

## Dementia in community

- Prevalence of dementia: 4.4%
- Men: 3.2%
- Women: 5.8%
- 65 to 74 years old: 2.0%
- 75 to 84 years old: 8.3%
- > or = 85 years old: 24.4%

Liu CK, *J Formos Med Assoc.* 1996

## Meta-analysis

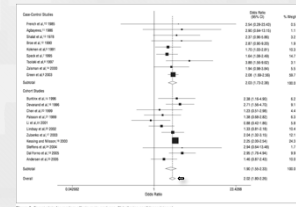


Figure 2. Forest plot for various effect meta-analysis. CI indicates confidence interval.

Ownby RL, *Arch Gen Psychiatry.* 2006

## Risk of dementia

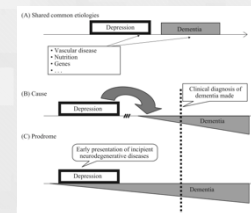
- Midlife vs late-life depressive symptoms

Table 3. Depressive Symptoms and Risk of AD and VaD

Depressive Symptoms	AD			VaD		
	No. (%) of Subjects	Unadjusted HR (95% CI)	Adjusted HR (95% CI) <sup>a</sup>	No. (%) of Subjects	Unadjusted HR (95% CI)	Adjusted HR (95% CI) <sup>a</sup>
None	500 (5.1)	1.00 (Reference)	1.00 (Reference)	201 (2.8)	1.00 (Reference)	1.00 (Reference)
Midlife only	97 (5.1)	1.08 (0.87-1.35)	1.08 (0.85-1.33)	46 (2.4)	1.29 (0.82-1.74)	1.24 (0.85-1.77)
Late life only	106 (8.5)	1.94 (1.57-2.39)	2.08 (1.67-2.55)	32 (2.6)	1.52 (1.05-2.21)	1.47 (1.01-2.14)
Midlife and late life	47 (8.2)	1.98 (1.46-2.68)	1.99 (1.47-2.69)	35 (8.1)	3.70 (2.58-5.29)	3.51 (2.44-5.05)

