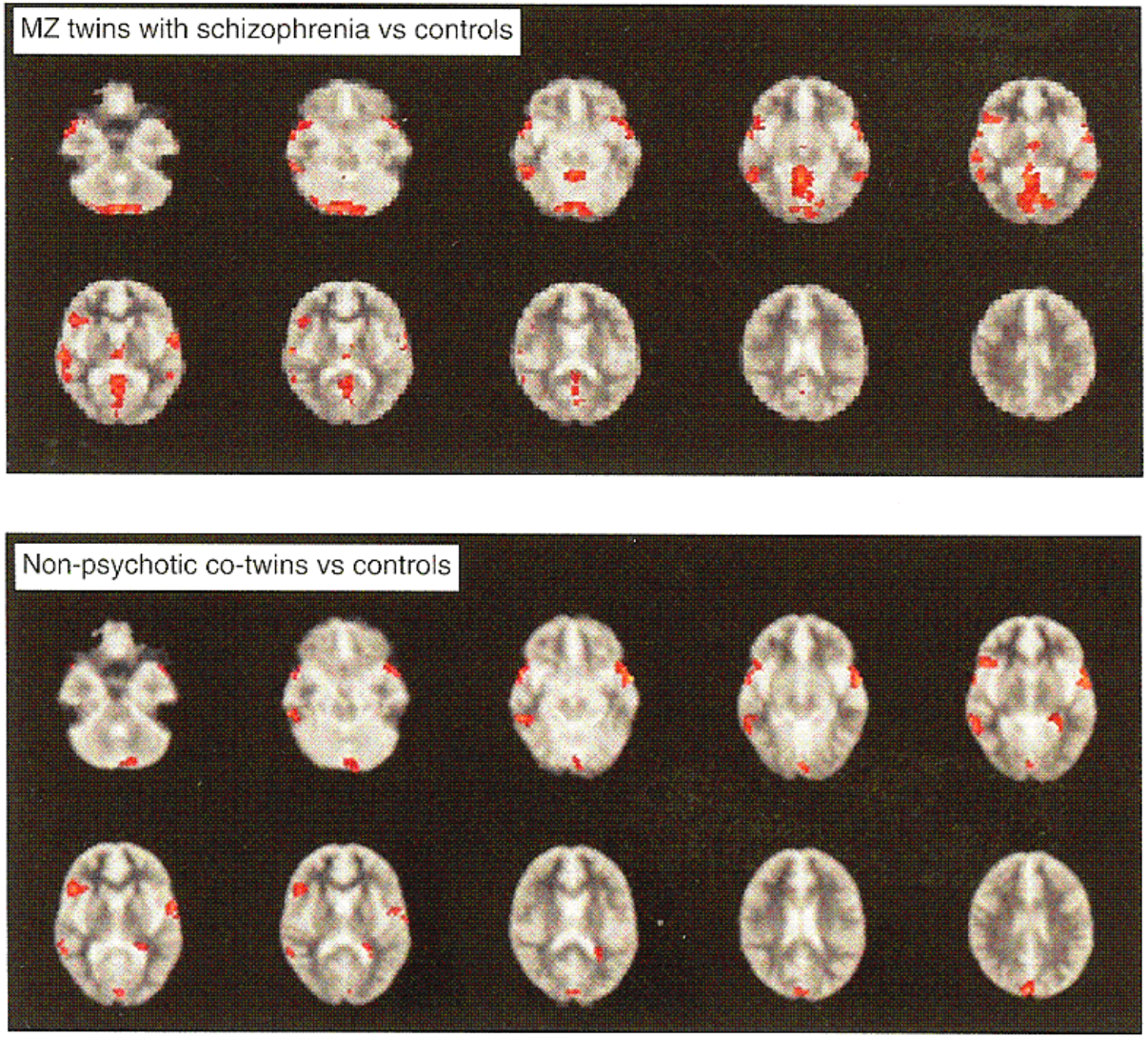
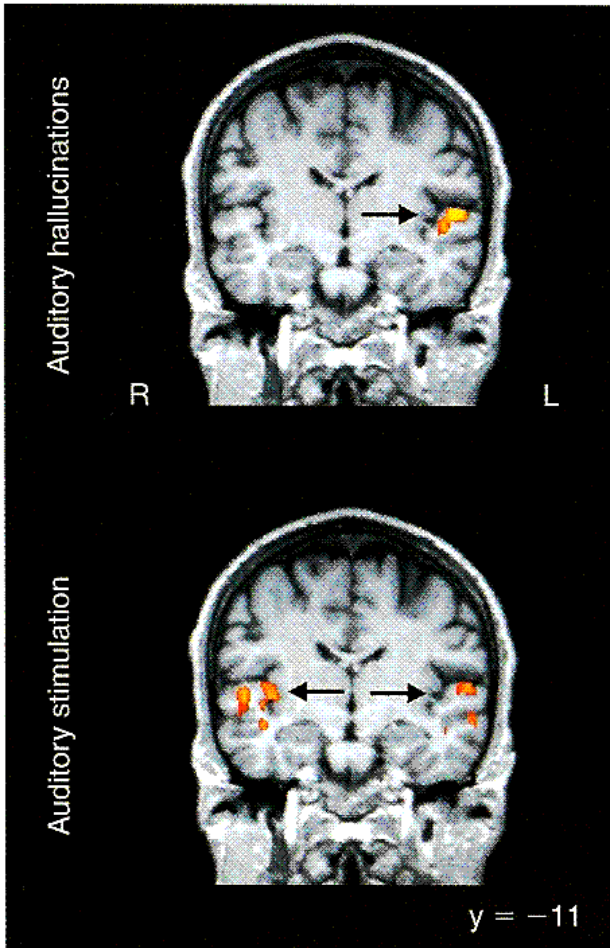


