



ECNP/EBC Report 2011

Size and Burden of Mental Disorders and other Disorders of the Brain in Europe 2010

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ECNP and European Brain Council (EBC) Project 2011

What we know so far!

- **Key findings of the ECNP/EBC landmark study report 2005**
 - Every year 27% of the adult EU population suffers from mental disorders
 - Corresponds to 2.7m out of the 301.7m EU population aged 18-65
 - Conservative estimate: restricted set of diagnoses, ages covered
 - Exceedingly high degree of psychosocial impairments and disability
 - Low rates of treatment (26%), even lower rates of adequate treatment
 - Under-recognition, under-treatment, inadequate treatment
 - Yearly cost burden of mental disorders: 276.851 billion €, constituting the vast majority of all costs of „disorders of the brain“ in Europe (386.179 billion)
 - Unlike to most somatic and neurological disorders low direct (35%, i.e. treatment) and high indirect (59%) costs



Deficiencies *ECNP/EBC landmark study report 2005*

- Restricted set of diagnoses of mental disorders covered (19 out of hundreds)
- No coverage of child-adolescent disorders
- No coverage of mental disorders in the elderly
- Consequently restriction to only a part of the total Eu population (adults)
- Epidemiological data only for years prior 2004
- No disability adjusted life years lost (DALY) data
- Restricted coverage of other disorders of the brain (8 out of a hundred)
- No aggregation of neurological and mental disorders possible
- Incomplete cost and burden data for diagnoses
- Partly outdated (prior to year 2000 data for cost)
- Coverage of the „old“ EU (plus Switzerlan, Norway and Island) only

Need for improved, up to date comprehensive EU data

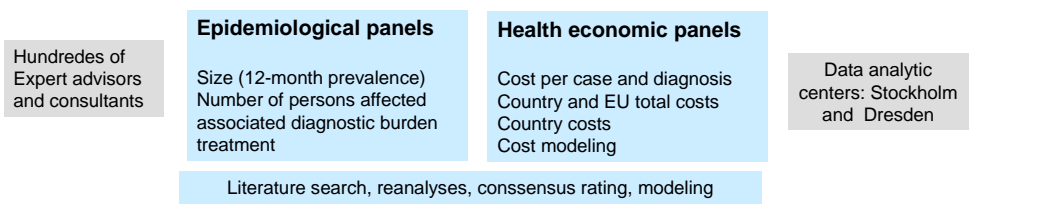


The new ECNP/EBC Task Force project on „Size, Burden and Cost of disorders of the Brain“

Mission

- To inform with improved and up to date data on size, burden and cost
 - about a considerable larger and more complete range of mental
 - and neurologic disorders
 - for the enlarged EU population in all age groups
 - While retaining methodological comparability with the 2005 study

Steering Board: Olesen, Jönsson, Wittchen)





The scope of disorders of the brain

Mental and behavioural dis. (F00-G99)

- Mental retardation
- Neurodevelopmental disorders (ADHD)
- Substance use disorders
- Anxiety disorders (e.g. Panic disorder, Generalized Anxiety disorder, Phobias)
- Obsessive-compulsive disorders
- Trauma- and stress-related disorders
- Affective disorders
 - Depression and Bipolar D
- Schizophrenia and Psychotic
- Somatoform disorders
- Migraine and headaches
- Sleep disorders
- Eating disorders
- Personality disorders
- Neurocognitive disorders

Neurological disorders (G00-G99)

- Inflammatory diseases of CNS
- Systemic atrophies
- Extrapyrmidal and movement dis.
 - E.g. Parkinson's Diseases
- Other degenerative CNS dis.
 - E.g. Alzheimer dementia
- Demyelinating diseases of the CNS
 - Multiple sclerosis
- Vascular disorders
 - Cerebrovascular disorders, Migraine, stroke, narcolepsy
- Peripheral nerve root and plexus dis.
 - Pain, mononeuropathies
 - Polyneuropathies, other PNS dis.
- Dis. of myoneural junction and muscle
 - Neuromuscular disorders
- Cerebral palsy, paralytic syndromes
 - Hemi- and paraplegias

Increasing evidence for overlap:
Symptom and diagnostic level
Aetiopathological pathways



- **Mental disorders**
 - mental and behavioural disorders, „psychiatric“ disorders)
- **Neurological disorders** (and other CNS disorders)



Disorders of the Brain

Also Neuropsychiatric disorders or Mental, Neurologic, Substance disorders (MNS)