Barnes DE, *Arch Gen Psychiatry.* 2012

## Schematic presentation



## Share Common Etiologies

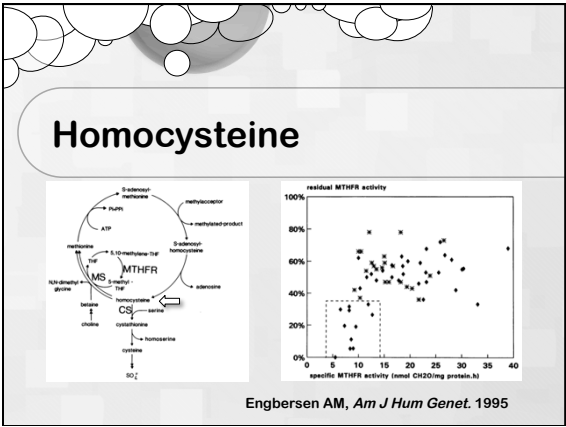
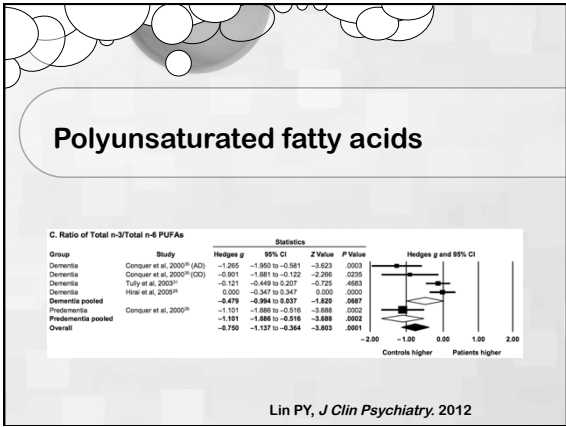
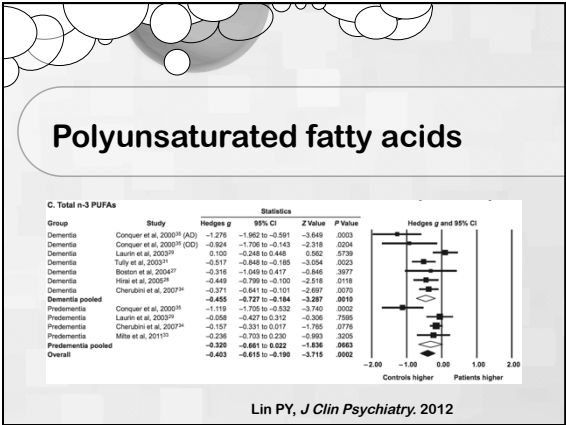
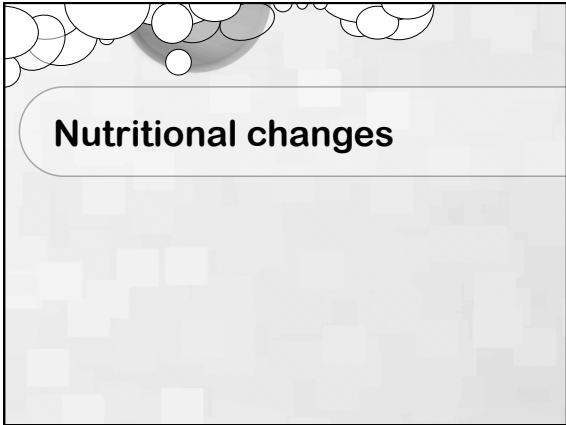
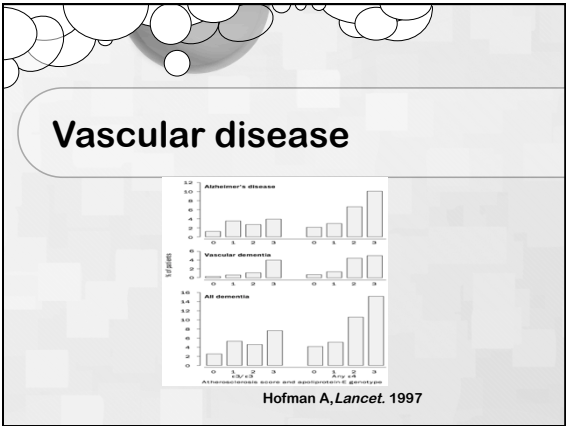
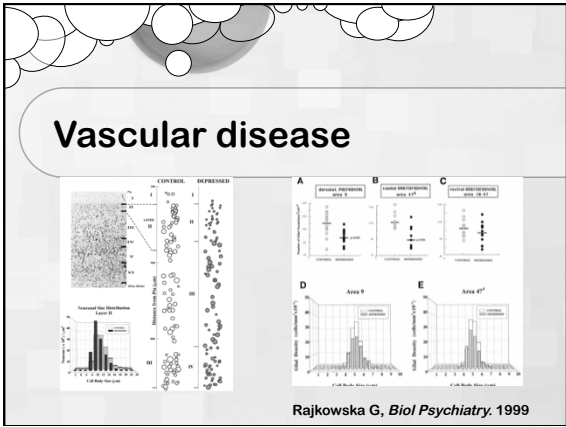
## Vascular disease