Figure 1.1 *Brain activation during a verbal self-monitoring task in monozygotic (MZ) twins discordant for schizophrenia. Non-psychotic co-twins of patients with schizophrenia showed reduced activation compared to healthy controls in qualitatively similar areas to those showing reduced activation in their psychotic co-twins. However, functional abnormalities were more extensive in the twins with schizophrenia than their co-twins.*[8]

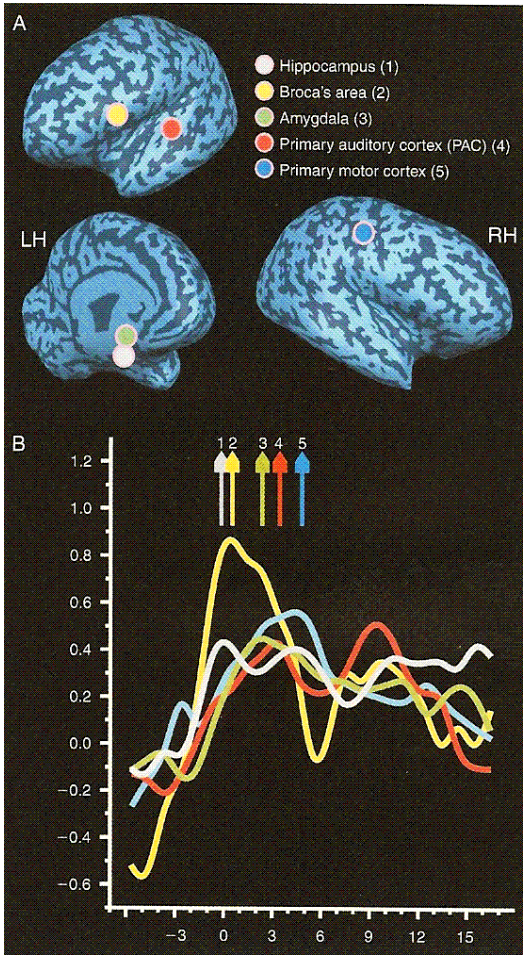
Picchioni et al., *AmJ Med Genet 2002*; 114:866