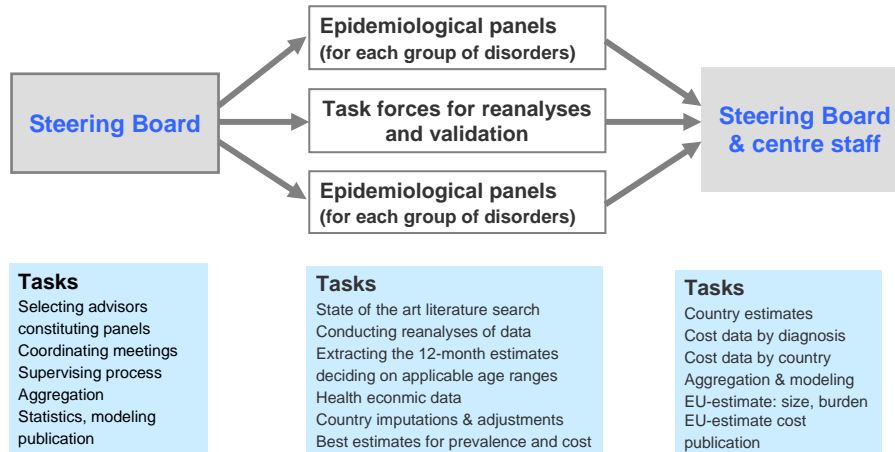
Challenges in the study of „disorders of brain“

- **Disciplinary fragmentation** (different traditions, methods, designs, work in isolation)
- **Lack of knowledge** (comorbidity, shared and unique mechanisms and pathways)
- **Differences** (diagnosis, treatment, health care structure, resources, quality of care)
- **Variability in forms and expressions over the life span** (different methodologies)





Process and methods



Diagnoses covered in our analyses

Mental and behavioural dis. (F00-G99)

- **Mental retardation (F10.2)**
- **Hyperkinetic disorder/ADHD (F90.x)**
- **Conduct disorders (F91.x)**
- **Autism/pervasive developmental dis. (F84.x)**
- **Substance use disorders** (alcohol, opiate and cannabis dependence) (**F10.2, F11.2, F12.2**)
- **Dementias (F00-F03)**
- **Schizophrenia, psychotic disorders (F2x)**
- **Mood disorders** (Depression and Bipolar Disorders) (**F32, F33, F30, F31**)
- **Anxiety disorders** (e.g. Panic disorder, Generalized Anxiety disorder, Phobias) (**F40x, F41x**)
- **Obsessive-compulsive disorders (F42)**
- **Trauma- and stress-related disorders (F43.1)**
- **Somatiform disorders (F45)**
- **Sleep dis.** (i.e. insomnia) (**F51x, G47**)
- **Eating disorders (F50.0, F50.1, F50.2, F50.3)**
- **Personality disorders (F60.2, F60.3)**

Neurological disorders (G00-G99)

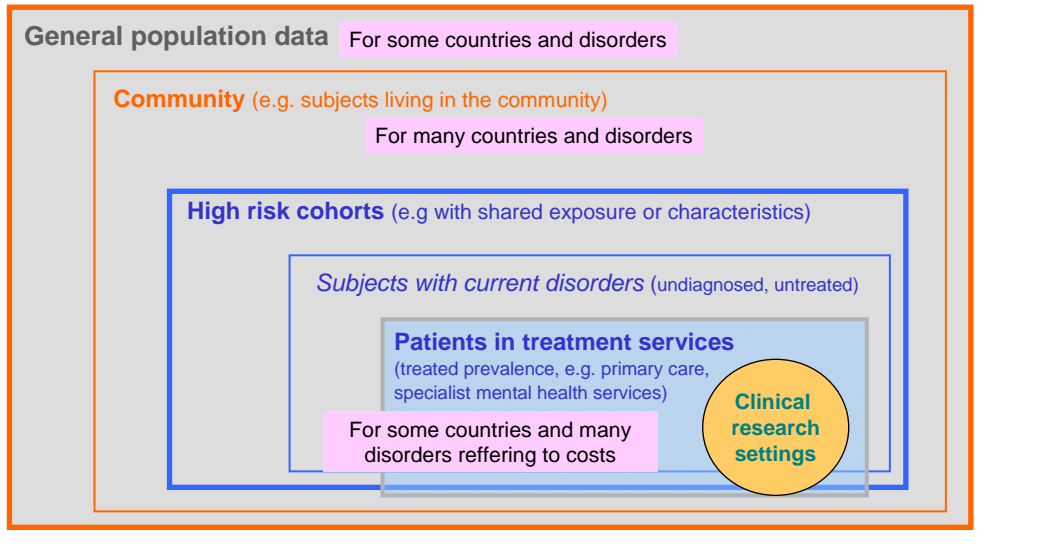
- **Neuromuscular disorders** (Muscular Dystrophies, Acquired Neuropathies, Autoimmune Disorders of muscle and of the neuromuscular junction)
- **Parkinsons Disease (G22x)**
- **Alzheimer dementia (G30x)**
- **Multiple Sclerosis (G35x)**
- **Epilepsy (G40x)**
- **Migraine ((G43x), other headaches (G44x)**
- **Stroke (G45x)**
- **Traumatic brain injury (TBI) (GS00-S09)**
- **Brain Tumours** (malignant, benign, of unknown origin) (**C70, C71, C72; D32, D33,; D42, D43**)