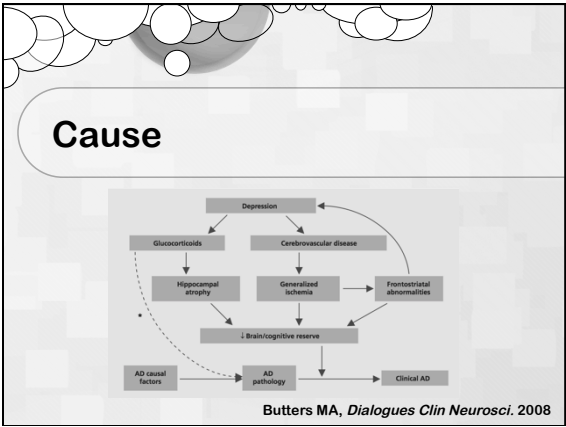
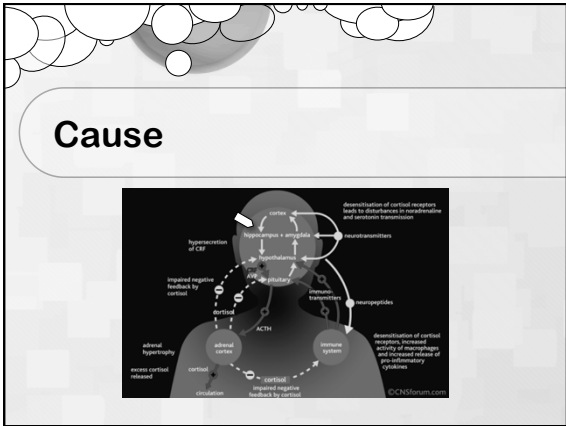
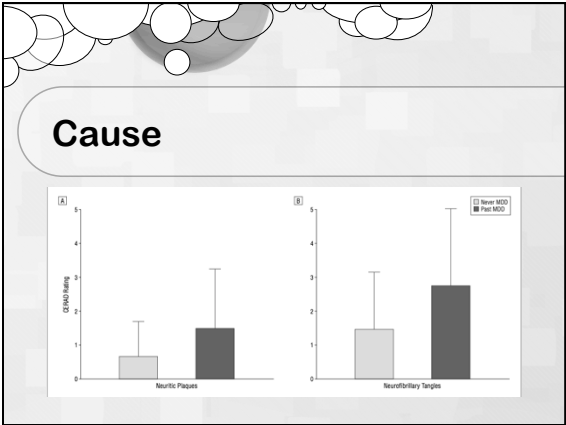
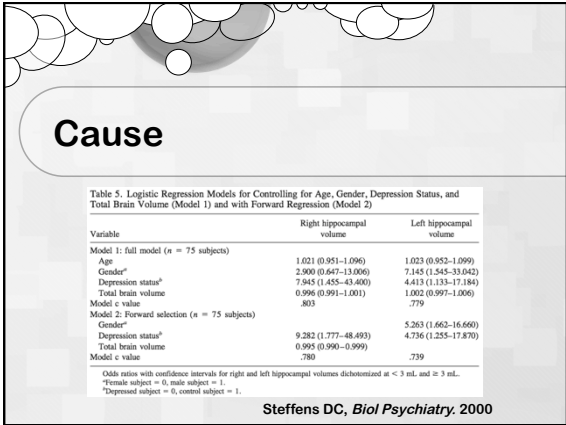
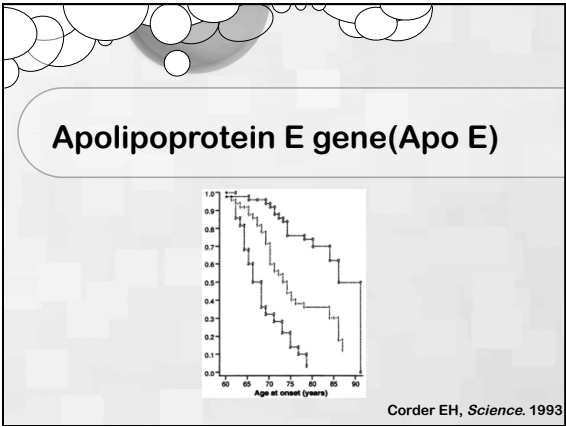
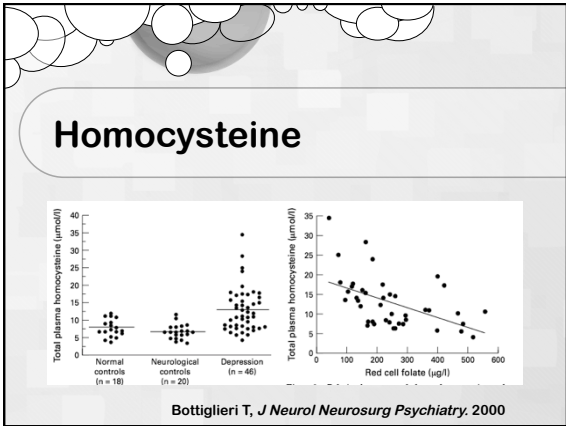
### Clinical Presentation of "Vascular Depression"

- Cardinal Features**
  - Clinical and/or laboratory evidence of vascular disease or vascular risk factors. Clinical manifestations may include history of stroke or transient ischemic attacks, focal neurologic signs, atrial fibrillation, angina, history of myocardial infarction, carotid bruit, hypertension, and hyperlipidemia. Laboratory findings may include significant white matter hyperintensities at the territory of the perforating arteries, infarcts, or evidence of carotid intima-media thickening of the Willis circle arteries.
  - Depression onset after 65 years of age or change in the course of depression after the onset of vascular disease in patients with early-onset depression; development of more frequent and persistent depressive episodes.
- Secondary Features**
  - Cognitive impairment consisting of but not limited to disturbance of executive functions, ie, planning, organizing, sequencing, and abstracting.
  - Psychomotor retardation.
  - Limited depressive ideation, eg, guilt.
  - Poor weight.
  - Disability.
  - Absence of family history of mood disorders.