Auditory hallucinations



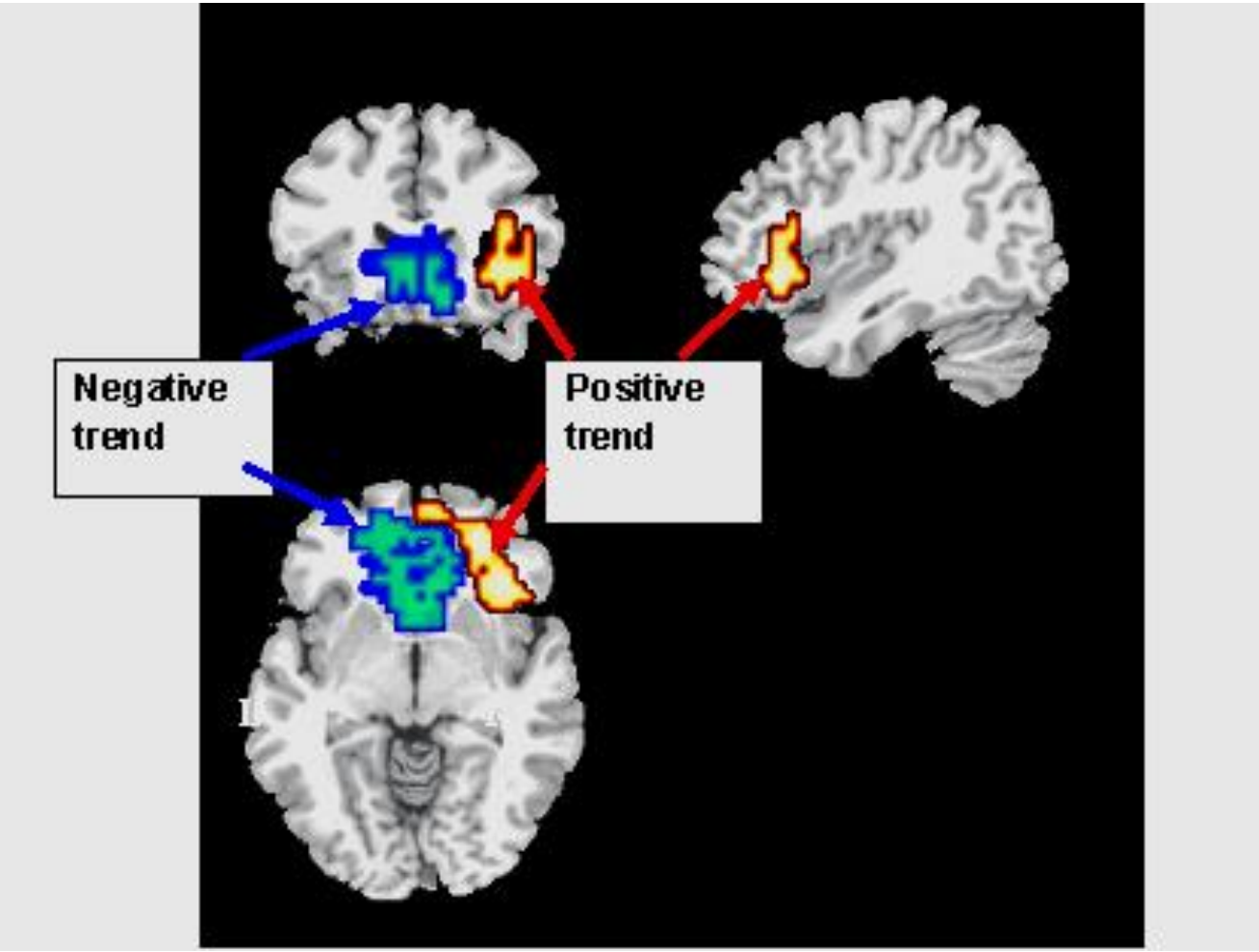
From Dierks et al., *Neuron* 1999; 22:616-21

