

## Memory & Cognitive dysfunction in Depression



CENTRE EDMOND ET LILY SAFRA

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- Depression impact on Memory
- Lessons from elderly subjects
- In Daily Practice

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Memory disorders in major depressive episodes have attracted much interest with the development of cognitive models that distinguish between:

- **Implicit Memory** an unconscious and automatic form of memory
- **Explicit Memory** a conscious, strategy form that requires the intervention of controlled processes

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- Initial results suggest the existence of a **specific impairment of explicit memory** that takes the form of a degradation of the conscious system
- But not for all the explicit tasks

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- The differences between depressed patients and control participants seem to be greater in **free recall** than in cued recall tasks (Cohen et al., 1982) or in recognition (Fossati & al., 2004)



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- recall is poorer in depressed patients when they are required to develop elaborate strategies during the encoding phase.

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Several studies (Beato & Fernández, 1995; Jenkins & McDowall, 2001) provide arguments in favor of the functional theories of Memory with:

- **The impairment of the conceptually-driven**
- **Preservation of the data-driven processes**

In a Recall task, the subject first generates the candidate items that have previously been activated and then seeks the candidate that was seen during the encoding phase (generation-recognition mode)

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Which image has been presented previously ?



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**In recognition task the search mechanism is replaced by a faster mechanism (a process based on a feeling of familiarity)**

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**Attention**

Depression is associated with greater memory impairment in contexts in which:

- attention is not constrained by the task
- increased cognitive effort is required
- attention is easily allocated to personal concerns and other thoughts that are irrelevant to the task

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- **The Remember Know** paradigm has been used in two studies (Ramponi et al., 2004; Drakeford et al., 2010).
- Depressed patients displayed **lower levels of Remember** for verbal and neutral facial stimuli contrary to Know judgments, and these memory performances were related to the number of past depressive episodes.
- These results support the hypothesis that memory deficits in depressed patients are associated with a **deficient recollection and a preserved familiarity processes**

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Emotionally valenced material has been used in order to evaluate the cognitive processing performed by subjects with regard to words with a positive, negative or neutral affective valence

**Depressed patients spontaneously recall more negative than positive memories**

Very few studies have addressed the role of clinical characteristics (anxiety, emotional blunting, self interest..) on the memory performances of depressed patients

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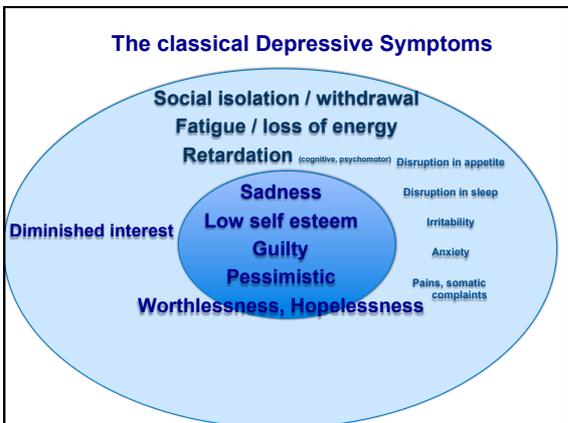
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### Depression in the elderly

- ✓ Start late, without depressive history
- ✓ Sadness and depressed mood not the most / major symptoms
- ✓ Somatic, cognitive complaints, pain are frequent
- ✓ Anxiety, irritability are also frequent
- ✓ Apathy frequent
- ✓ Tend to follow fluctuating course overtime
- ✓ **Risk factors** →

White matter changes

AGE  
HTA  
DIABETE  
ARRHYTHMIA

Depression in the elderly

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### Explicit and implicit memory in late-life depression (Elderkin-Thompson & al, 2011)

- 2 year cross-sectional study of elderly depressed (n = 112) and nondepressed (n = 138)
- Depressed patients showed deficits in **attention and processing, executive function, and immediate explicit recall.**
- No difference for Implicit learning
- Semantic Moderately depressed patients demonstrate a pattern of cognitive deficits suggestive of mild frontal dysfunction during recall tasks.
- Their retention of material over a delay period and their intact language skills indicate medial hippocampal function close to controls.

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### Depression in AD & related disorders

- ✓ Increases the burden of caregivers,
- ✓ Has a significant economic impact,
- ✓ Is associated with a greater decline in quality of life, earlier institutionalization and increased risk of mortality
- ✓ Associated with other neuropsychiatric symptoms
- ✓ Fluctuating overtime
- ✓ **Associated with apathy**

