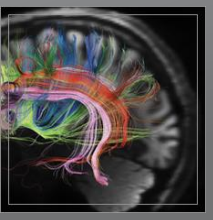
Contributions of Epidemiology to our Understanding and Treatment of Depression



Kathleen Ries Merikangas, Ph.D.

Senior Investigator, Intramural Research Program

National Institute of Mental Health

Disclosure

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Questions

- How can epidemiology inform understanding and treatment of depression?
- What do we know about depression in youth identified in community samples?
- How can we apply this knowledge to clinical settings?

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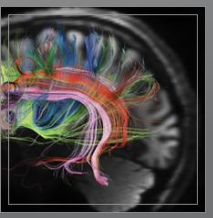

Epidemiology

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Descriptive Epidemiology

Major Goal of Epidemiology

- to identify the etiology of a disease and thereby prevent or intervene in the progression of the disorder

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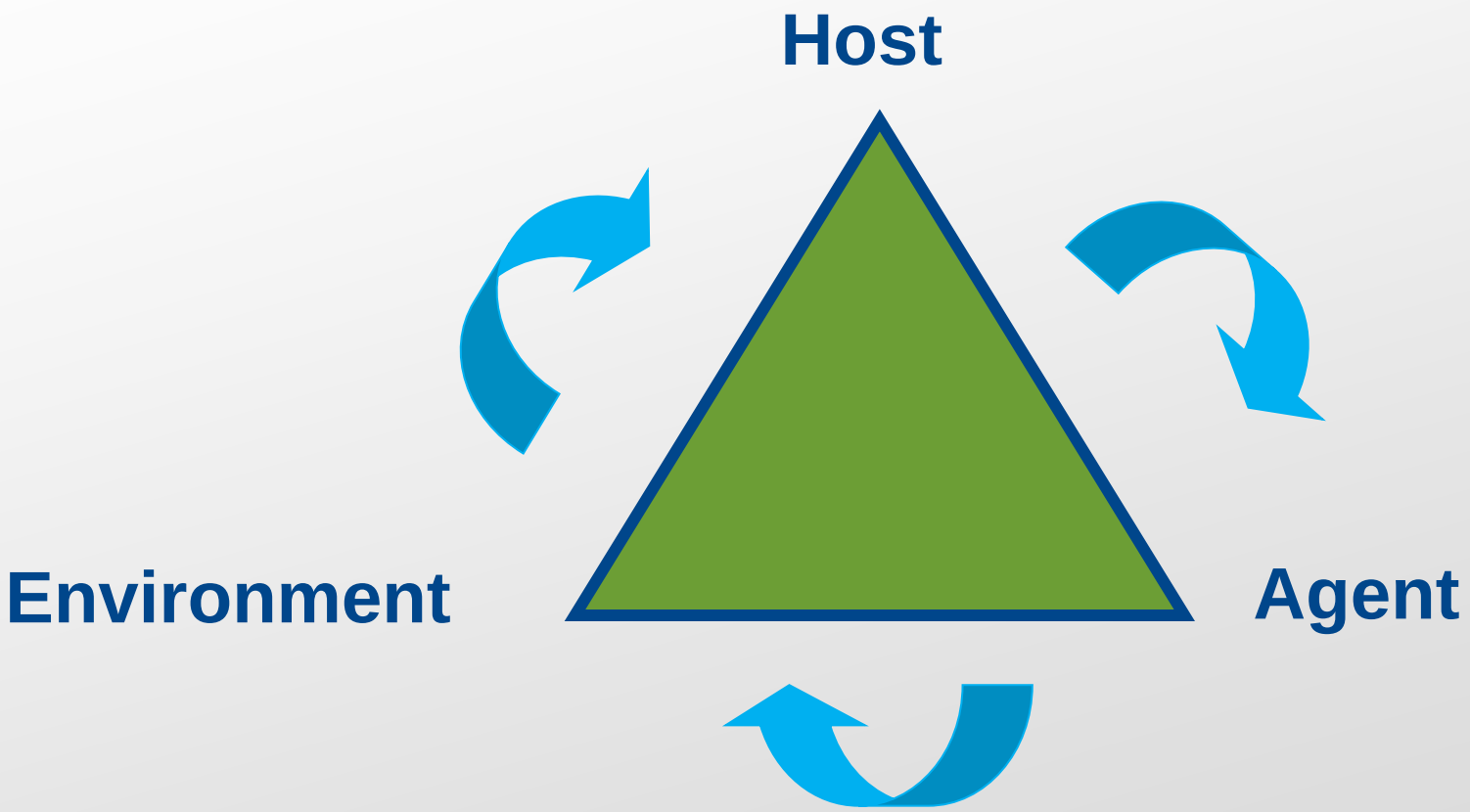
The Epidemiologic Triangle



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Most studies of depression are based on clinical samples

Spectrum of illness:

Most diseases demonstrate a range of manifestations and severity

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Contributions of Epidemiology

- **Prevalence, incidence and impact** of diseases
- **Generalizability** of clinical samples
- **Spectrum of expression** of disorders in the population
- **Risk estimation** of demographic, psychosocial, neurobiologic and genetic risk factors and their combined influences
- **Environmental risk factors, "agents"** (e.g., viral exposure, toxins, diet, stress)

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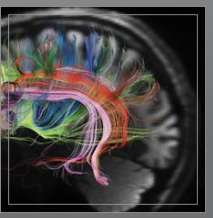

Depression in Adults

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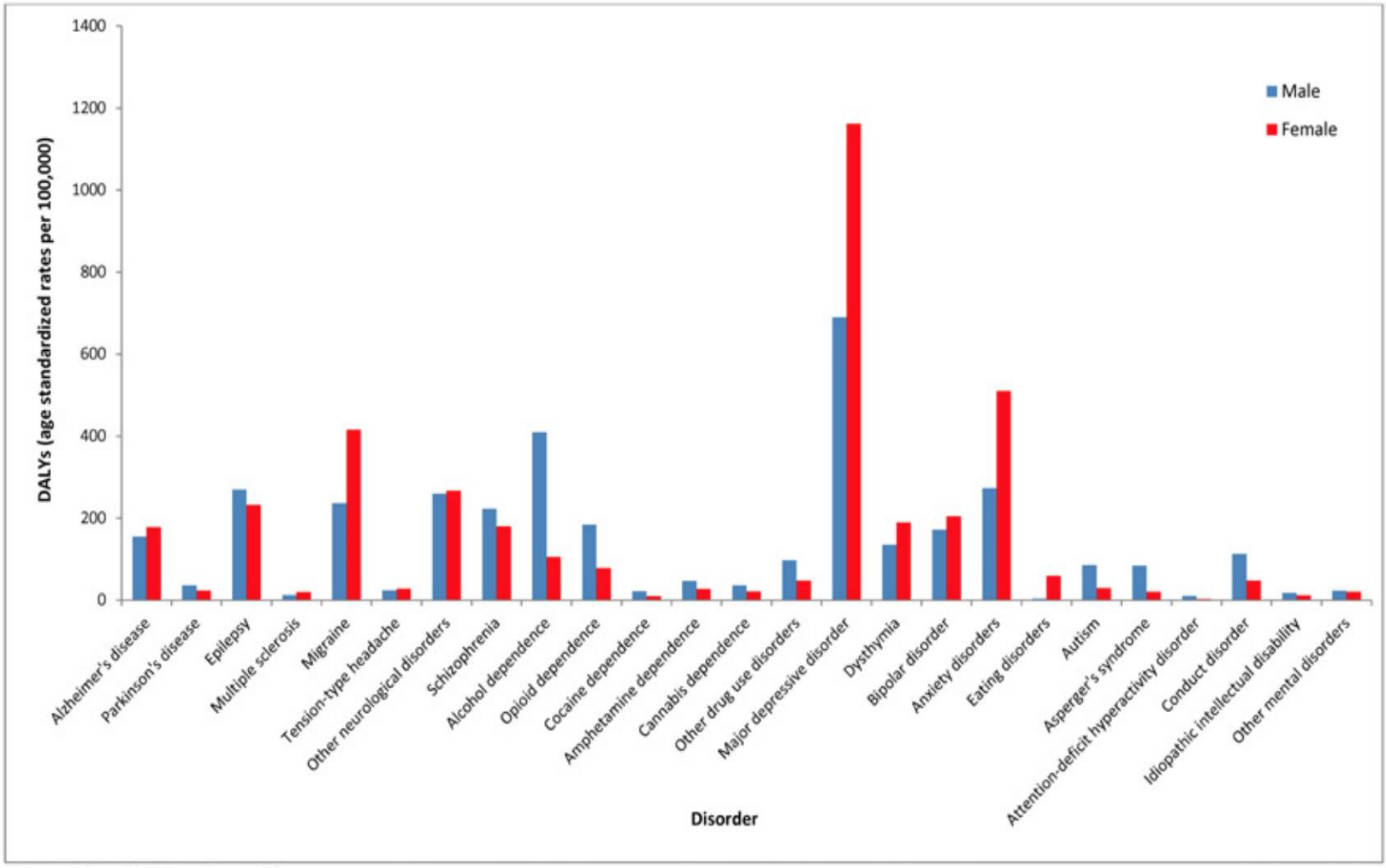
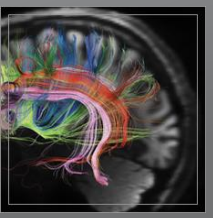
WORLD MENTAL HEALTH SURVEYS