Auditory hallucinations



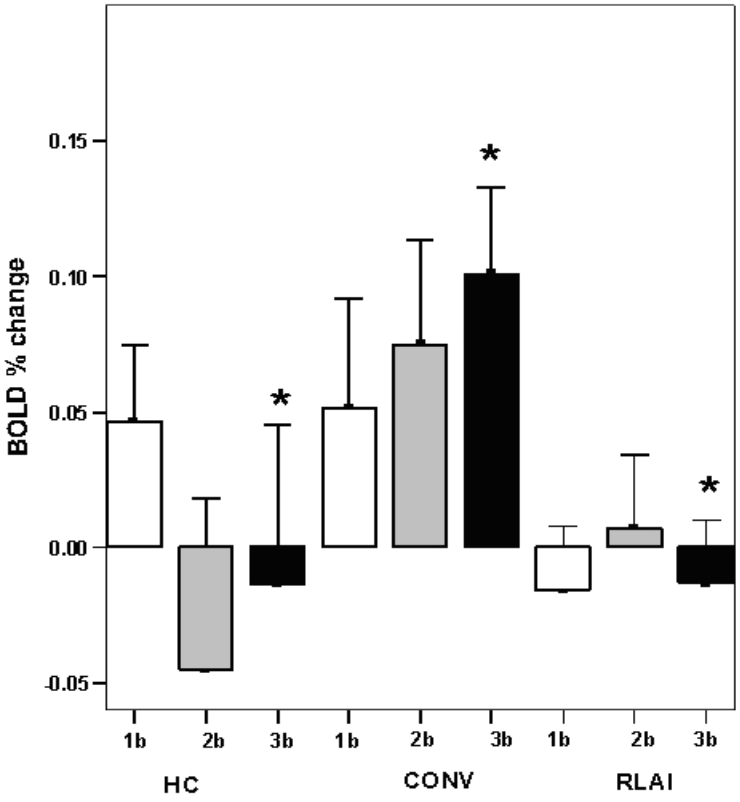
From Dierks et al., *Neuron* 1999; 22:616-21

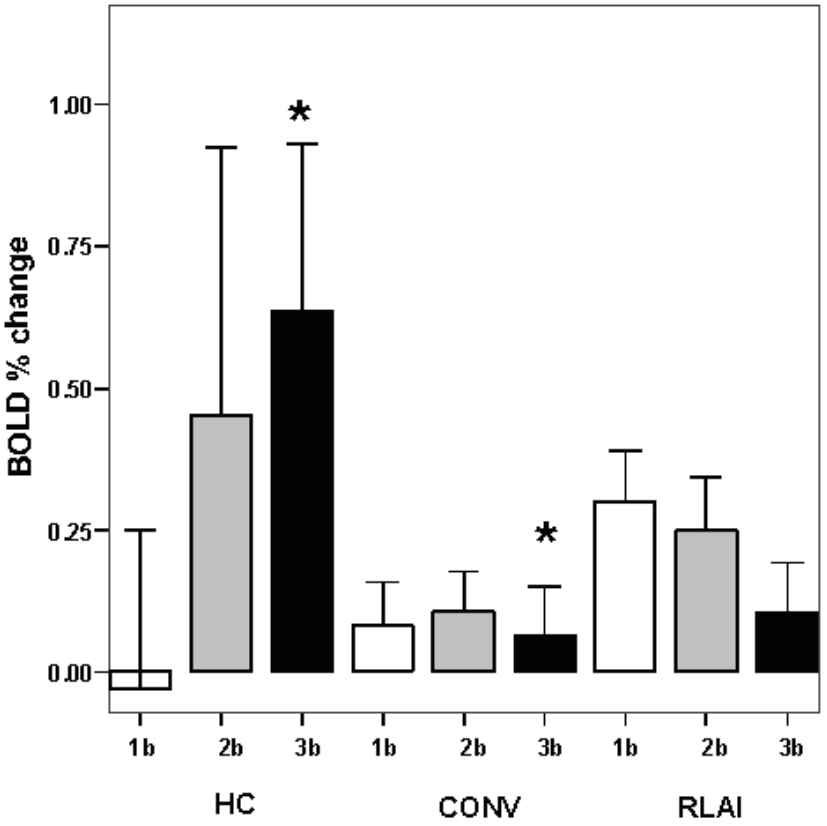
Differential activation to WM task: VMPFC



