Schizophrenia

Psychiatric Hospital, University of Zurich

7th May 2018

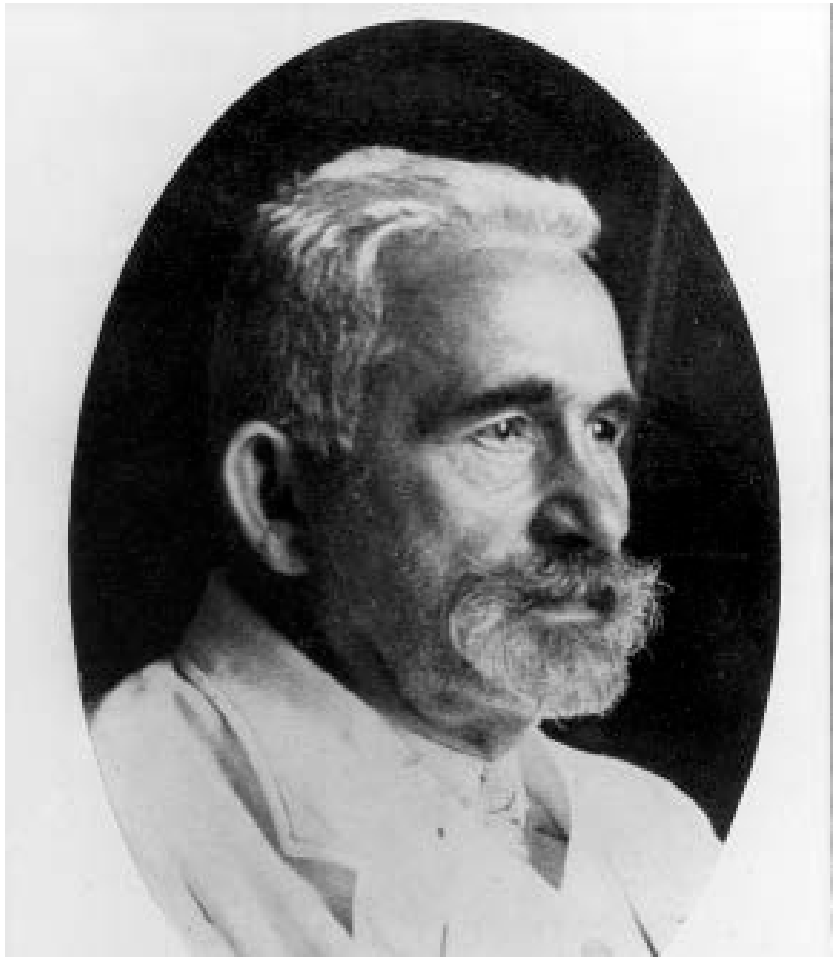
Contents

Definition – main chracteristics

- Profound disruptions in thinking
- Psychotic symptoms
- Loss of acquired capabilities

(http://www.who.int/mental_health/management/schizophrenia/en/)

