

**Module:**  
**Mental Health in the Community**

Week 3:  
The epidemiology and burdens of mental disorder



Dr Frank Holloway

**Topic 1:**  
**Epidemiology of  
mental disorder**

Topic list



This week, we will be looking at the following topics:

- **Topic 1: Epidemiology of mental disorder**
- Topic 2: The burden of mental ill-health for the individual
- Topic 3: The societal burden of mental ill-health

Click **Next** to continue

## Epidemiology of mental disorder (1)

... or “Why counting stuff is useful”

What is epidemiology?

“ The branch of medicine that deals with the **incidence and transmission of disease** in populations especially with **the aim of controlling it** ”

“ Epidemiology is the **study** of the **distribution and determinants of health-related states or events** in **specified populations**, and the **application** of this study to the control of health problems ”



Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

3 of 30

What is epidemiology?

## It involves:

defining “disorders”

counting and mapping “disorders” in place and time

linking the occurrence of “disorder” to potential causative factors

identifying appropriate (public health) interventions

“Epidemiology is the **study** of the **distribution and determinants of health-related states** or events in specified **populations**, and the **application** of this study to the **control** of health problems.”

Click **Next** to continue

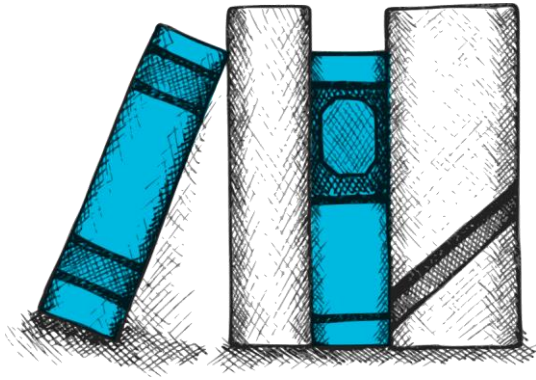
Centers for Disease Control and Prevention (n.d.); Last et al. (2001)

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

4 of 30

## Two excellent (free) texts on epidemiology



### Basic epidemiology

Bonita R., Beaglehole R., Kjellström T., & Organization W. H. (2006) *Basic epidemiology*. Geneva : World Health Organization, from <http://www.who.int/iris/handle/10665/43541>

### Principles of epidemiology in public health practice

Home|Self-Study Course SS1978|CDC. (n.d.). Retrieved August 17, 2016, from <http://www.cdc.gov/ophs/csels/dsepd/ss1978/>

Bonita et al. (2006); Centers for Disease Control and Prevention (n.d.)

## Two broad strands

### Descriptive epidemiology

- prevalence
- incidence
- variations between populations
- comorbidities
- burden of disorder

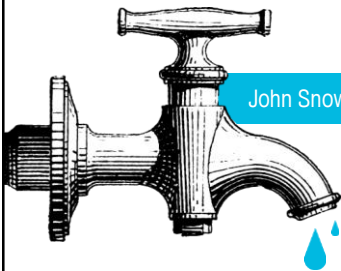
### Analytical epidemiology

- causes



Epidemiology also underlies the design of intervention studies

## The use of epidemiological thinking (1)



John Snow and the Broad Street Pump

**1854**  
cholera in London

- theory: cause = drinking water
- mapped the incidence of cholera
- clustering of cases around Broad Street pump
- cholera cases related to where victims drew their water
- further data support hypothesis that sewage is a source of cholera



Cormack (2005); Snow (1854); Wikipedia (n.d.)