Surguladze et al, *J Clin Psychopharm* 2007

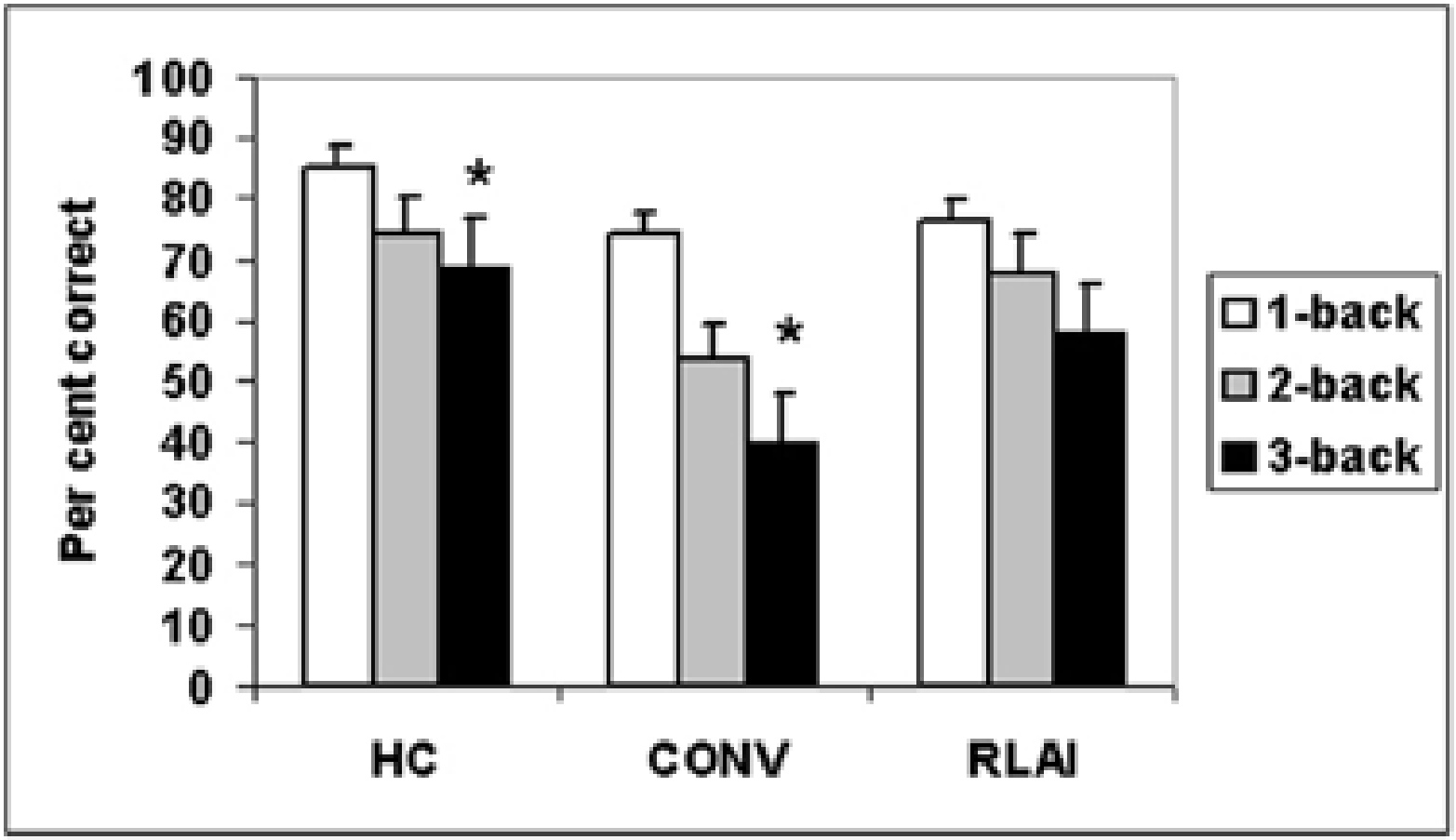
Differential activation to WM task: medial and lateral PFC