Historical background: Emil Kraepelin

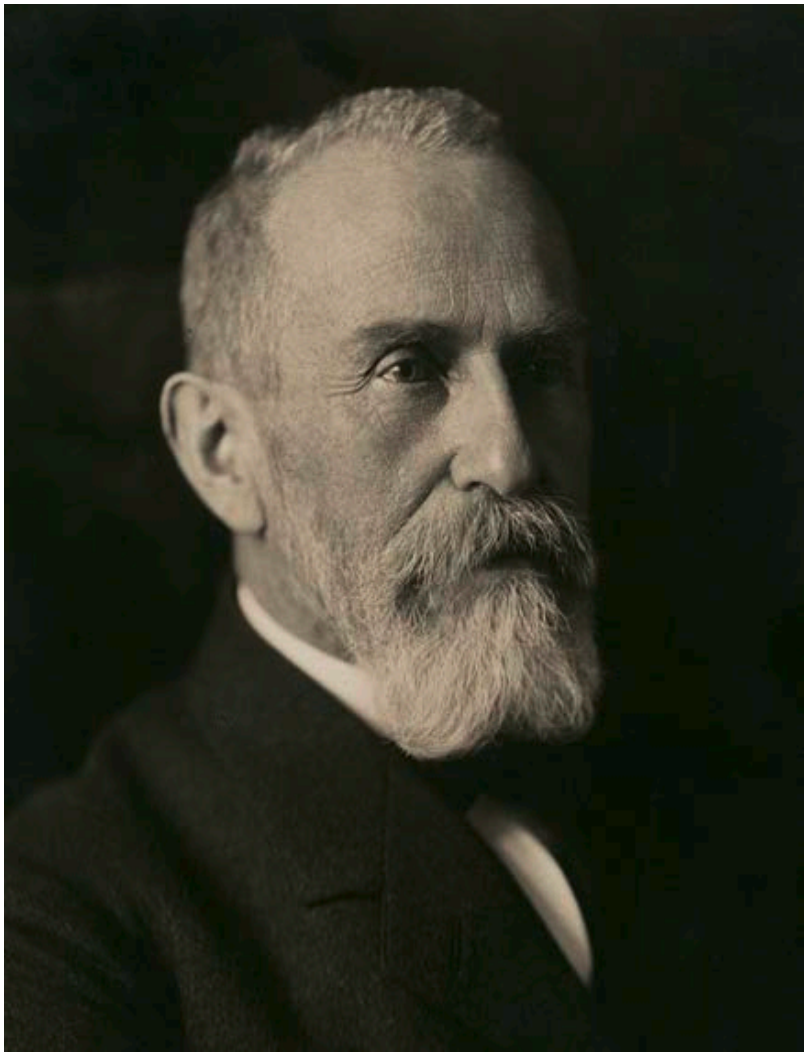


‘Dementia praecox’ (1893/99)

“the subacute development of a specific, simple state of mental weakness in adolescence.”

(Kraepelin E. Lehrbuch 4. Aufl. 1893:435. Translation A. Theodoridou)

Historical background: Eugen Bleuler

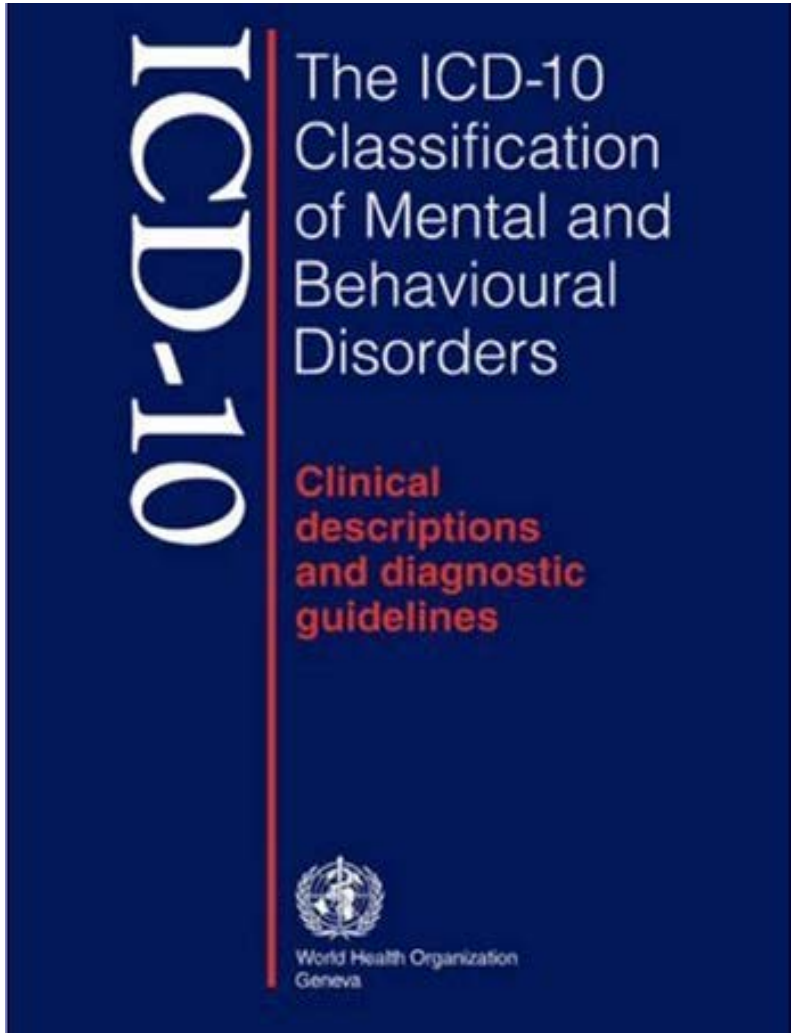


‘Schizophrenia’ (1908)

“In any case, there is a more or less marked splitting of psychic functions: if the disease is severe, the personality loses its unity.”

