

The Link between Metabolic Health and Depression

Depression and Bipolar Support Alliance 2010

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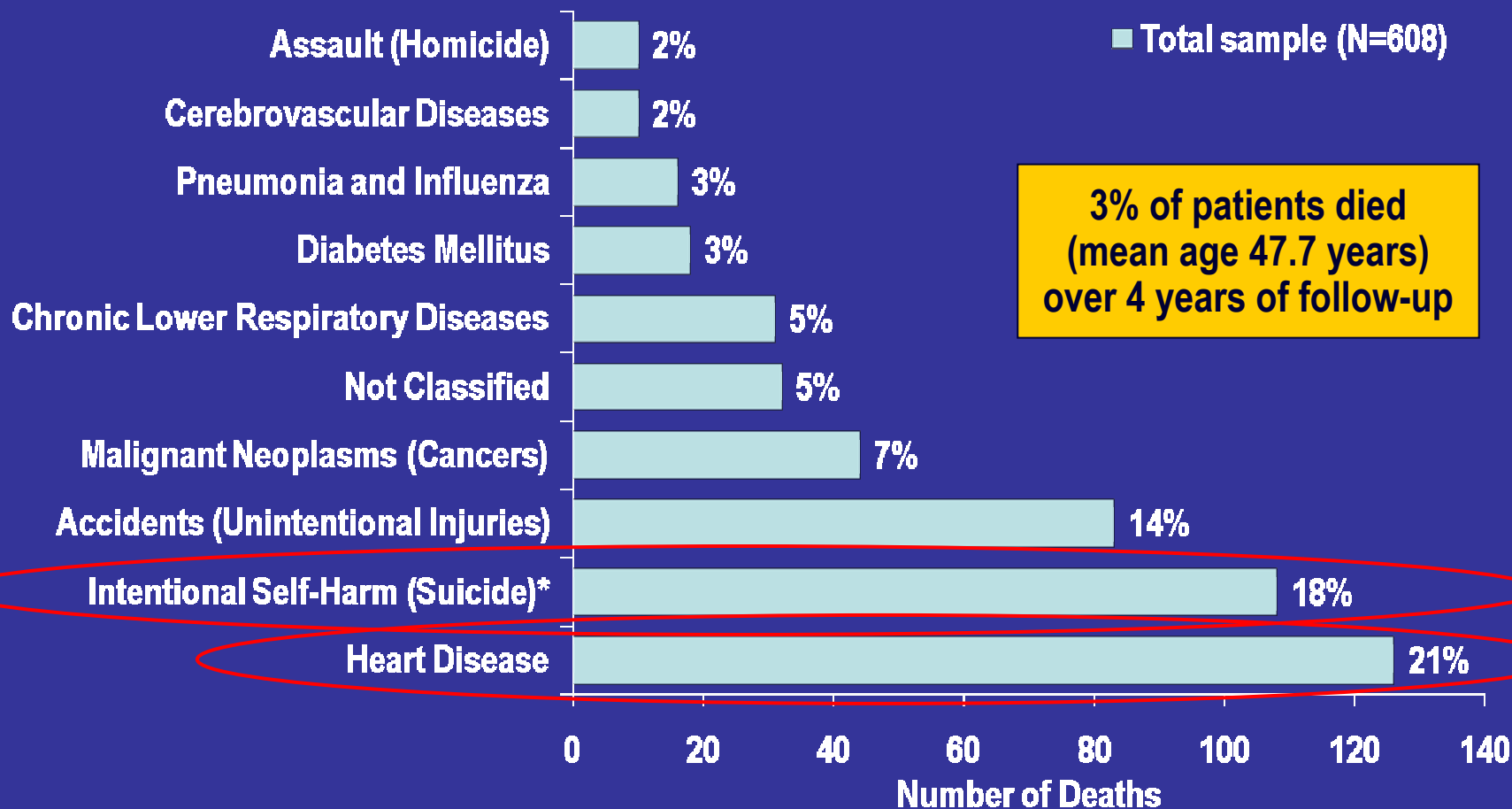