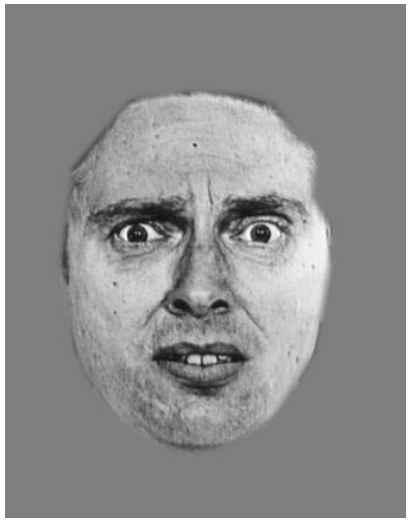
Surguladze et al, *J Clin Psychopharm* 2007

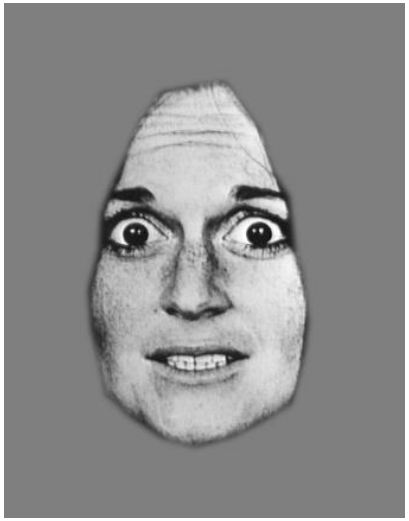
Working memory performance



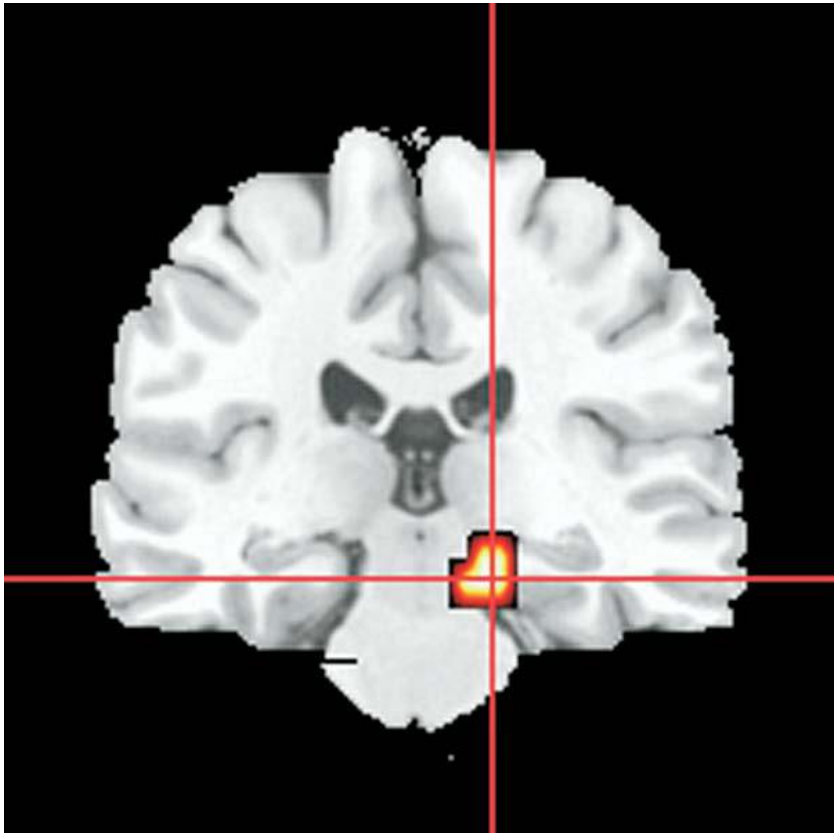
Surguladze et al, *J Clin Psychopharm* 2007