Diagnostic coverage

Overall 31 mental and 62 neurological disorders grouped for the purposes of this report in 19 meaningful major diagnostic groups



Re-analyses and appraisal of hundreds of studies for the diagnostic spectrum covered (1980-2010)



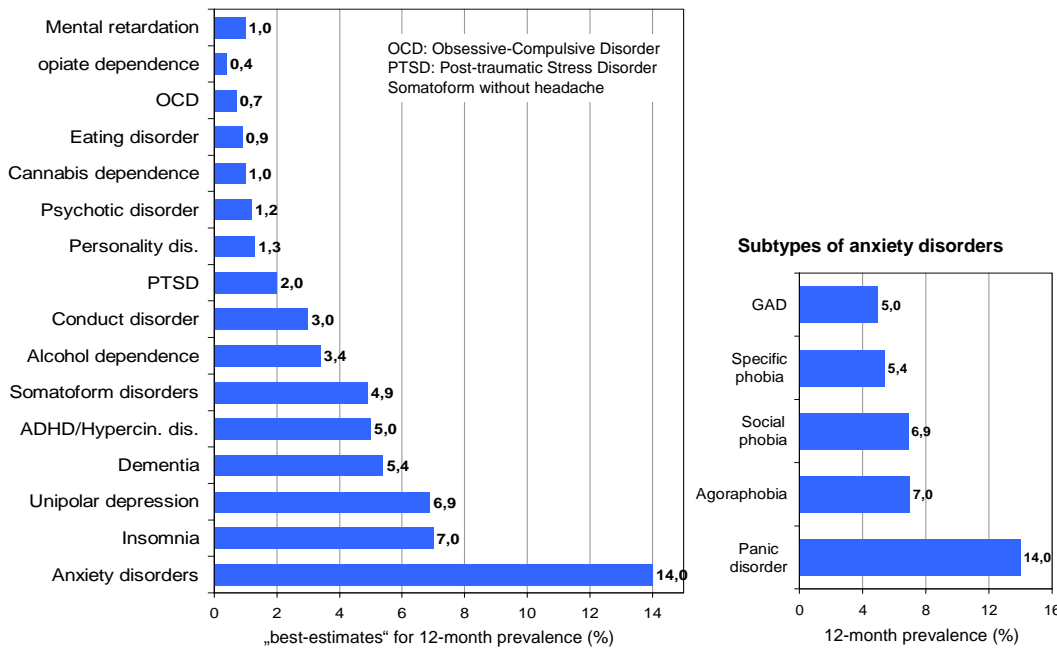
Results

The size of mental disorders in Europe

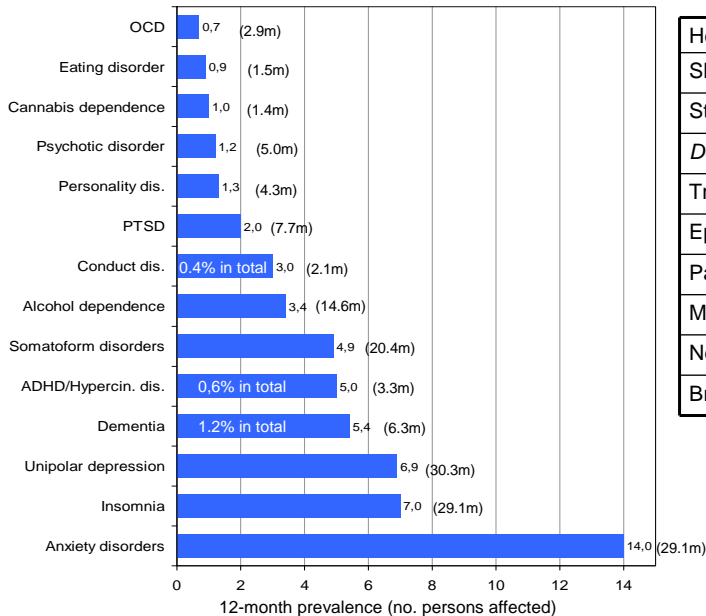
Reanalyses of over a hundred of epidemiological studies in the EU (1990-2010) taking into account general population, community and services (e.g. primary care) data as well as comorbidity to derive at „best-estimates for the 12-month prevalence of disorders