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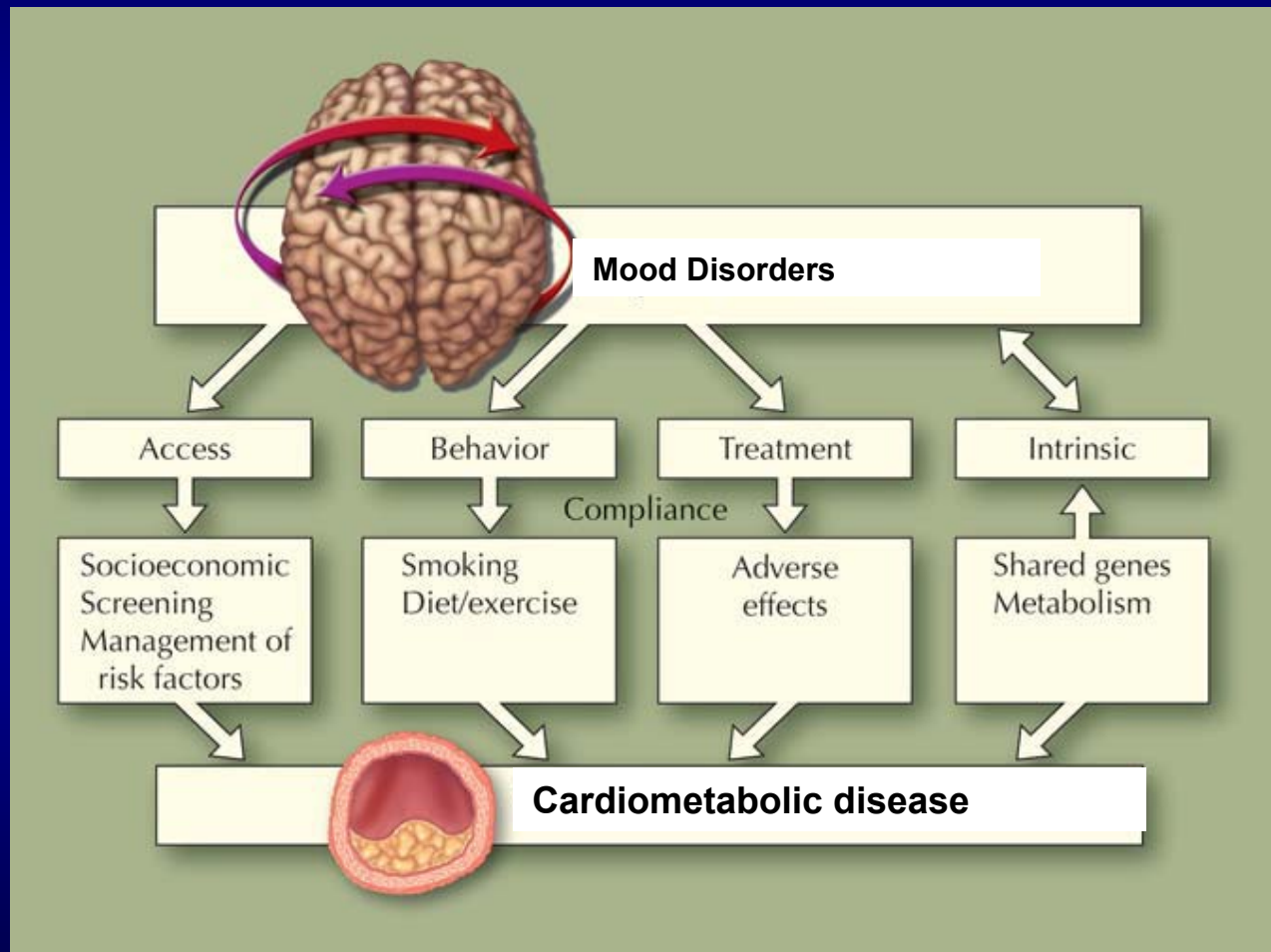
Heart Disease, Not Suicide, Is the Leading Cause of Death Among Patients With Serious Mental Illness