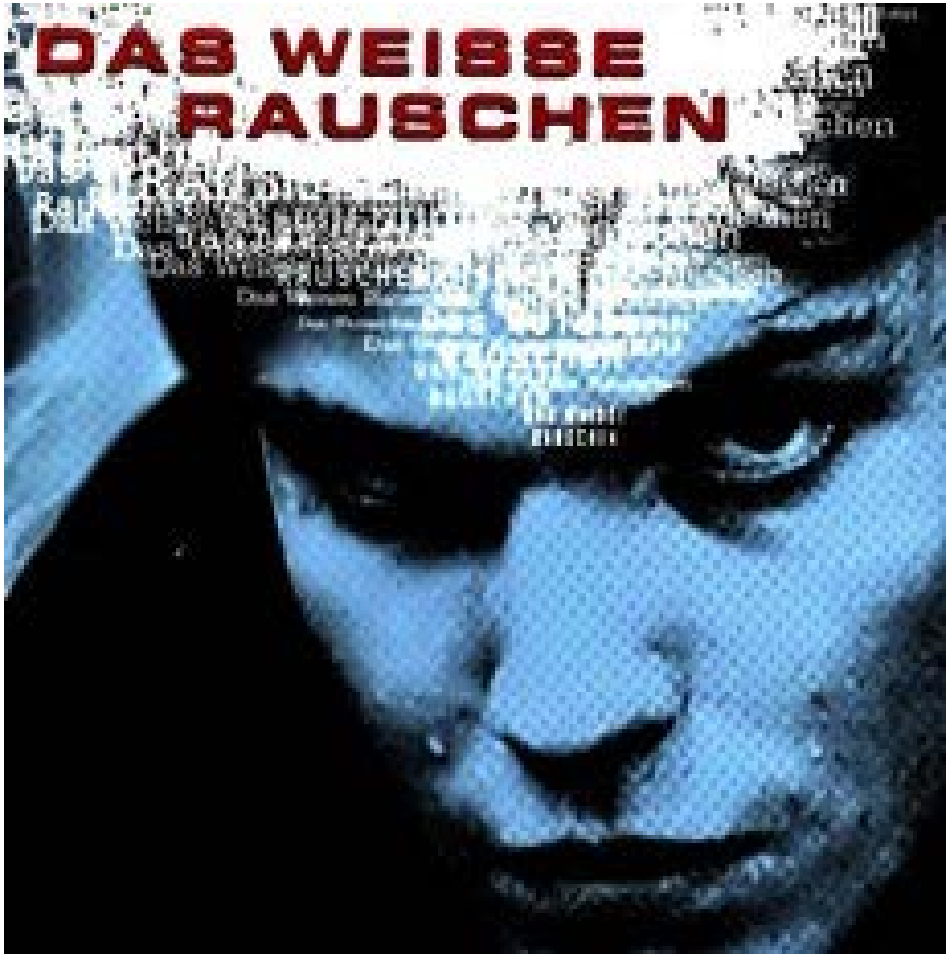
(Bleuler E. Dementia praecox oder die Gruppe der Schizophrenien. Nijmegen:Boerhave, 1911:6.)

Classification: ICD-10



- Syndromic
- Descriptive
- Operationalized
- Nominalistic

Clinical presentation



(The White Sound)

Hans Weingartner & Tobias Amann

2002

https://www.youtube.com/watch?v=vjnzyj906Eo

Clinical presentation: Hallucinations

- Perception-like experiences
- Occur independently of external stimuli
- Can not be controlled voluntarily

Clinical presentation: Delusions

- Fixed beliefs/ convictions
- Not amenable to change despite conflicting evidence

  - Delusional perception
  - Delusional mood

Clinical presentation: Ego disturbances

- Weakening or loss of the ability to distinguish between self and others

- Thought insertion
- Thought withdrawal
- Thought broadcasting
- Delusions of control

- Depersonalization
- Derealization

Clinical presentation: Formal thought disorder

- Disturbance of the ability to generate a logical sequence of ideas (train of thought)
- Typical manifestation: speech

  - Rumination
  - Circumstantiality
  - Tangentiality
  - Loosening of associations and derailment
  - Neologisms
  - Flight of ideas
  - Pressure of thought
  - Thought blocking
  - Incoherence

Clinical presentation: Negative symptoms

- Absence or diminishing of normal functions concerning thoughts, emotions, or behaviors

- Affective flattening
- Anhedonia
- Apathy/ Avolition
- Alogia
- Social withdrawal