Brazil, Colombia, Costa Rica, Mexico, Peru, United States, Nigeria, South Africa, Lebanon, Iraq, Belgium, Bulgaria, France, Germany, Israel, Italy, Netherlands, Northern Ireland, Portugal, Romania, Spain, Turkey, Ukraine, India, China Beijing, China Shanghai, Japan, and New Zealand

Disability Adjusted Life Years: Depression has greatest impact





Depression in Youth

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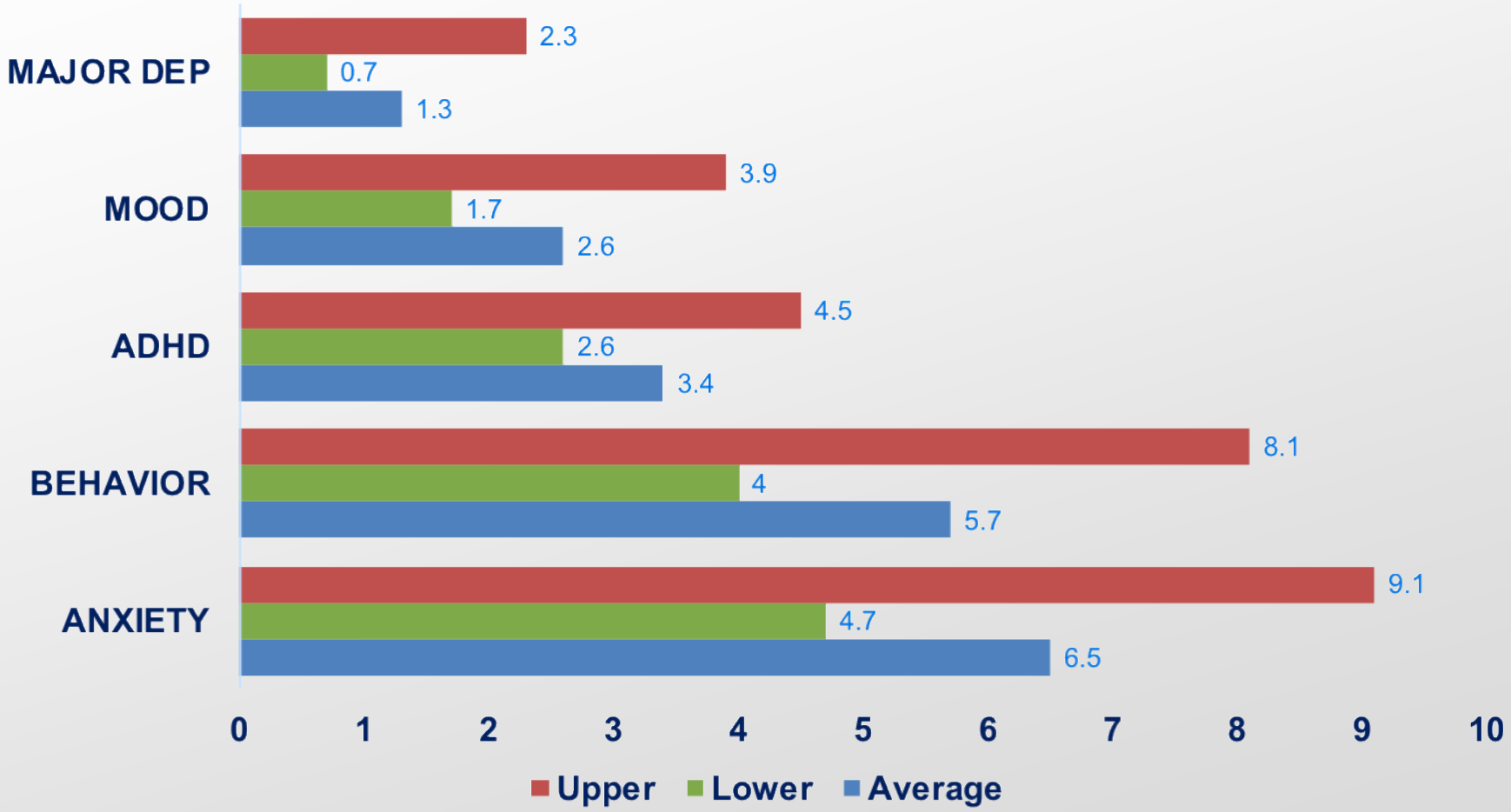
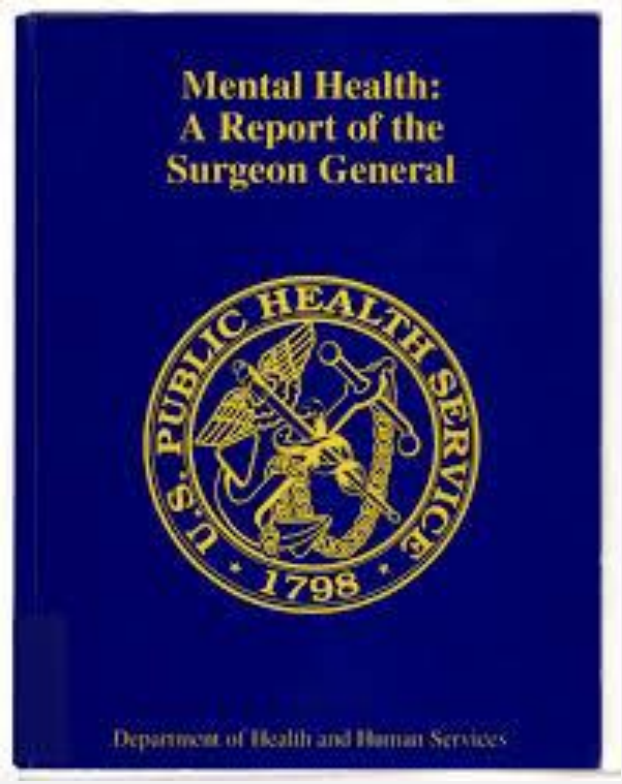
Worldwide Prevalence Rates of Mental Disorders In Youth



Polanczyk et al, 2015 J Child Psychol Psychiatry 2015; 56(3): 345–65

Mental disorders and mental health problems appear in families of all social classes and of all backgrounds. No one is immune….