12-month: Proportion of cases meeting full diagnostic criteria during the past 12 months

Mental Disorders by best-estimate 12-month prevalence (%)



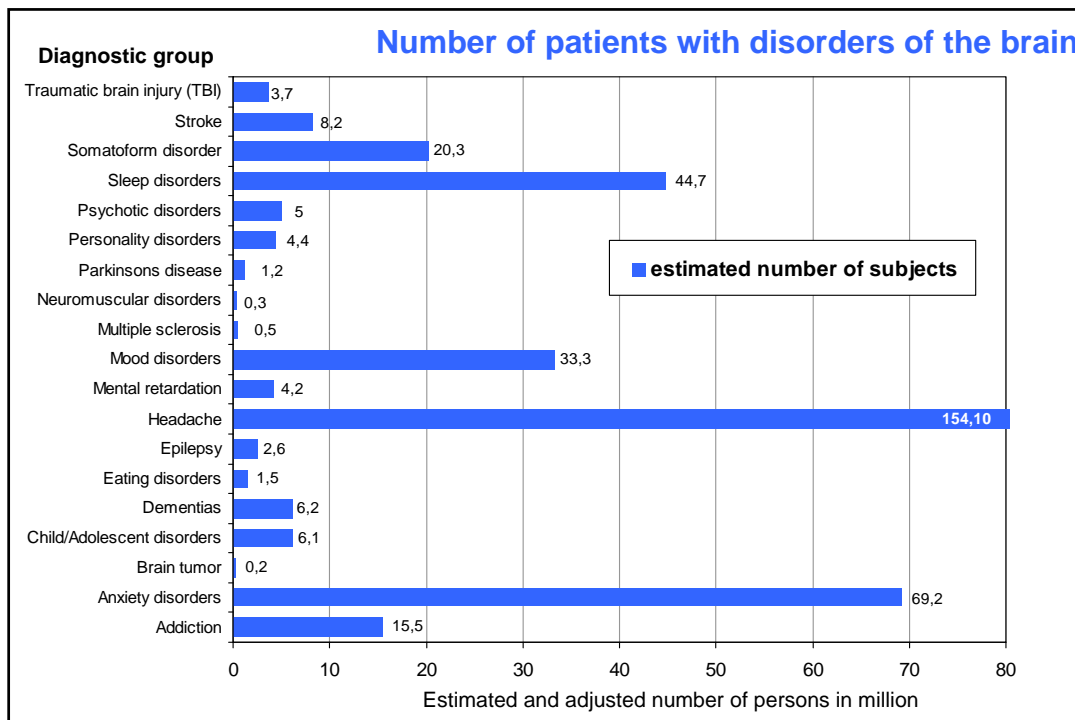
Mental Disorders by prevalence (and estimated number of persons affected in millions)



Neurologic disorders: Number of persons (in millions) affected by

Headache*	154,10
Sleep Apnoea	12,50
Stroke	8,17
<i>Dementias</i> **	6,34
Traumatic brain injury	3,75
Epilepsy	2,64
Parkinsons Disease	1,18
Multiple Sclerosis	0,54
Neuromuscular dis.	0,26
Brain Tumours	0,24

Note:
 For many disorders, the 12-month prevalence refers to different ages ranges (like dementia to subjects aged 60+). Thus the estimated number of persons refers to different reference populations