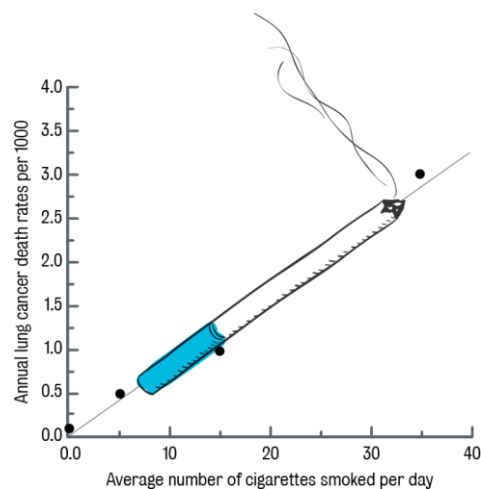
Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

7 of 30

## The use of epidemiological thinking (2)

### Doll and Hill: the relationship between tobacco use and lung cancer



Bonita et al. (2006)

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

8 of 30

Epidemiology is alive and well...



Zika Virus

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

9 of 30

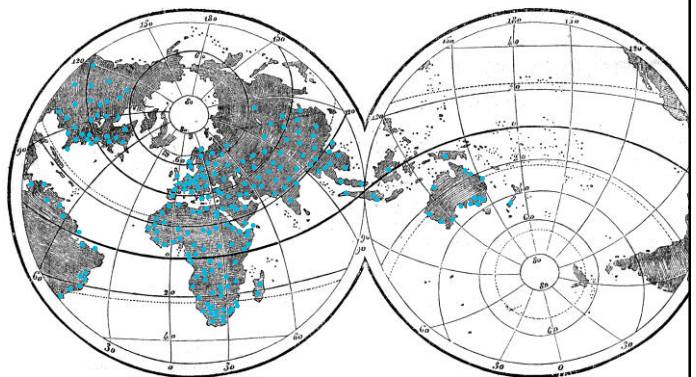
## Psychiatric epidemiology

Psychiatric epidemiology = distribution of mental disorders in population

onset, course and outcomes of mental disorder(s)

measure burden on society

identify causal mechanisms

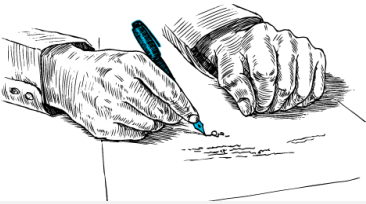


Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

10 of 30

## Some basic concepts in psychiatric epidemiology



**Caseness:** define the presence of a mental disorder as defined by operational criteria



**Incidence:** transition to caseness over a defined time period



**Prevalence:** the proportion of people who are cases at the time

## Epidemiology of mental disorder (2)

*Descriptive perspective:*

Identify

Sample

Interviews

Definition: a contested issue

Diagnostic criteria are **reliable** but have **contested validity**





## Epidemiology of mental disorder (3)

## Analytical perspective

↓  
Break population down  
in a structured fashion

Identify variables to be measured

Apply methodology



Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

13 of 30

## Epidemiology of mental disorder (4)

## Classic US studies

**1980s**

Epidemiological Catchment Area

**1990s**

National Comorbidity Study

**2000s**

NCS Replication

Significant limitations

Despite their limitations  
they are very important

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

14 of 30

## Epidemiology of mental disorder (5)

1. Are common



3. Are serious or of moderate severity



### Headline findings from NCSR

2. Are of early onset



4. Comorbidity is common



5. Access to treatment limited



Insel &amp; Fenton (2005); Kessler et al. (2005); Wang et al. (2005)

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

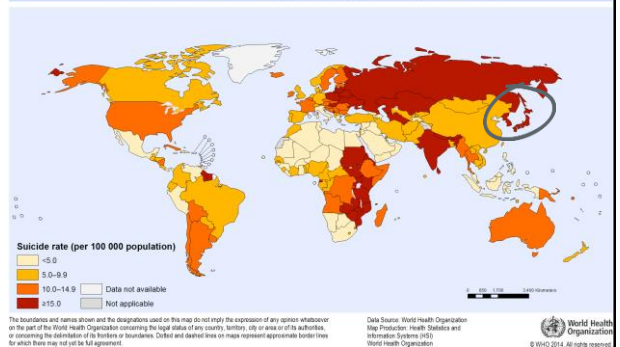
15 of 30

## Prevalence of mental disorder

Lifetime Prevalence (%) of Mental Disorders in Different Countries in 2002 (WHO World Mental Health Survey, 2007)