National Comorbidity Survey Adolescent Supplement

N=10,123

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National Comorbidity Survey Replication: Adolescent Supplement (NCS-A)

Informant	Age	Total N
Parent	13-18	6,491
Youths	13-18	10,123

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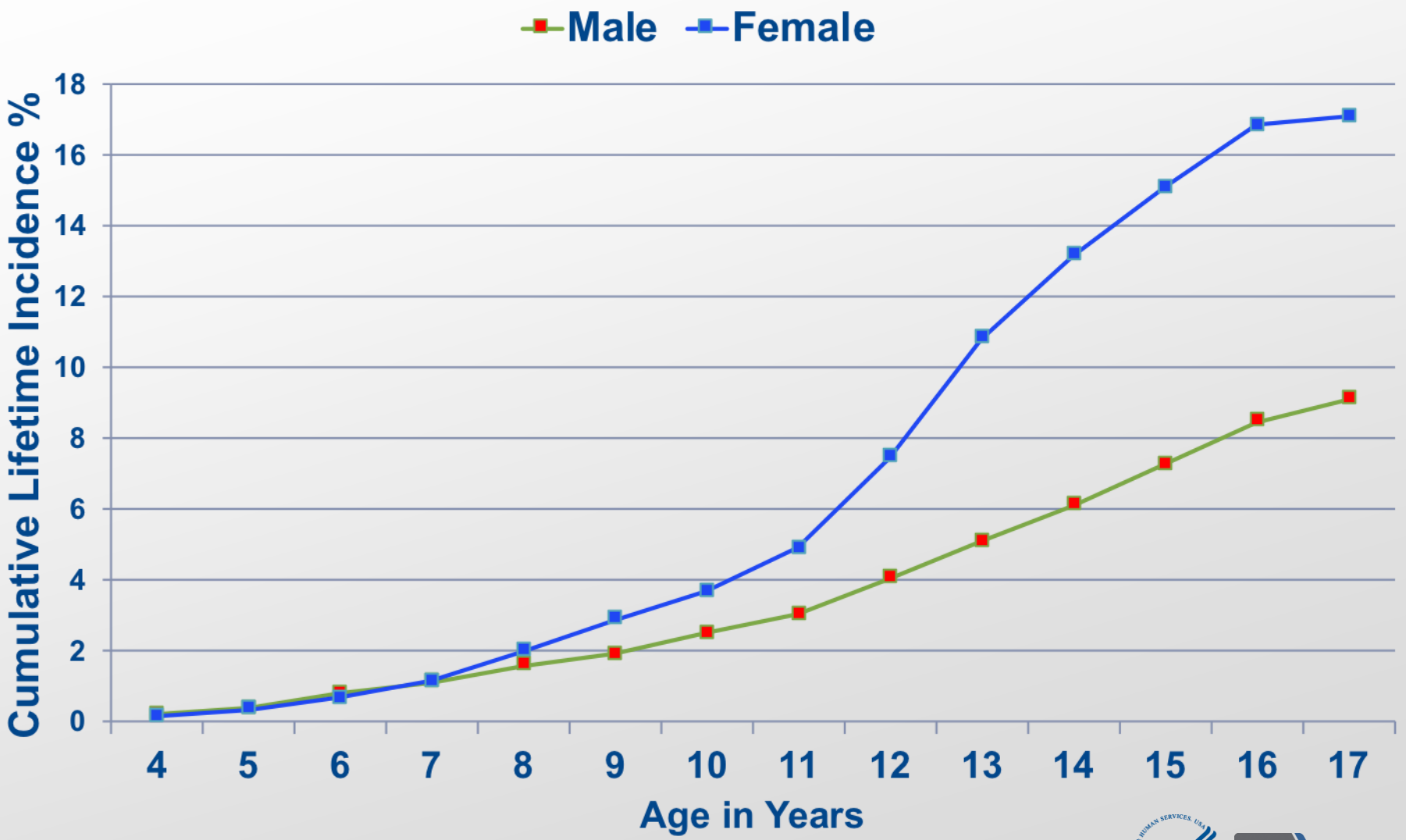
Cumulative Lifetime Incidence of Major Depression by Sex, NCS-A



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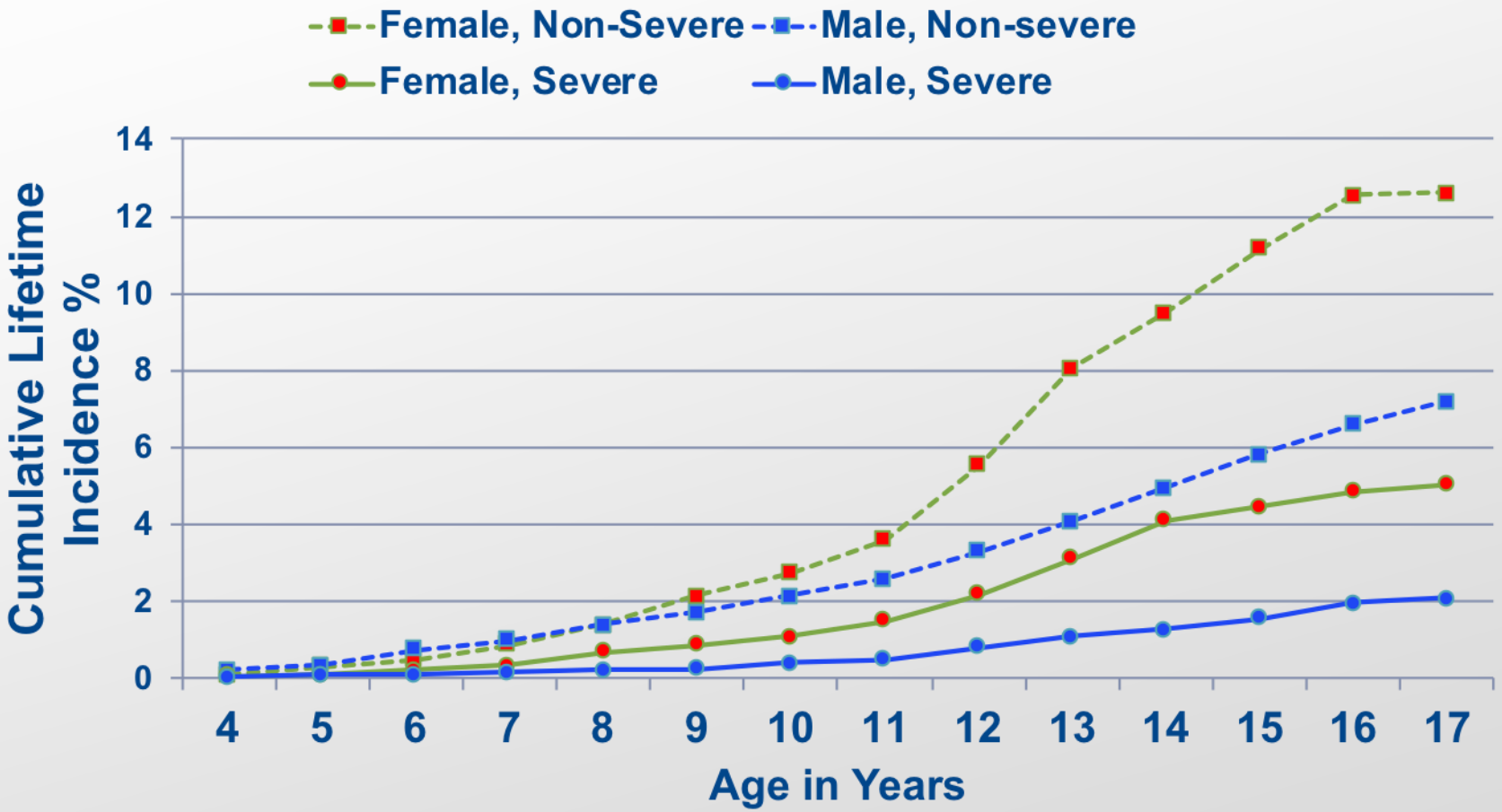
Cumulative Lifetime Incidence of MDD by Sex and Severity: NCS-A