Mental disorders: frequently early onset

Neurological disorder: frequently later onset

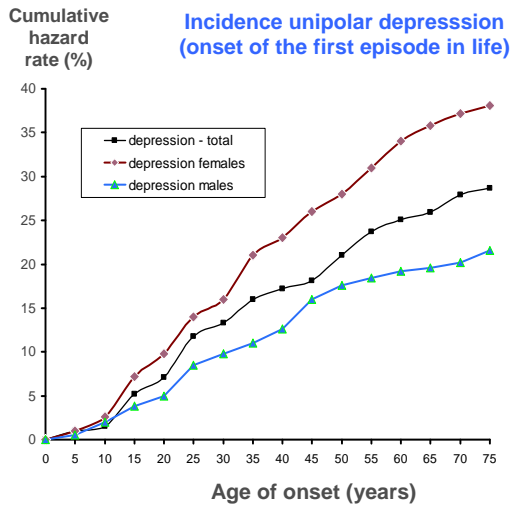
birth
→
 Old age

Mental Disorders with proportionally high incidence in

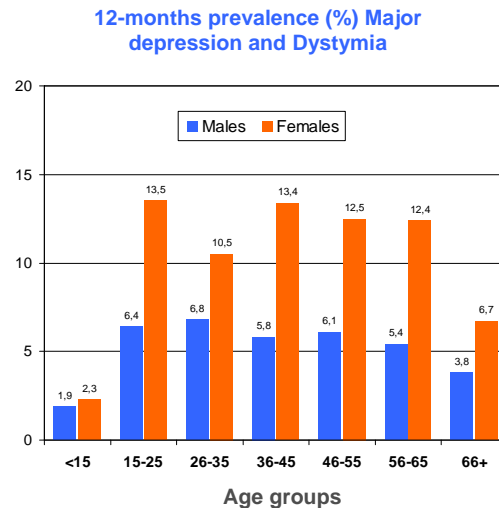
Childhood/adolescence	Late adolescence	Adulthood (ages 20-50)	Later life
Mental retardation Hyperkinetic dis./ADHD Conduct disorders Pervasive developm. dis. Phobias Anorexia nervosa Some epilepsies	Drug use disorders Panic, OCD, PTSD Mood disorders Somatoform disorders Schizophrenic dis. bulimia nervosa Personality disorders.	Alcohol dependence Depression Generalized Anxiety dis. Sleep disorders Multiple Sclerosis Traumatic brain injury Brain tumours Neuromuscular dis.	Stroke Parkinsons disease Dementias Sleep disorders Subthreshold anxiety and depression „multimorbidity“



12-month prevalence overall estimates do not inform about the age specific risk for a disorder in males and females

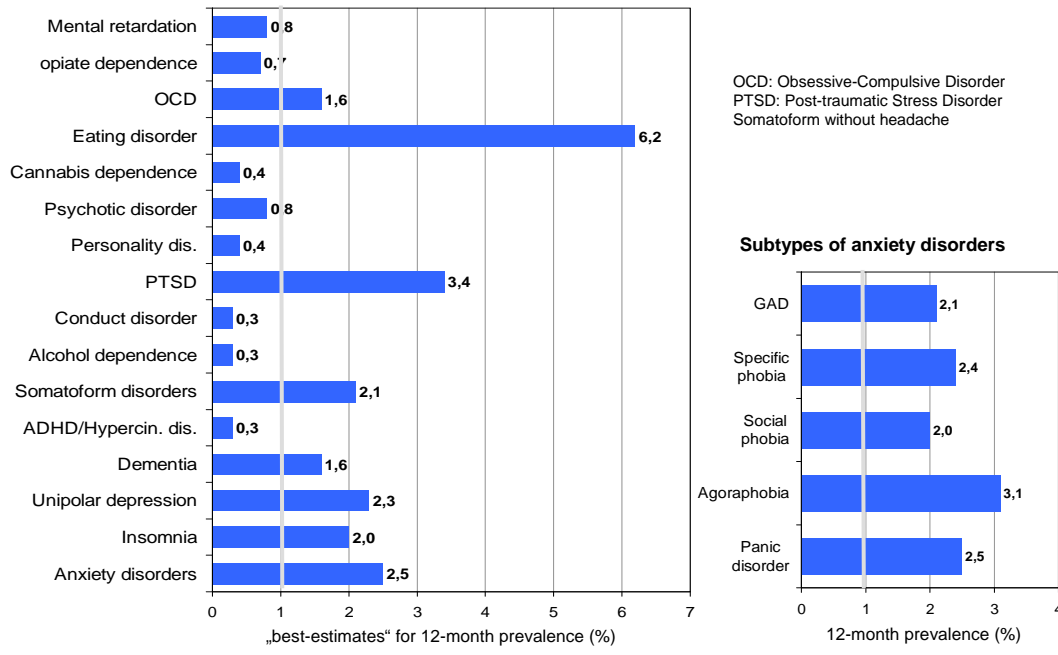


Wittchen et al (2011)

