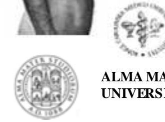
Organic Psychoses and delirium

Bologna, 30 Settembre 2013

Diana De Ronchi, MD PhD



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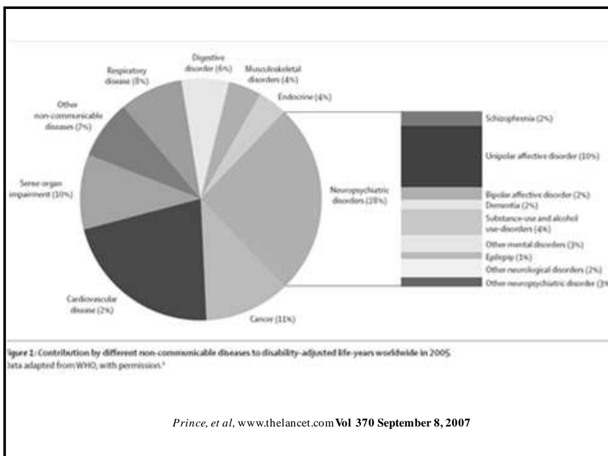
"Thousands of tiny little creatures, some on horseback, waving arms, carrying weapons like some grand Renaissance battle were trying to turn people into zombies. Their leader was a woman with no mouth but a very precisely cut hole in her throat."

—Justin Kaplan - age 84, Pulitzer Prize winning historian and biographer, describing his experience with delirium while being hospitalized for Pneumonia.

- La **coscienza** si articola con i fenomeni psichici sperimentati (percezione, rappresentazione, ricordo) li attiva e li organizza e conferisce loro forma e struttura unitaria.. Premessa alla distinzione tra sogno e realtà, tra soggetto ed oggetto
- **Coscienza dell'Io**:
  - Attività
  - Unità
  - Identità
  - Delimitazione



igure 1: Contribution by different non-communicable diseases to disability-adjusted life-years worldwide in 2005
ata adapted from WHO, with permission.

Prince, et al, www.thelancet.com **Vol 370 September 8, 2007**

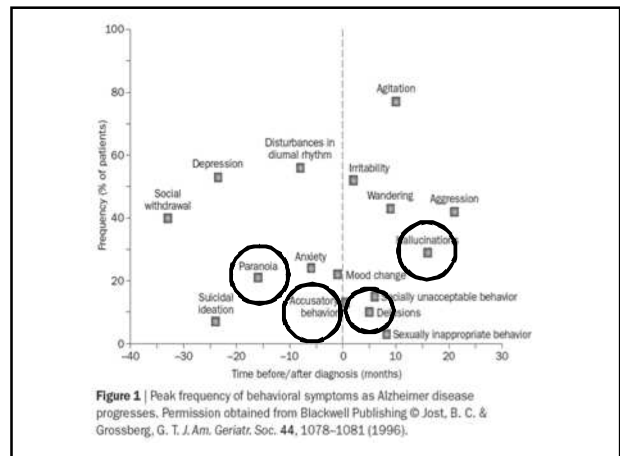


Figure 1 | Peak frequency of behavioral symptoms as Alzheimer disease progresses. Permission obtained from Blackwell Publishing © Jost, B. C. & Grossberg, G. T. *J. Am. Geriatr. Soc.* **44**, 1078–1081 (1996).

TABLE 2. Risk Factors for Psychosis of Alzheimer's Disease Identified in 55 Studies Published From 1990 to 2003

Risk Factor	Number of Studies With Significant Association	Number of Studies With No Significant Association	Total Number of Studies
Age	12	13	25
Education	4	13	17
Gender	7	17	24
Ethnicity	5	2	7
Age at onset of Alzheimer's disease	5	7	12
Duration of illness	8	9	17
→ Cognitive impairment	20	10	30 ←
Severity of dementia	0	10	10
Family history of dementia	0	4	4
Family history of psychiatric disorder	0	6	6