Leading causes of death (N=608) among 20,018 persons admitted to an Ohio public mental health hospital between 1998 and 2002



*Deaths by suicide approximately double in males vs females.
Miller BJ, et al. *Psychiatr Serv.* 2006;57(10):1482-1487.

Pathways linking mood disorders to cardiometabolic disease

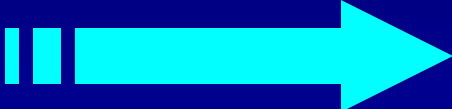


Over 70 Million Americans Have the Metabolic Syndrome*

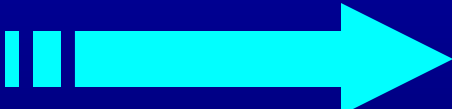
RISK FACTOR	DEFINING MEASURES
Abdominal obesity Men Women	Waist circumference >40 in (>102 cm) >35 in (>88 cm)
Triglycerides	≥150 mg/dL
HDL-C Men HDL-C Women	<40 mg/dL <50 mg/dL
Blood pressure	≥130/≥85 mm Hg
Fasting glucose	≥100 mg/dL

*≥3 risk factors comprise the metabolic syndrome

Relationship between depression and metabolic syndrome is bi-directional

Depression  MetSyn

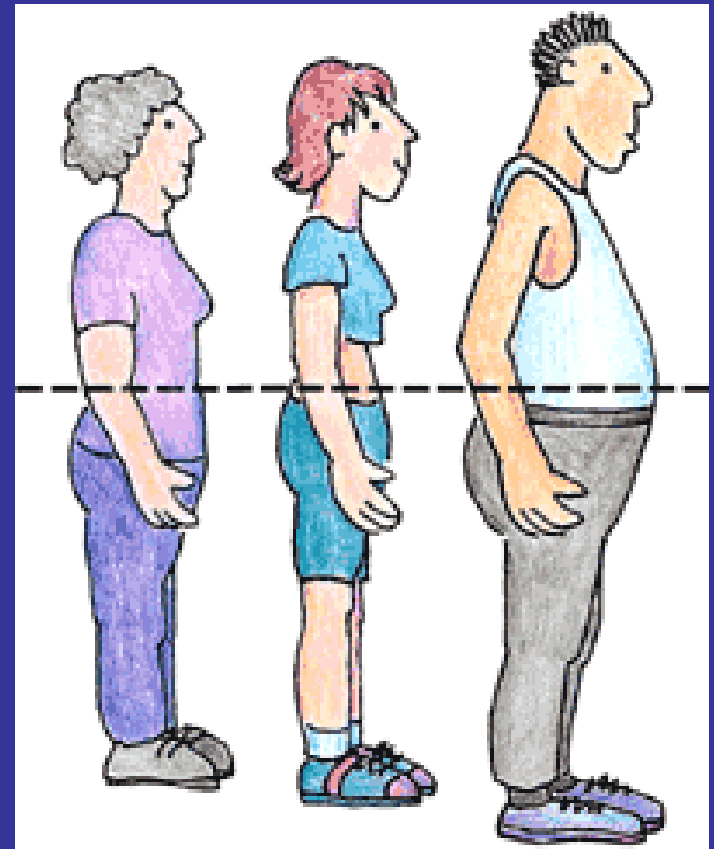
1.2- to 2.5-fold increased risk of MetSyn over 7-15 years