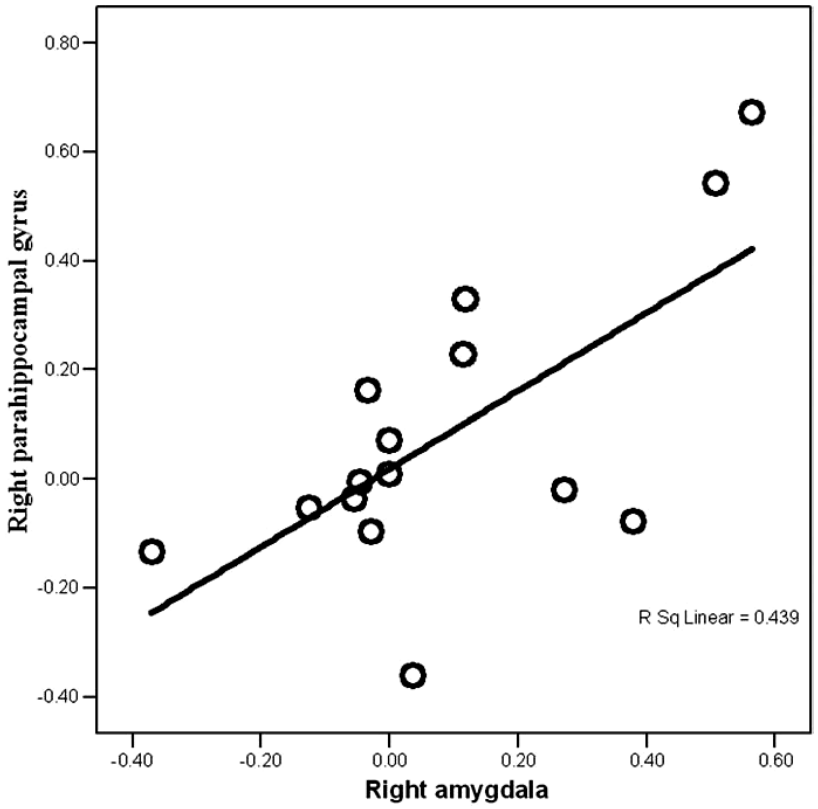
Relationships between social cognition and psychotic symptoms





Reality distortion score positively correlated with activation in PH and amygdala to neutral faces





Surguladze et al, *Biological Psychiatry* 2006

Aetiology

- Vulnerability – stress
  - Genetic studies
  - Social adversity
    - **Parental separation, loss and psychosis in different ethnic groups: a case-control study.** C. Morgan et al, 2007
    - **Associations between ethnicity and self-reported hallucinations in a population sample of young adults in The Netherlands** K. Vanheusden et al., 2008

Aetiology cont.

- Neurochemistry
  - Dopamine hypothesis
    - Increased DA in striatum
    - Decreased DA in frontal cortex
  - Glutamate
    - The repeated PCP treatment impaired NMDA receptor function and decreased levels of spontaneous extracellular glutamate in the prefrontal cortex This was remediated by novel antipsychotics

Which model is more helpful?

- Medical (biological) model: it's all in genes x environment
  - Implications: more stigma, perception of dangerousness
- Traditional cultural model: spirit possession
  - Implications: less stigma, less expressed emotions

Expressed emotions

- White American families: 67%
- British families: 48%
- Mexican: 41%
- Indian: 23%
- Relapse rates of schizophrenia is lower in traditional cultures

(From E.Watters, “Crazy like us: The globalization of American psyche”, 2010.