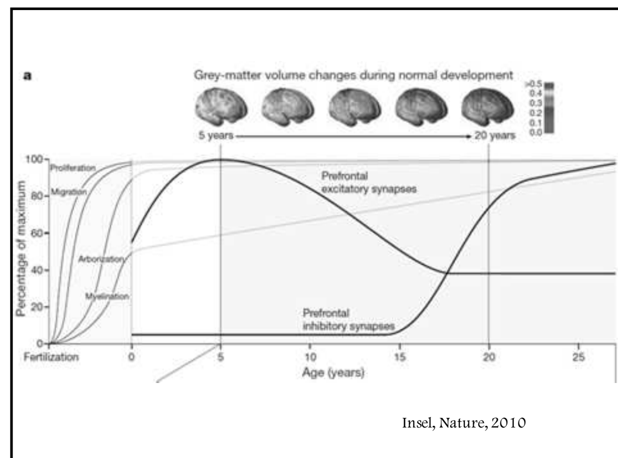
Ropacki & Jeste, Am J Psych 2005

the delusions in AD are typically paranoid type, non-bizarre and simple

- Misidentification phenomena
- belief that people are stealing things from them, that they are in danger and/or others are planning to harm them, that their spouse and/or other caregiver is an imposter (or not who they say they are), that their house is not their home, that their spouse is having an affair, that their family members are planning to abandon them, that unwelcome guests and/or television figures are actually present in the home

Increased dopaminergic activity represents a 'final common pathway' to delusion formation

- Shared theories regarding delusion formation in AD and schizophrenia
- Functional imaging studies
- Greater disruption of the cholinergic/dopaminergic axis in delusional patients, particularly those with persecutory delusions
- delusional patients have a more accelerated form of AD



Insel, Nature, 2010

Inouye, Westendorp, Saczynski, Lancet 2013

- Delirium can be thought of as acute brain
- might help to shed light on cognitive reserve—ie, the brain's resilience to external factors.
- Current thinking is that reserve is dynamic and modifiable over the life course *(Jones et al, 2010)*

COGNITIVE RESERVE IN NEUROPSYCHIATRIC ILLNESS

- High cognitive reserve may provide resilience to cognitive failure and protect persons by enhancing control over aberrant thoughts.
- low intelligence, disrupted education, lower brain, and intracranial size are associated with risk and/or long-term outcomes of schizophrenia and depression

Barnett et al: Cognitive reserve in neuropsychiatry. Psychol Med 2006

ORIGINAL CONTRIBUTION

Risk Factors for Cognitive Impairment in HIV-1–Infected Persons With Different Risk Behaviors

Diana De Ronchi, MD; Irma Faranca, MD; Domenico Berardi, MD; Paolo Scudellari, MD; Marco Borderi, MD; Roberto Manfredi, MD; Laura Fratielioni, MD, PhD

(REPRINTED) ARCH NEUROL/VOL 59, MAY 2002 WWW.ARCHNEUROL.COM

Table 4. Adjusted Odds Ratios for HIV-1–Related Cognitive Impairment According to CDC Stage From 4 Logistic Regression Models*

Risk Factor	Odds Ratio (95% CI) Asymptomatic Persons (n = 88)	Symptomatic Persons (n = 94)
Age (for increment of 1 y)	1.0 (0.9-1.1)	1.0 (0.9-1.1)
Female sex	2.2 (0.6-8.3)	1.3 (0.3-6.3)
<6 y of education	5.7 (0.2-130.7)	27.2 (3.8-195.1)
Antiretroviral therapy	0.5 (0.1-2.5)	0.0 (0.0-0.2)
Homosexuals/bisexuals and heterosexuals	15.7 (3.1-78.9)	5.2 (1.1-24.0)

The effect of education on dementia occurrence in an Italian population with middle to high socioeconomic status

D. De Ronchi, MD; L. Fratiglioni, MD, PhD; P. Rucci, DSc; A. Paternicò, MD; S. Graziani, MD; and E. Dalmonte, MD

NEUROLOGY 1998;50:1231–1238

***Table 6** Prevalence of dementia and odds ratios (95% CIs) in noneducated subjects and subjects with more than 3 years of education*

Age groups (y)	Prevalence: No education	More than 3 years of education	Odds ratio (95% CI)
61–69	3/11	0/186	139.5 (6.4 to 3,024.6)
70–79	6/21	8/154	7.3 (2.2 to 23.9)
80+	15/33	24/90	2.3 (1.0 to 5.3)

- Is psychosis a possible risk factor for dementia?