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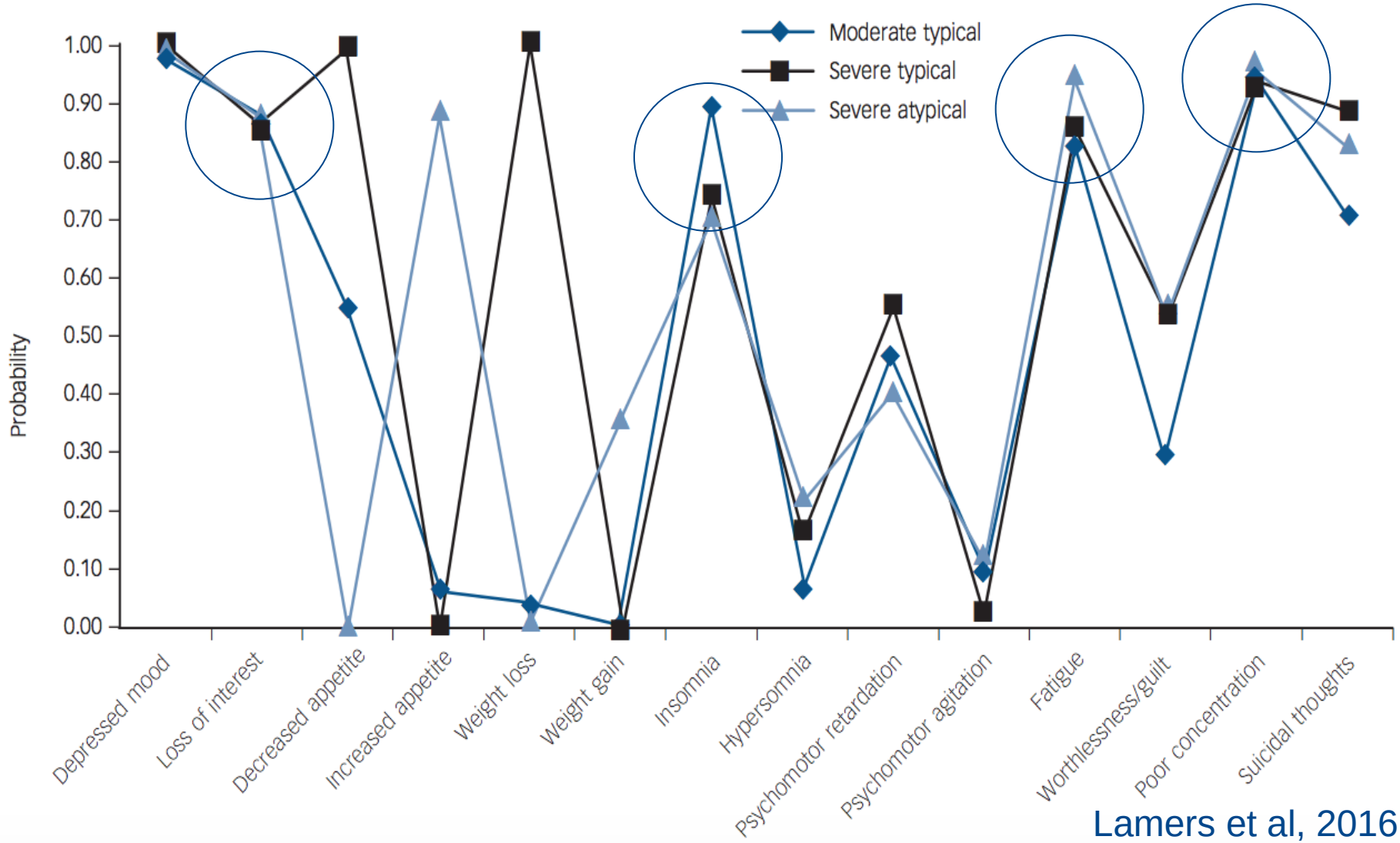
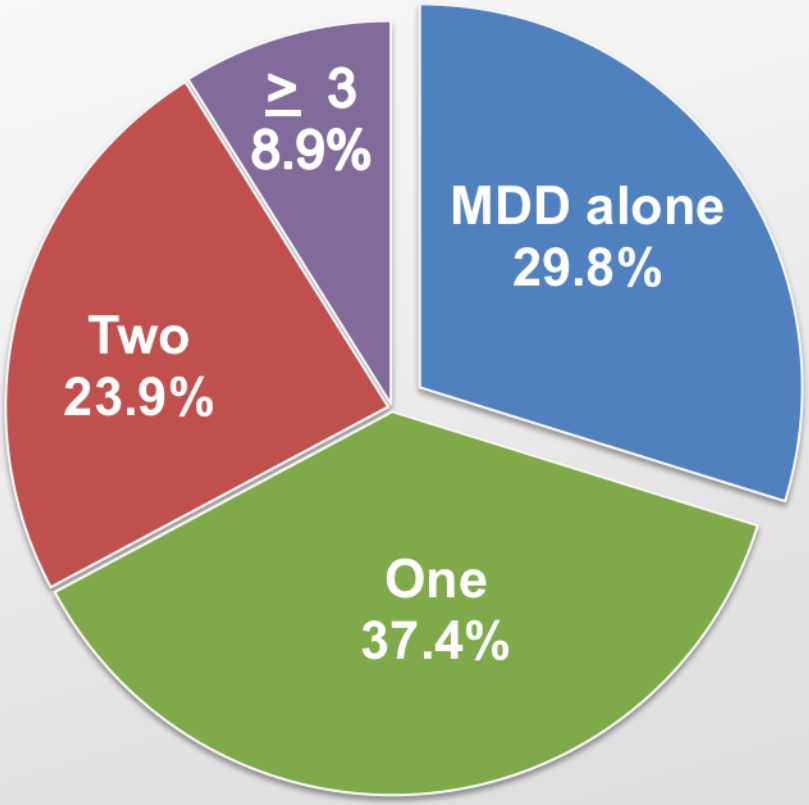
Structure of symptoms of depression in US Youth