MetSyn  Depression

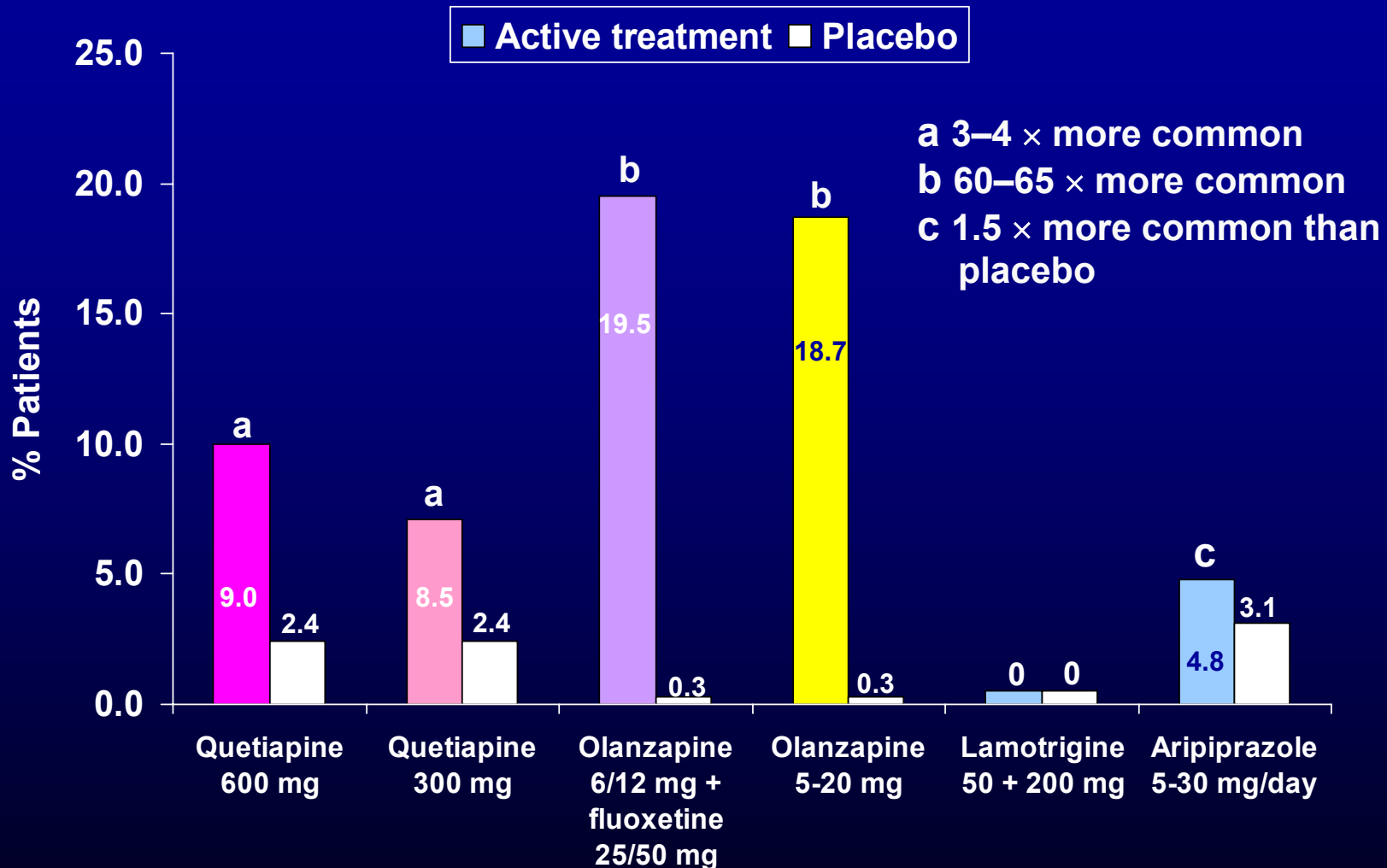
2-fold increased risk of depression over 7 years

Abdominal Adiposity in Older Adults Leads to Depression

- ▶ Prospective follow-up of adults 70-79 years old
- ▶ Depression occurs more commonly in men with abdominal obesity
- ▶ 19% of new depression cases linked to elevated visceral fat mass