Clinical presentation: Catatonia

- Grossly abnormal motor behavior

- Negativism
- Mutism
- Muscular rigidity
- Stupor
- Agitation
- Stereotypy

Clinical presentation: Cognitive symptoms

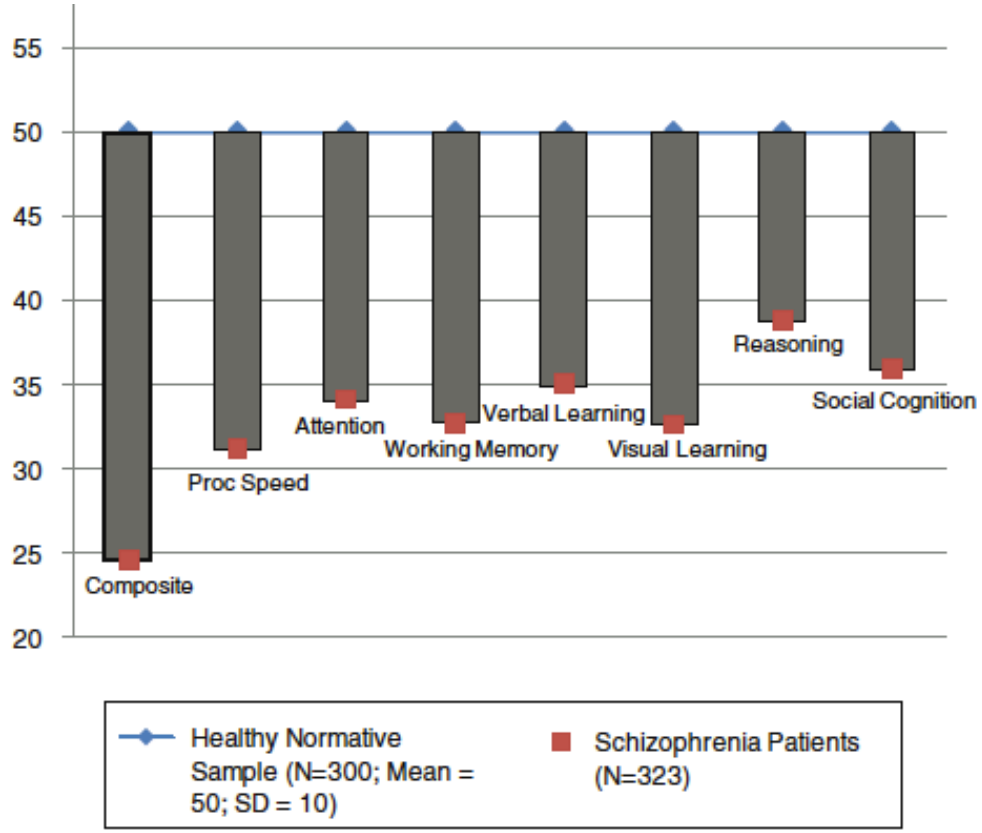


Fig. 1 Severity and profile of cognitive impairment in schizophrenia using the MATRICS consensus cognitive battery (Keefe et al. 2011a). Reprinted with permission

Cognitive impairments:

- are found in almost all patients
- precede the onset of psychosis
- are not caused by psychotic symptoms
- are important for functional disability and outcome

Keeffe RSE & Harvey PD. Cognitive Impairment in Schizophrenia. In: Geyer MA & Gross G (Eds) *Novel Antischizophrenia Treatments*. Berlin-Heidelberg: Springer 2012:11-37

Clinical presentation: Synopsis

Positive symptoms: delusions, hallucinations, ego-disturbances

Negative symptoms: affective flattening, anhedonia, alogia, apathy, social withdrawal

Cognitive symptoms

Affective symptoms

Catatonic symptoms

Differential diagnosis

Somatic disorders:

- Inflammatory brain disease
- Traumatic brain disease
- Epilepsy
- Autoimmune diseases
- Metabolic conditions

Other mental disorders:

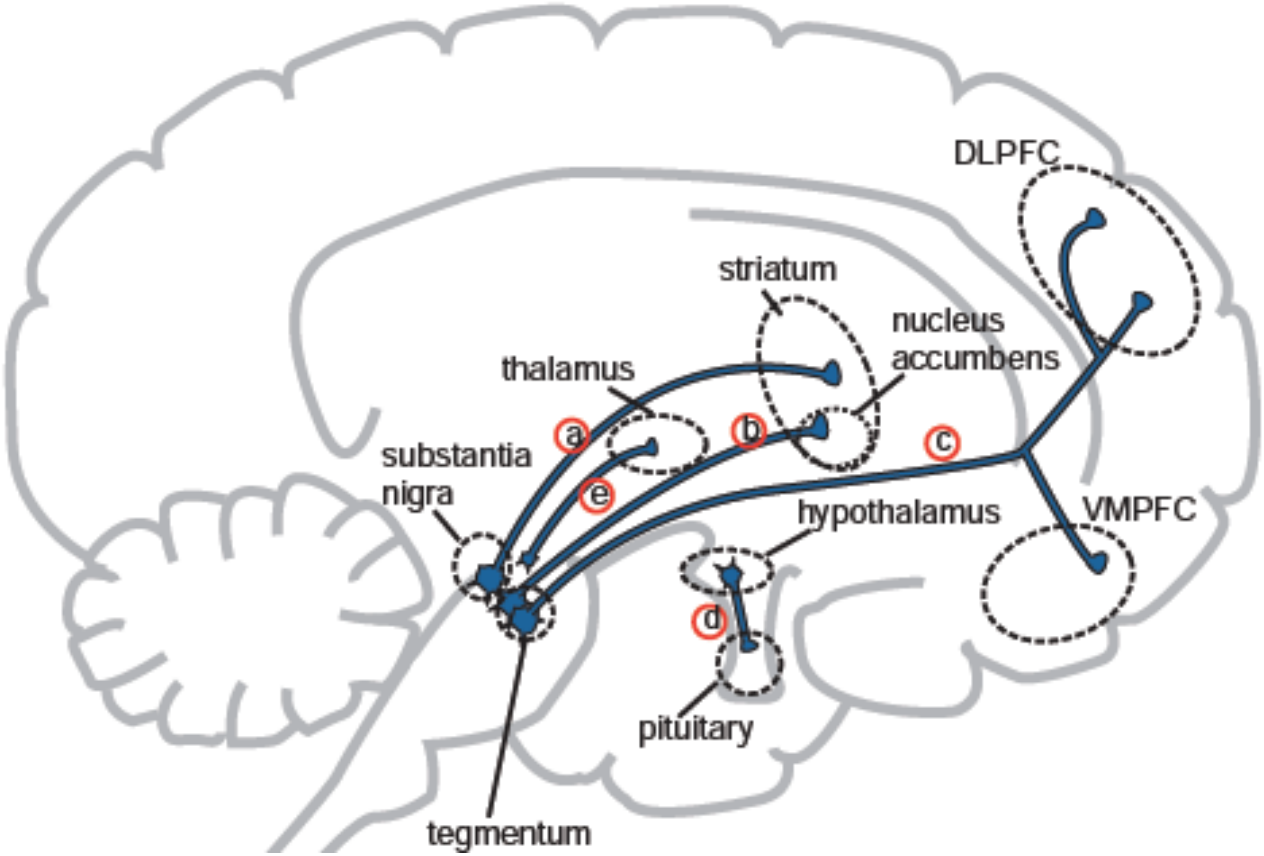
- Acute transient psychotic disorders
- Substance induced psychosis
- Delusional disorder
- Schizoaffective disorder
- Mania or depression with psychotic symptoms