Lamers et al, 2016

N of Classes of Disorders among those with Major Depression



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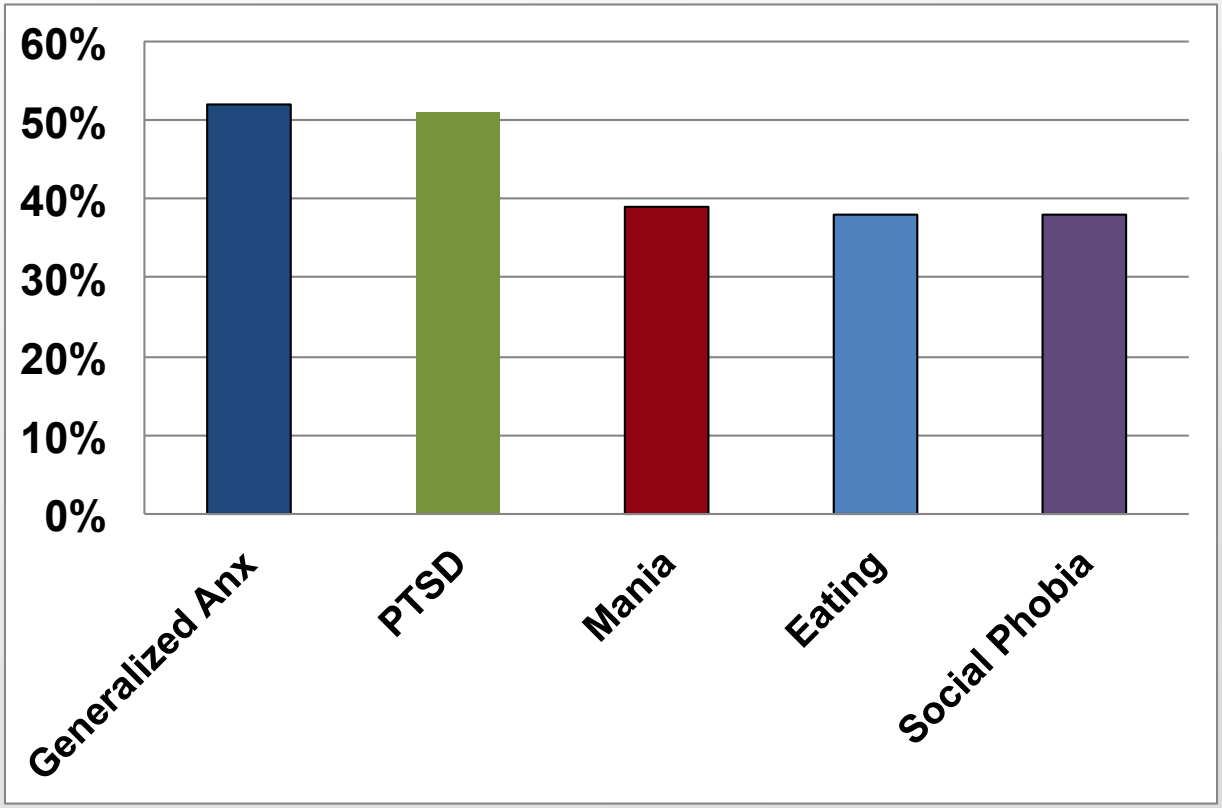
Rates of Comorbid MDD among Youth with Other Index Disorders



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Robert Wood Johnson Foundation

THE SYNTHESIS PROJECT

NEW INSIGHTS FROM RESEARCH RESULTS

ISSN 2155-3718

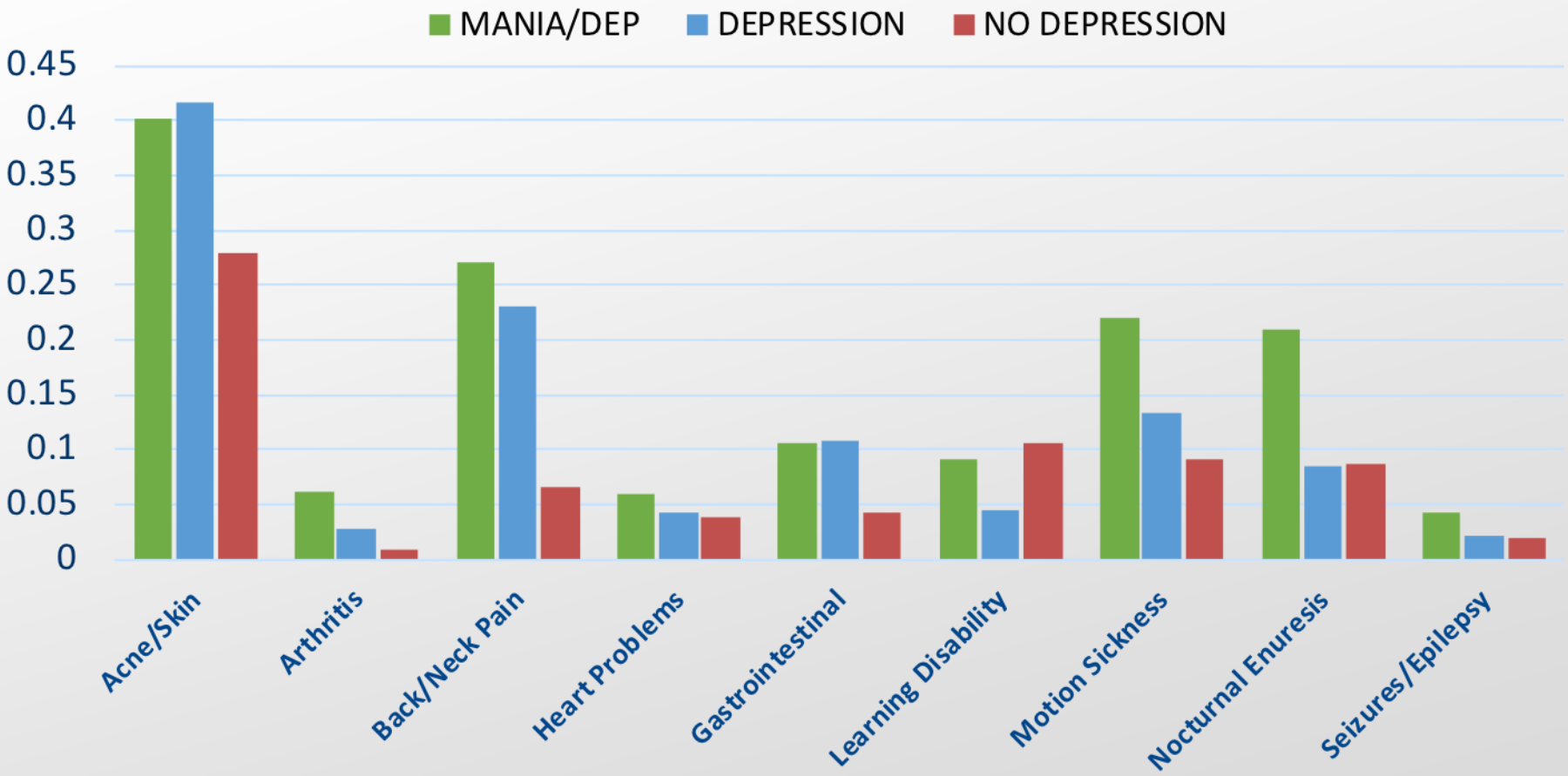
Benjamin G. Druss MD, MPH
Rosalynn Carter Chair and Professor
of Health Policy and Management
Emory University