Management/Treatment

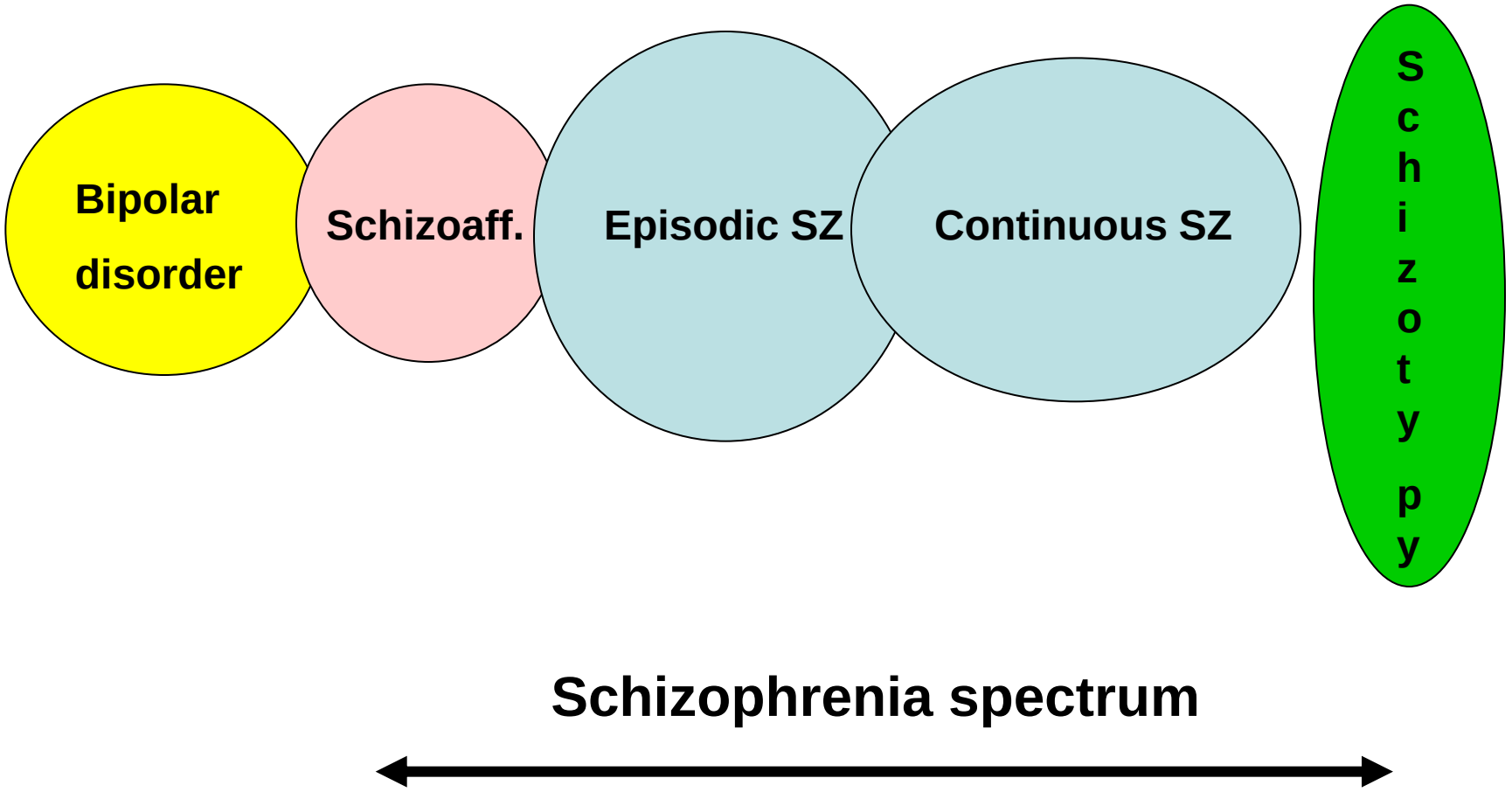
- NICE guidelines
  - Pharmacological
- NICE guidelines
  - management
- Psychotherapy
  - CBT
  - Compliance therapy

Video - CT

Related disorders

- Schizotypal disorder
- Schizoaffective disorder
- Schizophreniform psychosis
- Delusional disorder

Dimensions of psychosis



Recommended reading

Sebastian Faulks Human traces