Genetics

- Multitude of susceptibility genes
- Involved loci include synaptic proteins, ion channels, receptors, enzymes, MHC
- All observed variants are pleiotropic

(Owen et al. Schizophrenia. Lancet online, 2016)

Neurobiology: Dopaminergic neurotransmission



Five dopamine pathways in the brain:
a) nigro-striatal,
b) meso-limbic,
c) meso-cortical,
d) tubero-infundibular,
e) projections from multiple sites to the thalamus

(Stahl SM. Stahl's Essential Psychopharmacology 4th edition. Cambridge: Cambridge University Press, 2014

Neurobiology: Glutamatergic neurotransmission

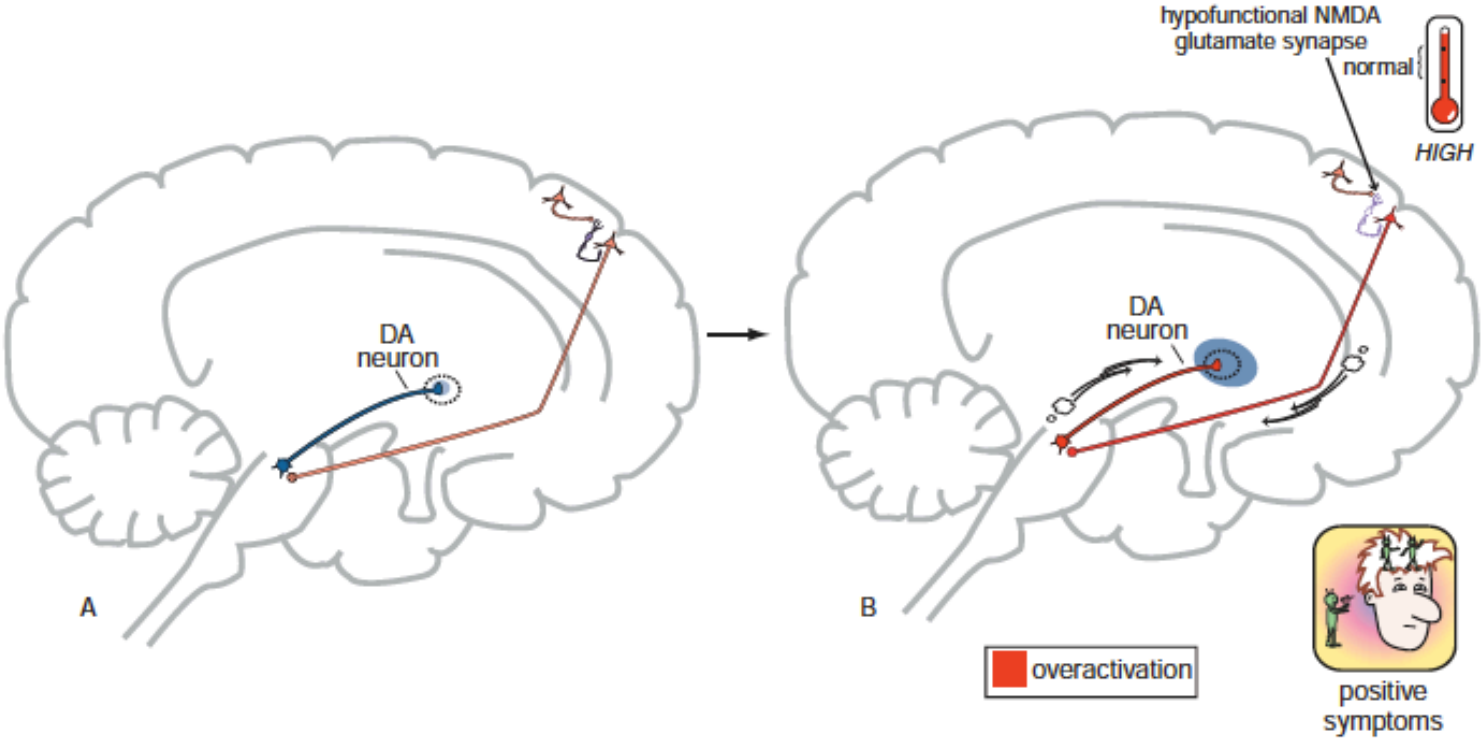


Figure 4-30. NMDA receptor hypofunction and positive symptoms of schizophrenia, part 1. (A) The cortical brainstem glutamate projection communicates with the mesolimbic dopamine pathway in the ventral tegmental area (VTA) to regulate dopamine release in the nucleus accumbens. (B) If NMDA receptors on cortical GABA interneurons are hypoactive, then the cortical brainstem pathway to the VTA will be overactivated, leading to excessive release of glutamate in the VTA. This will lead to excessive stimulation of the mesolimbic dopamine pathway and thus excessive dopamine release in the nucleus accumbens. This is the theoretical biological basis for the mesolimbic dopamine hyperactivity thought to be associated with the positive symptoms of psychosis.

(Stahl SM. Stahl's Essential Psychopharmacology 4th edition. Cambridge: Cambridge University Press, 2014.)

Epidemiology

World Health Survey 2003:

Prevalence 1%

(http://www.who.int/healthinfo/survey/en/index.html)

More recent studies and reviews:

- 12-month prevalence 0.33%
- Incidence 15.2/100'000
- Life time risk 7.2/1'000

(McGrath J et al. Schizophrenia: a concise overview of incidence, prevalence and mortality. Epidemiol Rev. 2008; 30:67-76.;

Simeone JC et al. An evaluation of variation in published estimates of schizophrenia prevalence from 1990-2013: a systematic literature review. BMC Psychiatry 2015; 15:193-207.)

Prevalence of psychotic symptoms much higher (4.80%-8.37% for specific symptoms)

(Nuevo R et al. The Continuum of Psychotic Symptoms in the General Population: A Cross-national Study. Schizophr Bull. 2012; 38(3): 475-485)

Prognosis: Course of disease

	Onset	Course Type	End State	Percent (n = 228)[1]	Burghölzli Hospital Study[2] (%)	Vermont Longitudinal Research Project[3] (%)
1.	Acute	Undulating	Recovery or mild	25.4	30-40 25-35	7
2.	Chronic	Simple	Moderate or severe	24.1	10-20	4
3.	Acute	Undulating	Moderate or severe	11.9	5	4
4.	Chronic	Simple	Recovery or mild	10.1	5-10	12
5.	Chronic	Undulating	Recovery or mild	9.6	–	38
6.	Acute	Simple	Moderate or severe	8.3	5-15	3
7.	Chronic	Undulating	Moderate or severe	5.3	–	27
8.	Acute	Simple	Recovery or mild	5.3	5	5

Rule of thumb:

1/3 good remission

1/3 partial remission

1/3 chronic

(Harding CM. Course Types in Schizophrenia: An Analysis of European and American Studies. Schiz Bull 1988; 14(4): 633-643.)

Prognosis: Mortality

Standardized all-cause mortality ratio: 2.6

(McGrath J, Saha S, Chant D, Welham J. Schizophrenia: a concise overview of incidence, prevalence and mortality. Epidemiol Rev. 2008; 30:67-76.)