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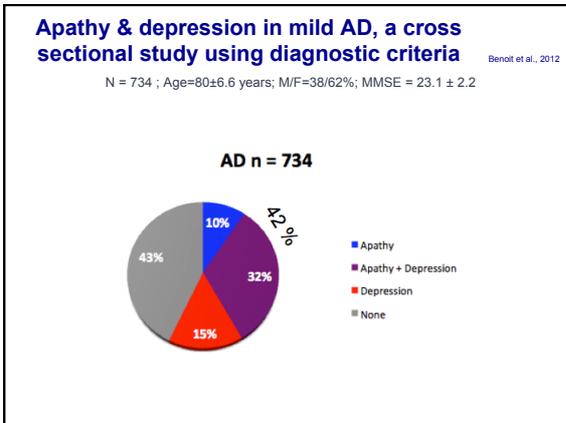
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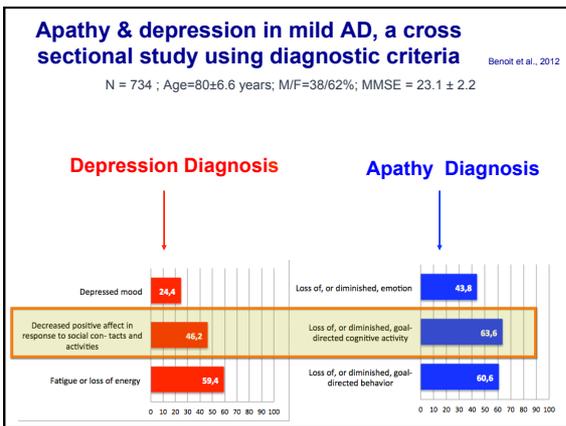
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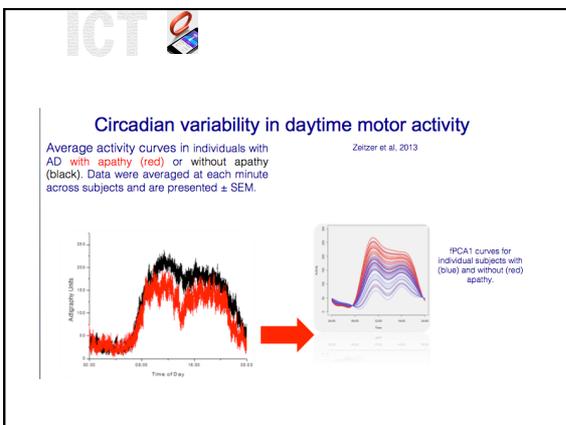
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**1**  
**2**  
**3**

### Behavioral symptoms in MCI

	MCI			NC	
	Lyketsos	Mayo	HK	NC mayo	NC HK
n	320	319	338	1590	450
CDR					
NPI	NPI	NPIQ	NPI>0	NPIQ	NPI>0
Delusion	4.7	3.4	2.4	0.4	0.7
hallucination	2.5	0.6	0.9	0.4	0.4
agitation	14.7	9.1	5.1	2.8	1.8
<b>Dysphoria</b>	<b>26.3</b>	<b>27</b>	<b>14.6</b>	<b>11.4</b>	<b>9.6</b>
anxiety	10.3	14.1	12.5	5	10.5
euphorie	1.3	1.3	0.6	0.4	0.4
<b>Apathy</b>	<b>18.1</b>	<b>18.5</b>	<b>15.2</b>	4.8	7.6
desinhibition	4.1	4.7	1.8	1.6	0.9
irritability	16.6	<b>19.4</b>	8	<b>7.6</b>	4.2
AMB	4.1	1.3	0.9	0.6	0.2
sleep	<b>17.8</b>	<b>18.3</b>	<b>18.1</b>	<b>10.9</b>	<b>14.7</b>
appetit	17.5	10.7	2.1	5.3	2.7

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**ima** Institute for Memory Assessment & Research  
**PHRC-PRE-AL**  
**MCI Amnesic patients**

- Evolution of a cohort of 245 MCI patients
- Mean age = 72 ± 5.5 / mean MMSE= 27.5 ± 1.3
- Behavioral assessment
  - With and without apathy
  - With and without anxiety
  - With and without depressive symptoms

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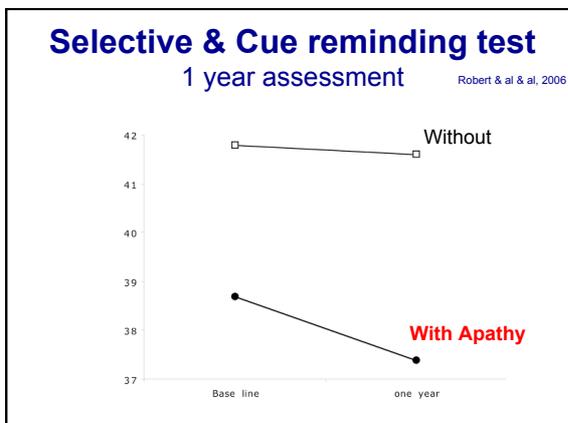
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**Switch MCI → MA at 3 years n = 59 (27.6%)**

**Lack of interest** →

Robert & al, AmJGP, 2008

**Switch MCI → AD at 2 years**

- 8% for MCI with depression
- 19% for MCI with depression & apathy
- 24% for MCI without depression & apathy
- 60% for MCI with apathy**

Chitoui & al, Dementia, 2009

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**ASSESSMENT & DIAGNOSIS**

- Always assess memory & cognition (attention, processing & executive functions) in patients consulting for depressive symptoms
- Assessment needs to stress the depressive cognitive characteristics (eg; explicit, implicit, affective valence control, limitation of anxiety)
- Always assess behavioral & mood disturbances during a cognitive screening
- Don't forget to assess specifically the presence of apathy (using subjective & objectives tools)

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## Treating & Counseling

- Control of vascular risk factors
- Social needs
  - Encourage and facilitate social interactions
  - Discuss driving & home safety
- Provide for community resources for patients and caregivers

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## Beneficial Behaviors

- Motivation is the key
- Target the personal patients interests in order to engage in mental & physical activities
- Consider ICT as a tool



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