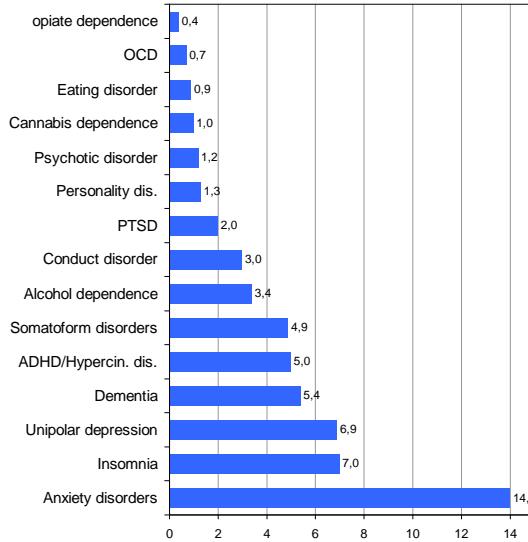


Wittchen & Jacobi 2009

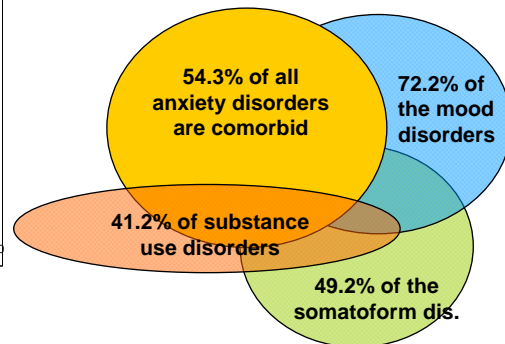
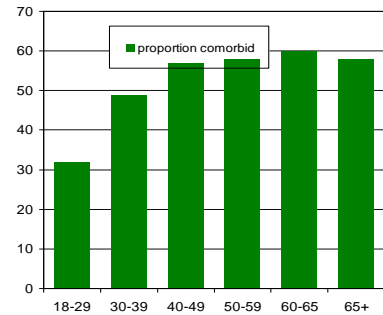
Female to male gender ratios of mental Disorders s



Prevalences can not simply added up, due to comorbidity



Rates of comorbidity increasing by age

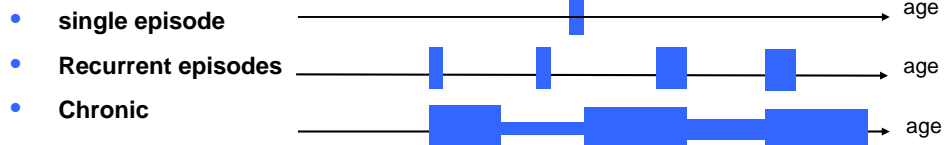


Wittchen & Jacobi 2005, ENP



Comorbidity has significant implications (example): The effect of temporally primary anxiety on depression

- Depression is considered to occur in milder or very severe forms, often episodic (about 1/3); and can be recurrent (1/3) or even chronic (1/3)



Primary pure depression

- 75% remit within 3 months (mean: 8 wks)
- 10 yrs episode risk: mean 1.8
- Acute impairment/disability: moderate (SDS: 6.2)
- Impairment/disability persists beyond the depressive episode: 2.3 mos
- Academic, work failure, underperformance, unemployment rate: 29%
- suicide attempts: 4,3%

Secondary depression

- 40% remit within 3 months (mean: 18 wks)
- 10 yrs episode risk: mean 1.9
- Acute impairment/disability: moderate to severe (SDS:9.2)
- Impairment/disability persists often beyond the depressive episode:6.4
- Academic, work failure, underperformance, unemployment rate:49%
- suicide attempts:11.3%



ECNP/EBC Report on Size and Burden 2005 vs 2011: What is different?

- More diagnoses of mental disorders
 - 2005: 15 disorders, 7 major diagnostic groups versus
 - 2011: 26 diagnoses; 12 major diagnostic groups
- Inclusion of a broader age range for mental disorders
 - 2005: age group 18-65 only
 - 2011: all age groups (childhood to elderly) for many diagnoses
- More neurological disorders (i.e. migraine and other headaches, neuromuscular disorders)
- Inclusion of new EU membership states (plus Norway, Switzerland, Iceland)

Hence – a much more comprehensive coverage and picture of disorders of the brain in Europe



ECNP/EBC Report on Size and Burden 2005 vs 2011: Did the prevalence change?