Suicide

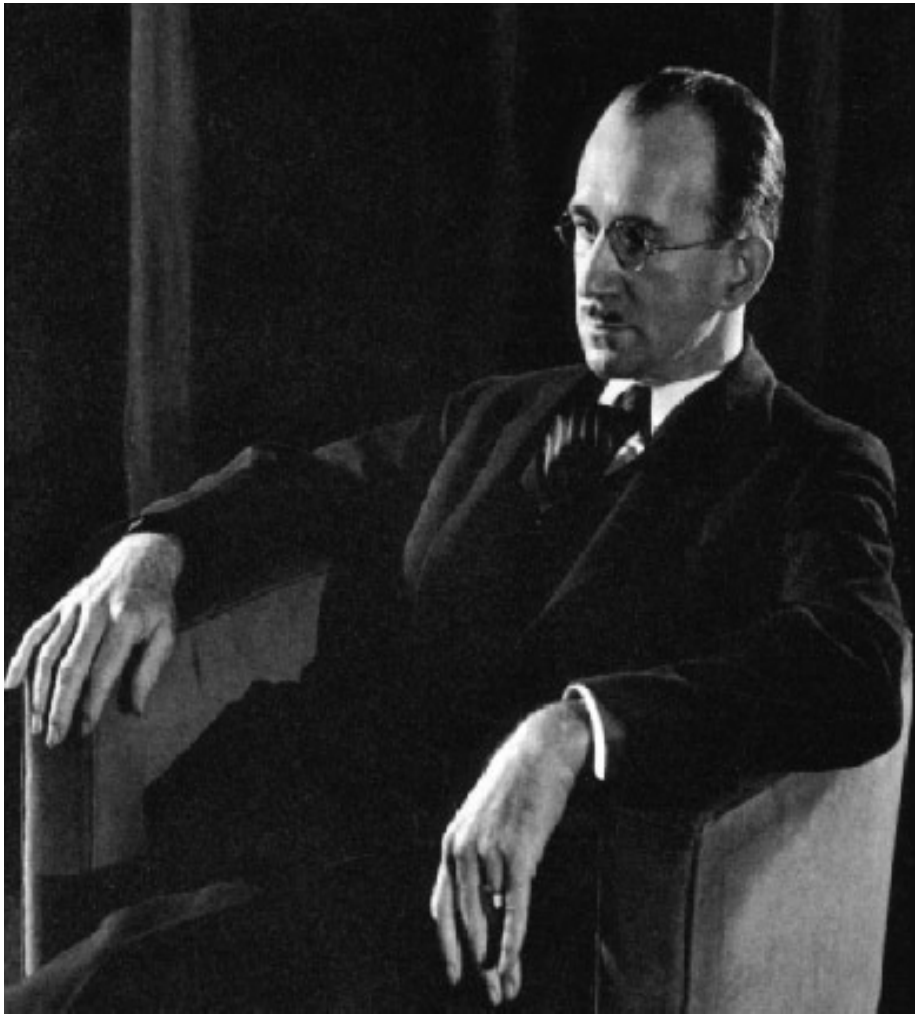
- 5-10% die by suicide

(Hor K, Taylor M. Suicide and schizophrenia: a systematic review of rates and risk factors. J Psychopharmacol 2010; 24:81.)

Somatic Illness

- Unhealthy life style incl. smoking (60-85%)
- Suboptimal treatment of physical disorders
- Side effects of psychotropic medication