Age-standardized suicide rates (per 100 000 population), both sexes, 2012



Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder

16 of 30

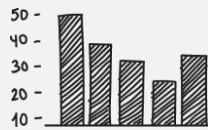


## What epidemiological studies tell us (1)

We have a lot of data on the prevalence of mental disorder

### Information has to include:

- population-based surveys
- “administrative” data



### Summary of paper:

Epidemiological data on wide range of mental disorders

Multimethod approach  
**27 eligible studies**  
with variable designs

**150,000 subjects**  
from **16 European countries** identified

### Results Prevalence

**27%** of the adult EU population affected by mental disorder in past 12 months



little evidence for considerable cultural or country variation

### Most frequent disorders:

- anxiety disorders
- depressive
- somatoform & substance dependence

Wittchen & Jacobi (2005)

## Estimates of mental disorders

H.-U. Wittchen, F. Jacobi / *European Neuropsychopharmacology* 15 (2005) 357–376

Psychosis

**1%**

Bipolar disorder

**1%**

Major depression

**7%**

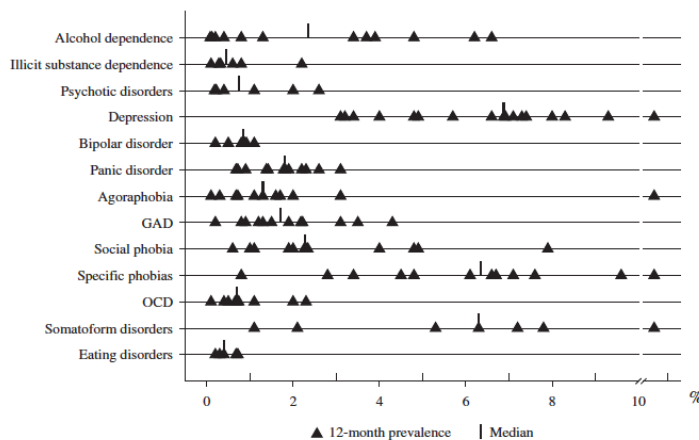


Fig. 1. Distribution and medians of published European 12-month prevalence estimates of mental disorders.

Wittchen & Jacobi (2005)

## What epidemiological studies tell us: The EU data

### Disability and treatment:

- a) considerable disability burden
- b) low utilisation and treatment rates

Considerable future research needs

### Needs are most pronounced for:

- new EU member states
- adolescent and older populations



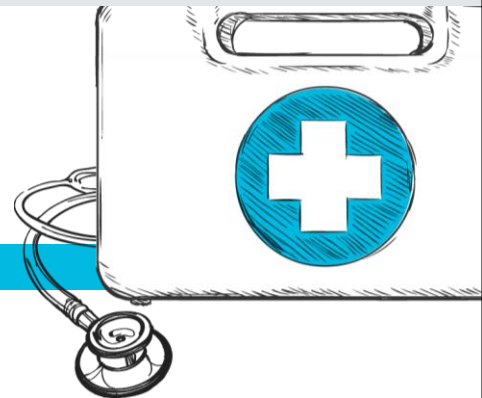
Wittchen & Jacobi (2005)

## What epidemiological studies tell us (2)

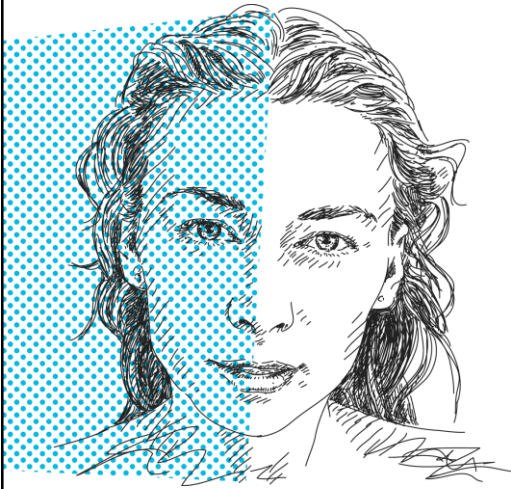
The EU and US data are entirely consistent