Elizabeth Reisinger Walker, MAT, MPH
Doctoral Candidate
Emory University

RESEARCH SYNTHESIS REPORT NO. 21
FEBRUARY 2011

Mental disorders and medical comorbidity

Comorbid Medical Conditions & Mood Disorders



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Correlates and Risk Factors for Depression

- Female > Male
- Increasing Age
- Whites > non-whites
- Non-intact home
- Family history of depression
- Traumatic events
- Pre-existing mental or physical condition

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Consequences of Depression

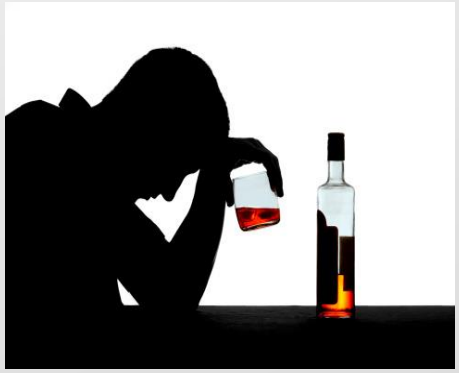
Educational Failure

Social difficulties/Isolation

Family disruption

Drug Abuse

Alcohol Problems



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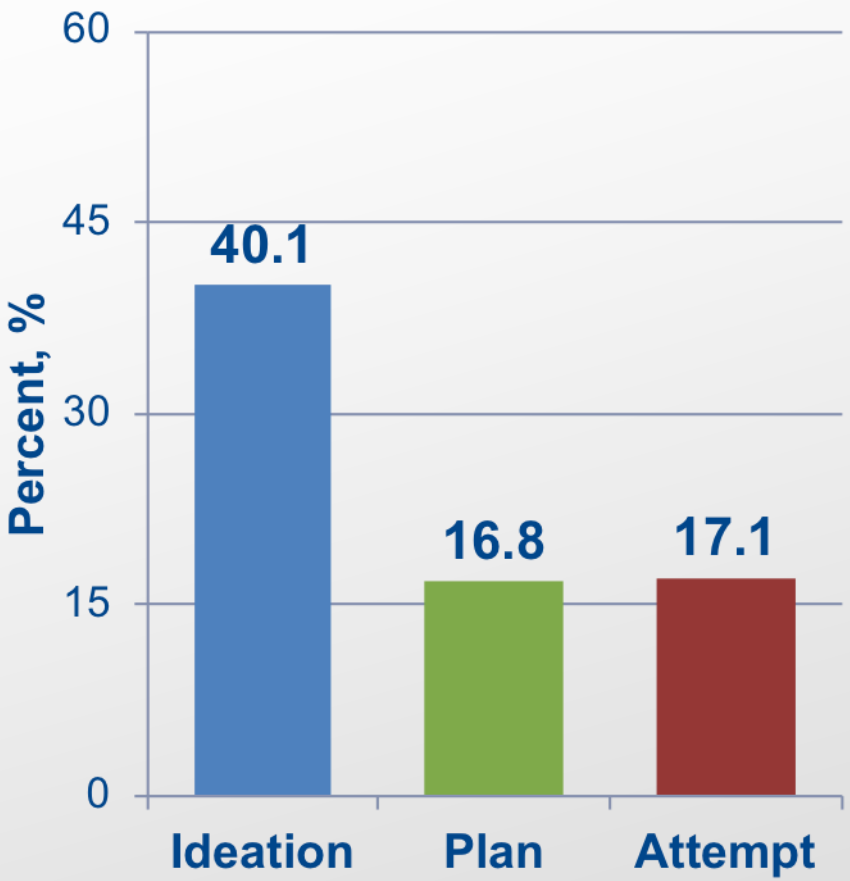
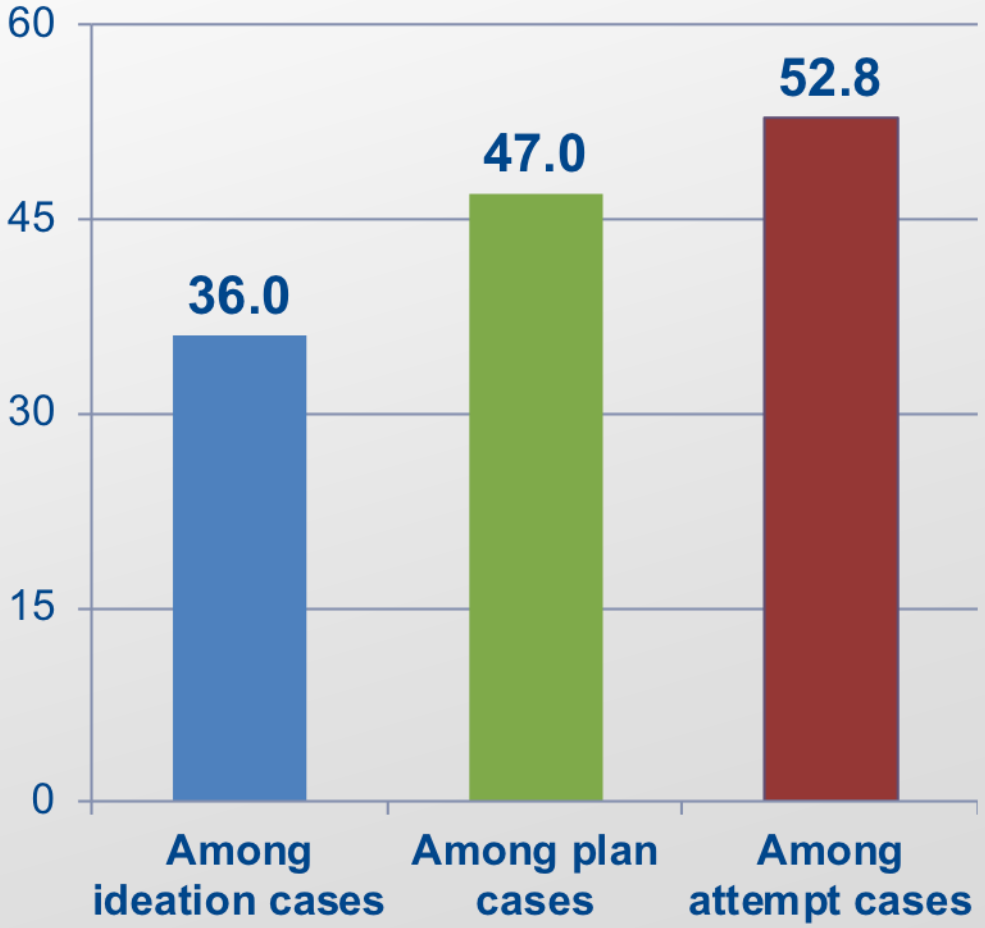
Suicidality among youth with MDD



MDD by Suicidality



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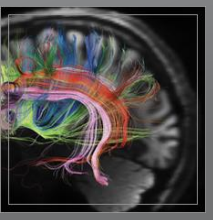