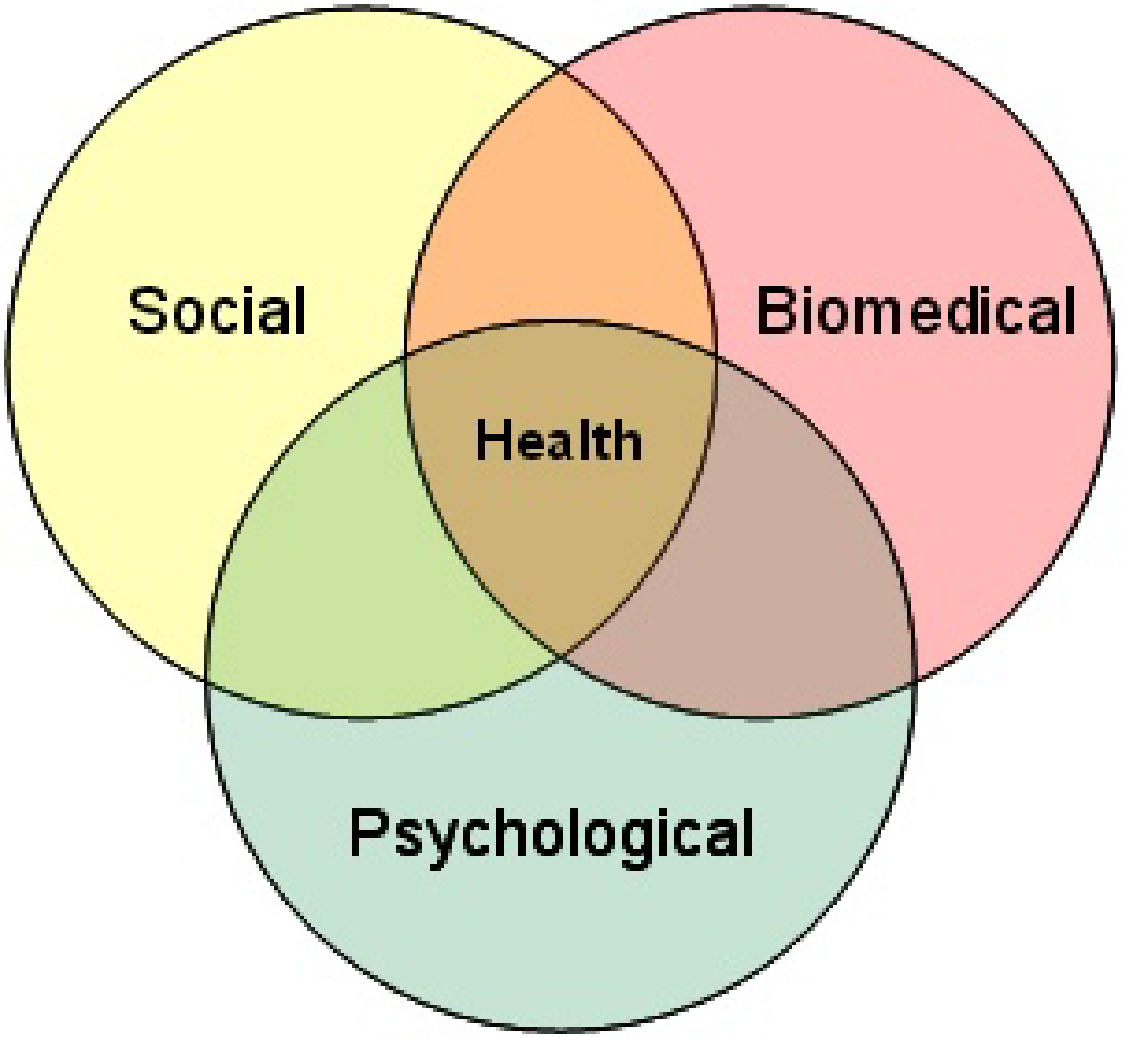
Therapy: Towards early recognition

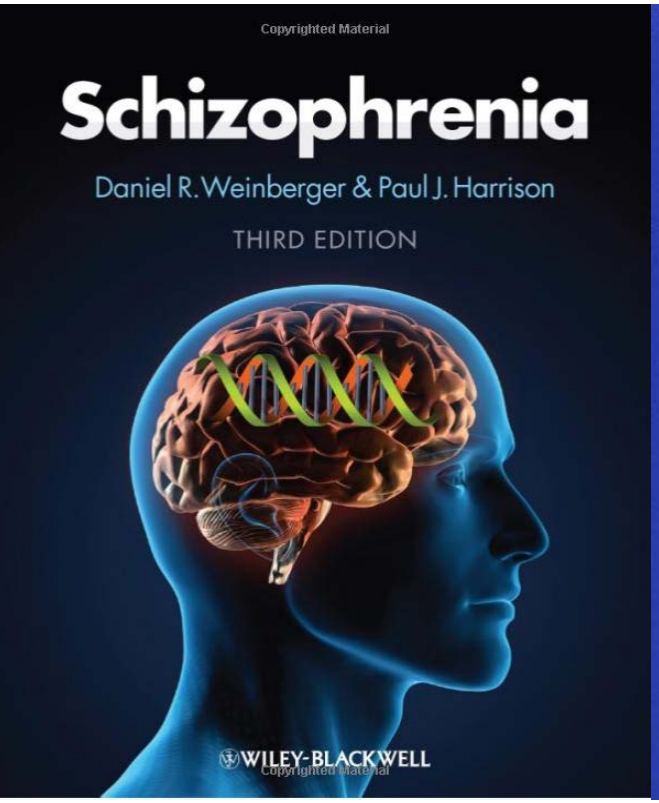


"The psychiatrist sees too many end states and deals professionally with too few of the pre-psychotic [states]… With this in mind, it would seem as if we should lay great stress on the prompt investigation of failing adjustment, rather than, as is so often the case, wait and see what happens… I feel certain that many incipient cases might be arrested before the efficient