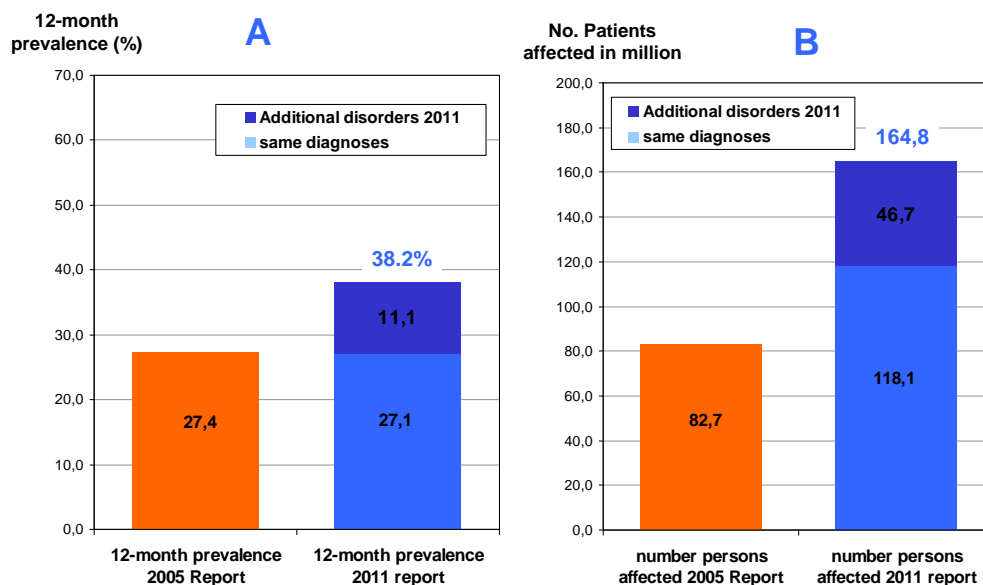
- **No** – there is no evidence for increasing or decreasing rates overall, when the 2005 diagnoses covered were compared with 2011 estimates
 - Exception 1: non-sign. higher 2011 estimate for alcohol dependence (2005: 2.4%; 95% CI: 0,2-4.8 versus 2011: 3.4%) due to higher prevalence in eastern states
 - Exception 2: non-sign, higher 2011 estimate for agoraphobia (2005: 1.3%; 95% CI: 0,7-2.0 versus 2011: 2.0%) due to different diagnostic convention
- Overall 12-month prevalence estimate in 2005 report: 27.4% versus 27.1% in 2011 report (if the same diagnoses are considered)
- Effect of the inclusion of additional new diagnoses in 2011: plus 10.1%
 - PTSD, personality disorders, hyperkinetic disorders/ADHD, conduct disorder, autism, mental retardation, insomnia/other sleep disorders, dementia
 - Controlling for comorbidity



ECNP/EBC Report on Size and Burden 2005 vs 2011: Did the number of persons affected change?

- **Yes** – due to the larger reference population
 - 2005: EU reference population: 301.7 million (18-65 years of age),
 - 2011: EU reference population: 514 million (all ages)
- **Yes** – due to a larger number of diagnoses covered
 - The estimated number of persons affected was 82 million in 2005 and now changed to 164.8 million in 2011!
 - as a result of the joint effects of these two factors adjusted for comorbidity

Comparison of 2005 with 2011 report: Estimates for Prevalence (A) and number of patients affected (B) in the EU





Results:

The treatment of mental disorders in Europe

Effective Treatments for disorders of the brain exist! Are they preventable?

Aims of treatments: Lowering prevalence

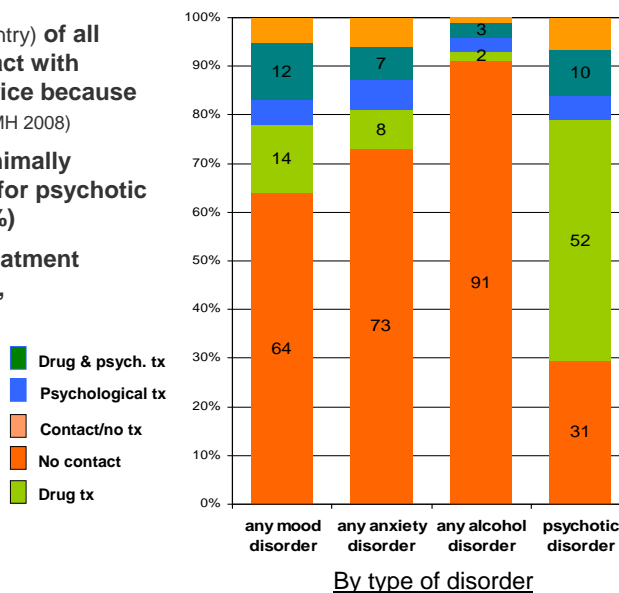
- **Effective drug, physical and psychological treatments exist** (e.g. CBT, Exposure, IPT, range of drug treatments, ECT, invasive procedures)
- **Effective secondary preventive interventions exist** (e.g. relapse prevention, suicide, slowing down the speed of illness progression)
- **If applied** (accessible, early enough, comprehensive, adequately) – **these methods should result in a lower prevalence and lower burden**
 - E.g. lower risk of secondary depression, reduction of length and severity)