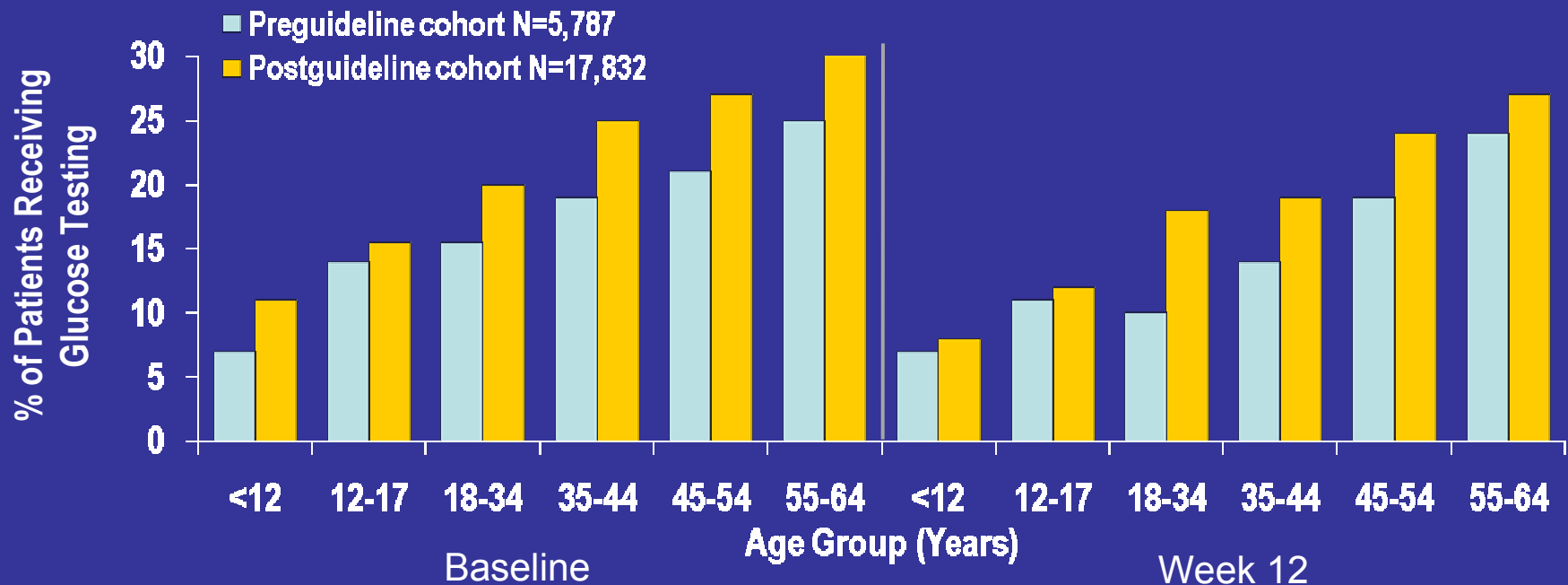


Prevalence of Clinically Significant Weight Gain ($\geq 7\%$) in Acute Bipolar Depression Trials



Younger Patients Are Least Likely to Be Screened and Monitored for Glucose and Lipid Abnormalities

Minimal change in metabolic monitoring since 2004, when consensus guidelines first published



Greater adherence to the Mediterranean diet may protect against depression

- Lifetime prevalence of psychiatric disorders lower in Mediterranean countries
- Mediterranean diet emphasizes consumption of olive oil, legumes, vegetables, fruits
- Study participants scored on their dietary practices and categorized into quintiles
- Greater adherence to Mediterranean diet reduced depression risk by 44% (range 56% - 23%)

Strategies for Prevention and Management of Weight Gain

1. Replace all drinks containing sugar with water/tea/low-fat milk
2. Eat every 3-4 hours, with no more than 2 meals in evening
3. Eat small portions
4. Eat no more than 1 fast food meal per week
5. Do not snack when full; replace high fat, high-calorie snacks with fruits & vegetables
6. Limit watching television/computer games to < 2 hours per day
7. Perform moderate to vigorous physical activity 30-60 minutes/day

Summary of Findings of Medications for Weight Loss in Antipsychotic-Treated Patients

Medication	Data Source	Concomitant Medication (Number)	Study Duration (Weeks)	Mean Weight Change in Treated Patients (kg)
Topiramate (25-600 mg/d)	3 RCTs	Risperidone (N=44) Olanzapine (N=25) Not specified (N=28)	10 to 24	-5.35 to -1.68
Metformin (500-2550 mg/d)	3 RCTs	Olanzapine, Risperidone, or Quetiapine (N=119)	12 to 16	-4.7 to -0.13
Sibutramine (5-15 mg/d)	3 RCTs	Olanzapine (N=19) Clozapine (N=11) Not specified (N=18)	12 to 24	-4.1 to -3.76
Amantadine (100-300 mg/d)	2 RCTs	Olanzapine (N=47)	12 to 16	-0.48 to -0.36
Nizatidine (300-600 mg/d)	3 RCTs	Olanzapine (N=44) Quetiapine (N=14)	8 to 12	-4.5 to +1.1

RCT=randomized controlled trial.

Baptista T, et al. *CNS Drugs*. 2008;22(6):477-495.

McElroy SL, et al. *Bipolar Disord*. 2007;9(4):426-434.

This information includes a use that has not been approved by the US FDA.

Mechanisms subserving cytokine induced depression