Implications for Treatment & Prevention

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Relevance to Interventions

- Comorbidity
- Core features/components of depression

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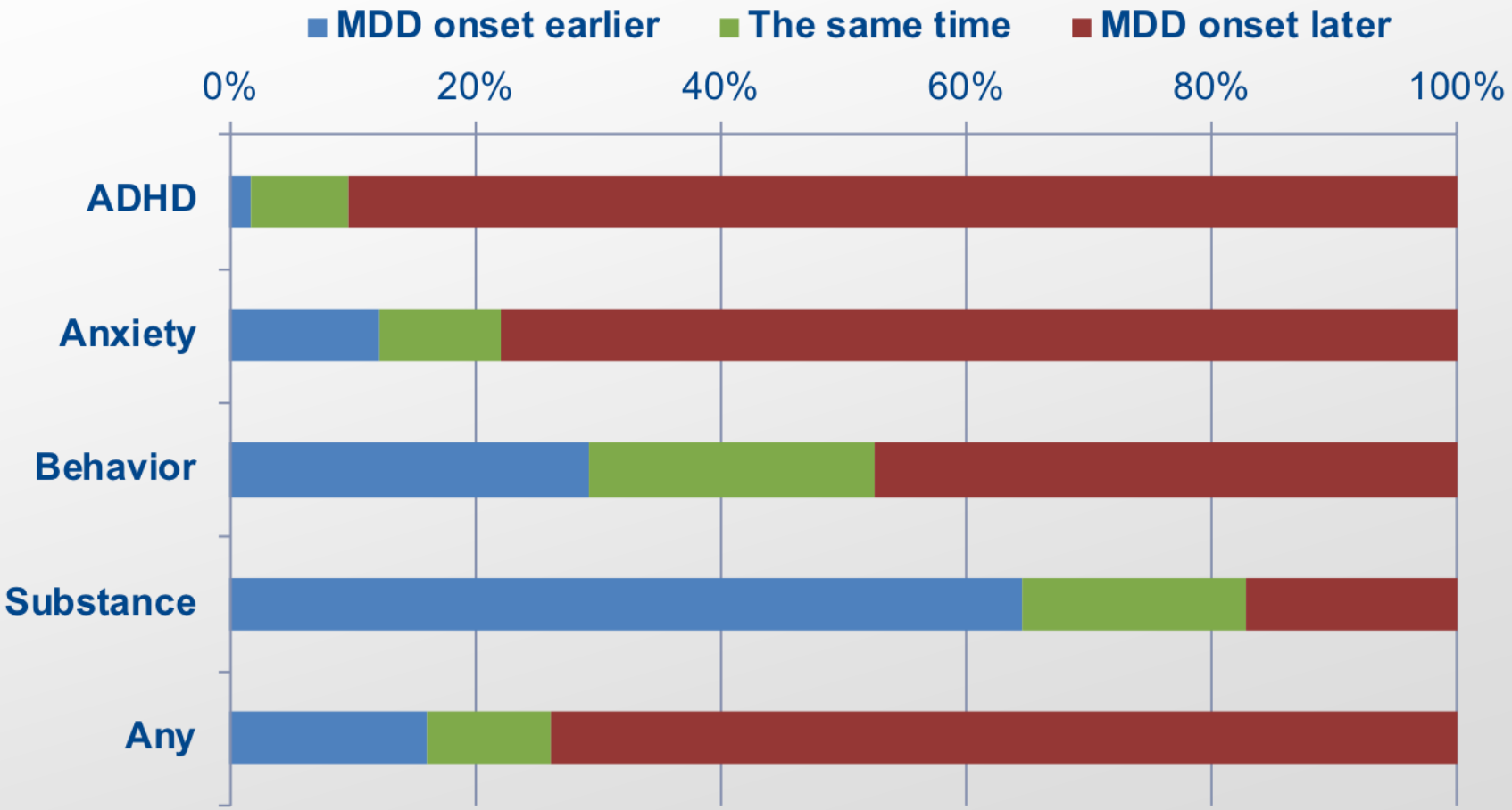
Temporal Order of MDD and Other Classes of Comorbid Disorders: NCS-A



Focus on core components of depression

- Sleep
- Physical Activity/Energy
- Cognitive components:
  - ✓ Attention/concentration
  - ✓ Reward/pleasure
  - ✓ Reactivity of mood
  - ✓ Interpersonal sensitivity

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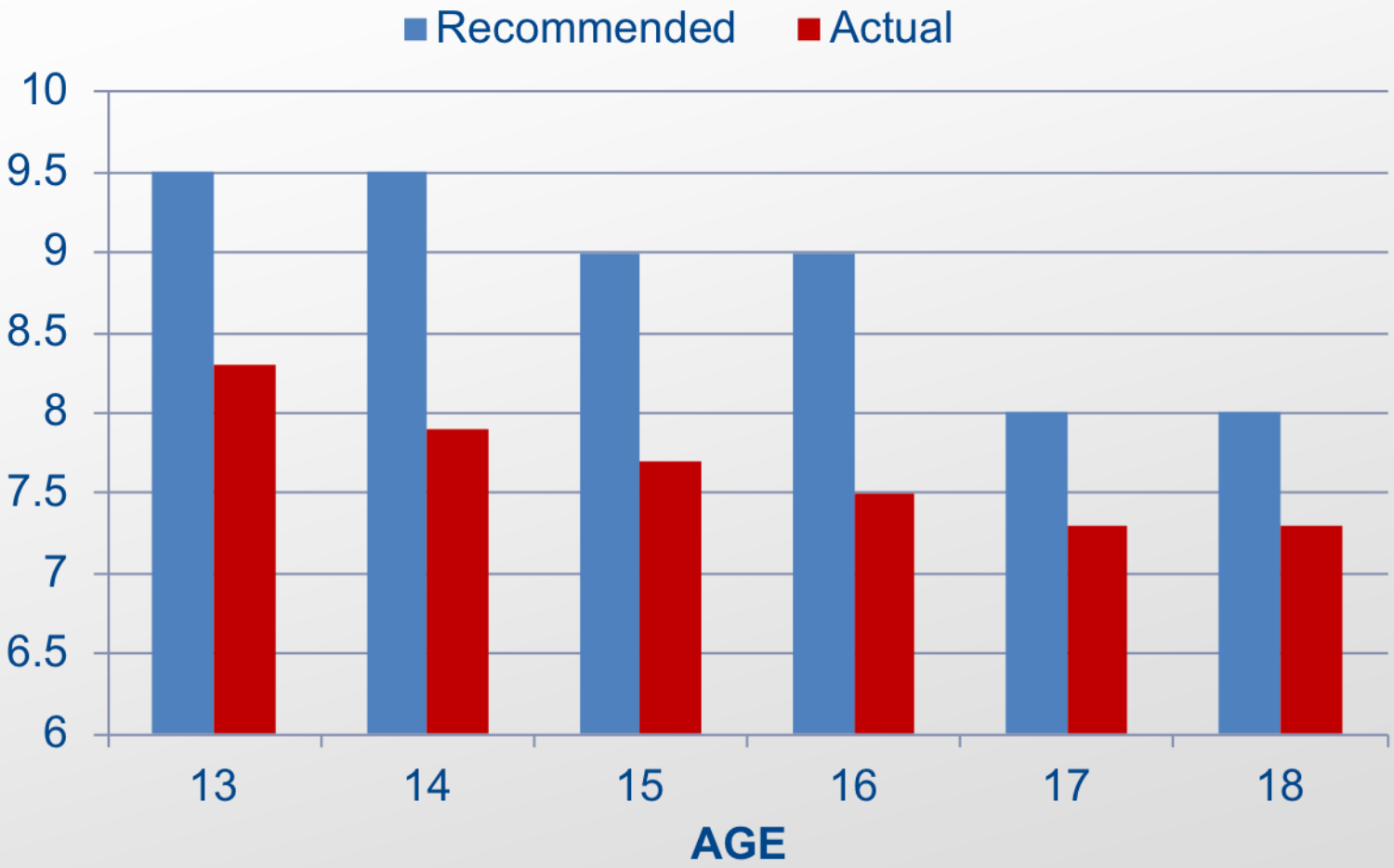
Sleep Duration among Adolescents: NCS-A