- evidence that patients with psychosis of AD show a more rapid cognitive decline
- Is psychosis an early symptom of dementia?
- subjects with late-onset acute and transient psychosis are at 11 times higher risk of subsequently getting a diagnosis of dementia (Kørner et al, 2009)

C. Qiu et al. / Risk Factors for Alzheimer's Disease

depression

Risk factors	*Vascular hypothesis: e.g., midlife hypertension & obesity, diabetes, smoking, heart disease, stroke, high-fat diet, etc.
Genetic factors: e.g., APOE ε4 allele	Others: toxic (occupational exposures) and inflammatory (e.g., C-reactive protein and interleukin-6) hypotheses

Birth	Childhood- 2nd decade	Adult life- Middle age	Transition	Late life- Old age
0	20		60	75 AGE, YEARS

	*Psychosocial hypothesis: e.g., high education, high socioeconomic status, physical exercise, mentally-stimulating activity, and rich social network, etc.
Protective factors	Oxidative stress: e.g., folate and vitamin B_{12}, and antioxidants (e.g., vitamins C and E)

Broken hearts and minds—depression and incident heart disease and stroke

Depression / CHD / CBVD

Int J Epidemiology, 2010

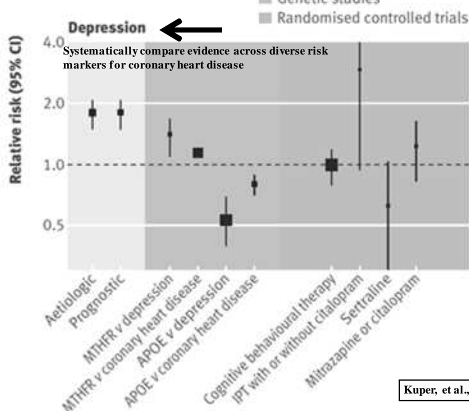
The Vascular Depression Hypothesis: 10 Years Later

George S. Alexopoulos

BIOL PSYCHIATRY 2006;60:1304–1305

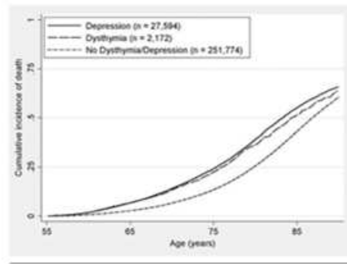
mild to severe depression were associated with an increased risk for CHD : HR=2.04 (1.27–3.27)

Risk of coronary heart disease



Kuper, et al., BMJ 2009

FIGURE 3. Cumulative incidence of death by age.



Dysthymia and depression also were associated with increased risk of death

Dysthymia and Depression Increase Risk of Dementia and Mortality Among Older Veterans

Amy L. Byers, Ph.D., M.P.H., Kenneth E. Covinsky, M.D., M.P.H., Deborah E. Barnes, Ph.D., M.P.H., Kristine Yaffe, M.D.

Am J Geriatr Psychiatry 20:8, August 2012

Adjusted Odds ratios (ORs) and 95% CI for IADL disability

	IADL disability
	OR*
Nondemented without depression	1.0
Nondemented with depression	1.5
Cognitive impairment without depression	11.5
Cognitive impairment with depression	37.4

De Ronchi, et al.
Am J Ger Psych 2005

*Age-, gender- and education adjusted

Fully aOR and 95% CI
for cognitive impairment

	aOR (95% CI)
Stroke	**1.9 (1.4-2.6)**
Parkinson disease	1.1 (0.5-2.6)
Depressive symptoms	**1.9 (1.4-2.7)**
Anxiety symptoms	0.7 (0.5-1.1)
Hypertension	1.0 (0.7-1.3)
Cardiovascular disease	1.0 (0.7-1.4)
Diabetes	**1.6 (1.2-2.2)**
Underweight	1.7 (0.9-3.0)
Normoweight	1
Overweight	1.1 (0.9-1.4)
Obese	1.0 (0.6-1.4)

Atti, et al.,
J Alzheimer Dis 2010

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