There is a lot of mental disorder

Only a small proportion of people with mental disorder are receiving treatment



## Beyond descriptive epidemiology



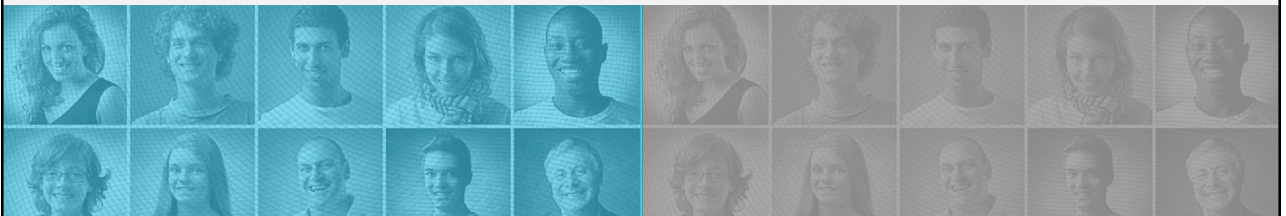
We know a lot about how common mental disorder is

We know a fair amount about the impact of mental disorder

An epidemiological approach may help to identify the causes of mental disorder

## Analytical epidemiology: Looking towards causation

Relative risk



the **ratio** of the



## Relative risk and psychosis



Pre-morbid  
cannabis use RR  
**2.0**



Urban birth RR  
**2.4**



Children of  
emigrants to UK RR  
**7.0**



History of psychosis in a  
first-degree relative RR  
**9.3**

(Data from Jablensky, 2003)

History of child sexual abuse and psychosis OR **10.1**

Bebbington et al. (2011); Jablensky (2003)

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder 23 of 30

## Causal mechanisms for psychosis?

Historically, focus on **social factors**

Recently, focus on mechanisms through which social forces result in the onset of mental disorder(s) (Keyes & Susser 2014)



Keyes & Susser (2014)

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder 24 of 30

## Causal mechanisms for psychosis and common mental disorders?

1

Baumeister D, Russell A, Pariante CM, Mondelli V (2014) **Inflammatory biomarker profiles of mental disorders** and their relation to clinical, social and lifestyle factors. *Soc Psychiatry Psychiatr Epidemiol* 49(6):841–849

2

Uher R (2014) **Gene-environment interactions in common mental disorders: an update and strategy for a genome-wide search.** *Soc Psychiatry Psychiatr Epidemiol* 49(1):3–14.

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Akdeniz C, Tost H, Meyer-Lindenberg A (2014) **The neurobiology of social environmental risk for schizophrenia: an evolving research field.** *Soc Psychiatry Psychiatr Epidemiol* 49:507–517

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Iyegbe C, Campbell D, Butler A, Ajnakina O, Sham P (2014) **The emerging molecular architecture of schizophrenia, polygenic risk scores and the clinical implications for GxE research.** *Soc Psychiatry Psychiatr Epidemiol* 49(2):169–182.

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Pishva E, Kenis G, van den Hove D, Lesch KP, Boks MP, van Os J, Rutten BP (2014) **The epigenome and postnatal environmental influences in psychotic disorders.** *Soc Psychiatry Psychiatr Epidemiol* 49(3):337–348.

Akdeniz et al. (2014); Baumeister et al. (2014); Iyegbe et al. (2014); Pishva et al. (2014); Uher, R. (2014)

Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder 25 of 30

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Week 3 The epidemiology and burdens of mental disorder

Topic 1: Epidemiology of mental disorder 26 of 30



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# End of topic