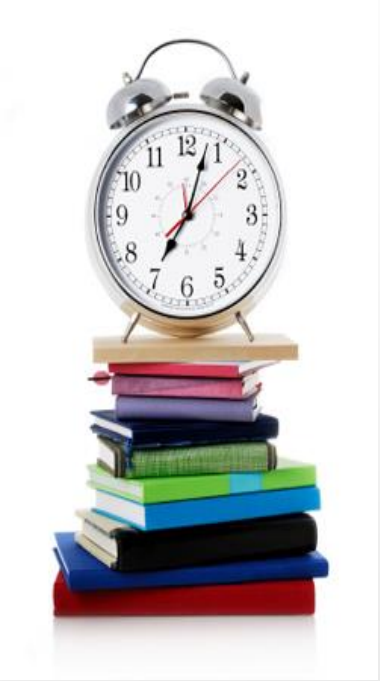


Zhang et al, 2016

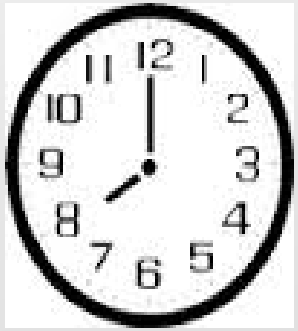
Sleep Duration & Mental Health among Adolescents, NCS A (Odds Ratios)

MENTAL HEALTH	≤ 7 hours	> 8 hours
Suicidality	1.7*	0.8
Perceived Mental Health	1.5*	0.8
Mood Disorder	2.1*	0.9
Anxiety Disorder	1.3	1.1
Substance Disorder	1.7*	1.1
Any Mental Disorder	1.6*	1.1

Change in Sleep with Later School Start Time (NCS-A)



Average School Start Time in US: 7:55 am

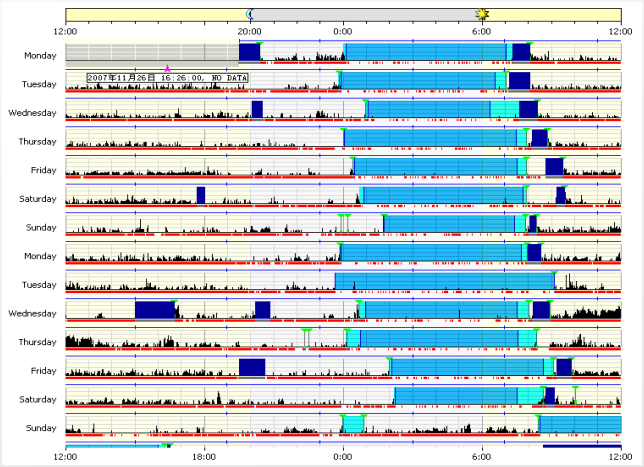


β =28.31 (14.02-42.35)

Paksarian et al, 2017

Mobile technologies for tracking sleep, daily activity, behaviors and mood states

2 weeks



4 times per day

- Mood
- Activity
- Energy
- Reactivity
- Food intake
- Stress
- Headache; pain

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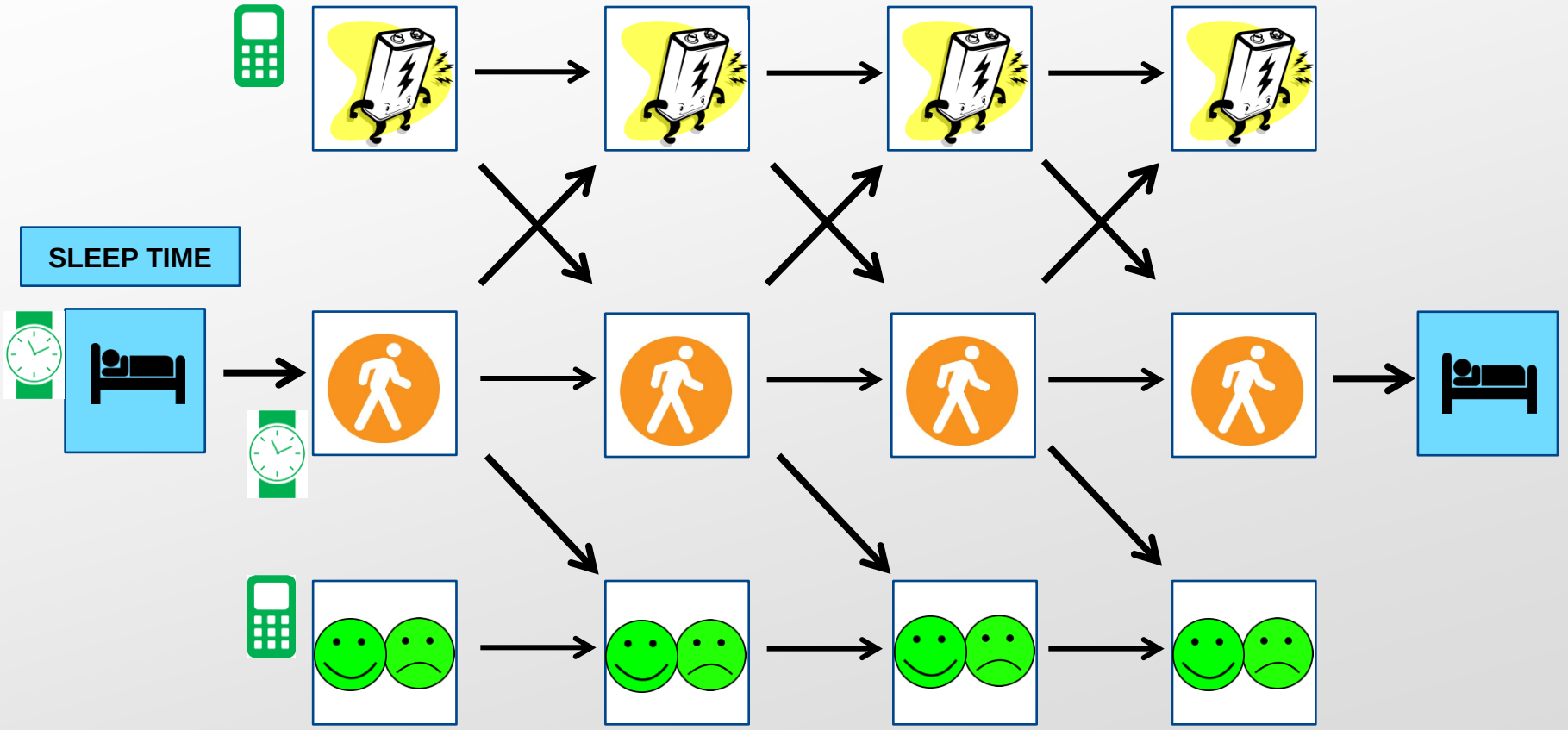
Inter-relationships of Domains Assessed with Actigraphy & Electronic Diaries



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Implications for Treatment & Prevention

- **Comorbidity:** Comprehensive evaluation of full spectrum of mental and physical conditions
- **Core manifestations:** Focus on salient features of depression rather than "aggregate" major depressive disorder
- **Follow up:** Temporal tracking of symptoms and function using mobile and on-line approaches
- **Prevention:** Primary prevention of secondary disorders & consequences of depression
- **Integration of context:**
  - ✓ Family
  - ✓ School
  - ✓ Peer

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Genetic Epidemiology Resarch Branch, NIMH

Thank you!

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