<sup>a</sup> The cardinal features are expected in all patients. The secondary features may be present in most but not all patients with "vascular depression."

Alexopoulos GS, *Arch Gen Psychiatry.* 1997





## Cause

Table 2. Analysis of Orbital Frontal Cortex (OFC) in Depressive Patients and Healthy Controls

Regions	Depressive patients (n = 20)*	Control subjects (n = 20)*	F	df	p
Total OFC	12.14 ± 2.13 mL	14.11 ± 2.51 mL	7.13	1	.011
Right OFC	6.15 ± 1.13 mL	7.26 ± 1.23 mL	8.88	1	.005
Left OFC	5.99 ± 1.15 mL	6.84 ± 1.54 mL	3.96	1	.054
Standardized total OFC*	0.013 ± 0.002	0.016 ± 0.003	4.22	3	.012
Standardized right OFC*	0.007 ± 0.001	0.008 ± 0.001	5.07	3	.005
Standardized left OFC*	0.006 ± 0.001	0.008 ± 0.002	2.95	3	.046

Table 2. Multiple Linear Regression Models for Deep White Matter Lesion and Subcortical Gray Matter Lesion Severity Measured on Coffey Scale

	Deep White Matter Lesion Severity		Subcortical Gray Matter Lesion Severity	
	Volume (SE)	p	Volume (SE)	p
Left OFC	-2060 (.163)	.2096	-322 (.148)	.0325*
Right OFC	.067 (.172)	.697	-312 (.155)	.0487*
Total OFC	-139 (.300)	.645	-634 (.268)	.0206*

Lai T, *Biol Psychiatry*. 2000  
Lee SH, *Biol Psychiatry*. 2003

## Cause

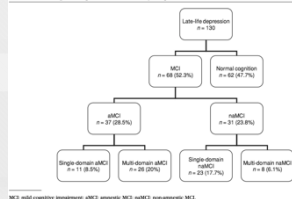
TABLE 1. Clinical Improvement Measures of 45 Elderly Patients With Late-Life Depression Who Achieved Remission After 12 Weeks of Antidepressant Treatment

Measure	Score		Score	
	Pre-treatment	Post-treatment	Mean	SD
Hamilton Depression Rating Scale (17-item)	22.2	3.8	6.8*	3.1
Global Assessment of Functioning Scale (score range=0-100)	46.3	9.2	76.2*	7.8
Mini-Mental State (score range=0-30)	27.0	2.7	27.5	2.1
Mattis Dementia Rating Scale (score range=0-144)	132.2	9.8	134.5*	7.7
Total	35.0	2.0	35.3	1.4
Attention (score range=0-37)	35.0	2.0	35.3	1.4
Conceptualization (score range=0-38)	35.0	2.0	35.1	2.4
Construction (score range=0-4)	5.9	0.5	5.7	0.5
Initiation/persistence (score range=0-37)	33.8	5.0	34.8	3.4
Memory (score range=0-25)	22.1	3.3	22.5	3.0

Butters MA, *Am J Psychiatry*. 2000

## Prodrome

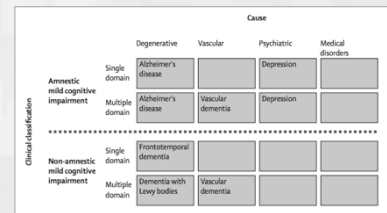
FIGURE 1. MCI Cognitive Impairment in Late-Life Major Depressive Disorder in Remission.



MCI: mild cognitive impairment; aMCI: amnesic MCI; naMCI: non-amnesic MCI.

Yeh YC, *Am J Geriatr Psychiatry*. 2011

## Prodrome

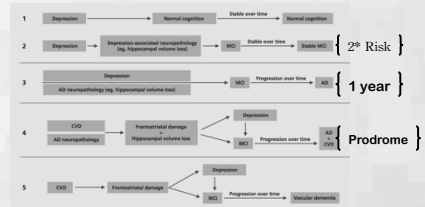


Gauthier S, *Lancet*. 2006

## Conclusion

- Depression precedes dementia is common
- Heterogeneous neuropathology
- Long-term neurobiological changes
- No change with antidepressant treatment
- Different course had different prognosis

## Conclusion



Butters MA, *Dialogues Clin Neurosci*. 2008