contact with reality is completely suspended, and a long stay in institutions made necessary."

(Sullivan, H.S. The Onset of Schizophrenia. Am J Psych 1927; 84(1): 105–134.)

Therapy: Multimodal treatment approaches

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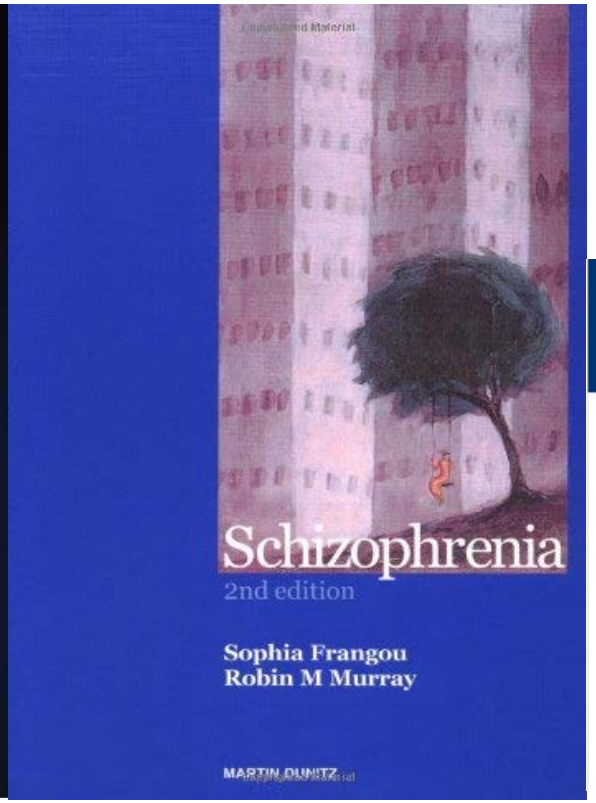
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Gerd Schulte-Körne und Hellmuth Braun-Scharm
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Psychotherapie
6. Auflage