Prevention: Ultimate goal = lowering the incidence (=prevent new cases)

- **Equally effective „primary“ preventive measures are still lacking**
 - Yet – a wide range of highly promising approaches are available
 - More research on causal mechanisms and targets needed (public health perspective)
 - More coordinated large-scale community trials

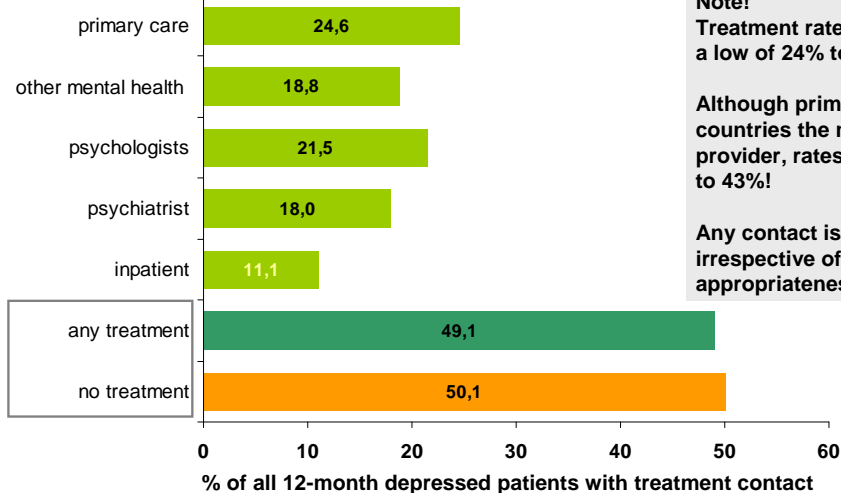
Treatment rates of mental disorders are extremely low! No indication of changes since 2005

- Only 14-36% (depending on country) of all mental disorders are in contact with professional health care service because of their condition (Wang et al WMH 2008)
- Only half of them receive minimally adequate treatment (highest for psychotic and eating disorders; 72, 61%)
- Probability of contact and treatment increases by illness duration, comorbidity and severity



Only 50% of all 12-month depression cases receive "treatment"! Even in the most developed health care system

Health care sector



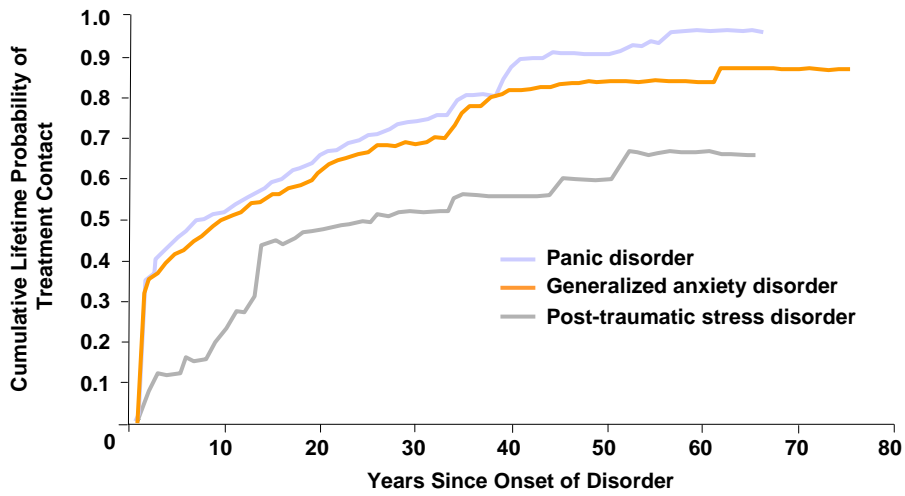
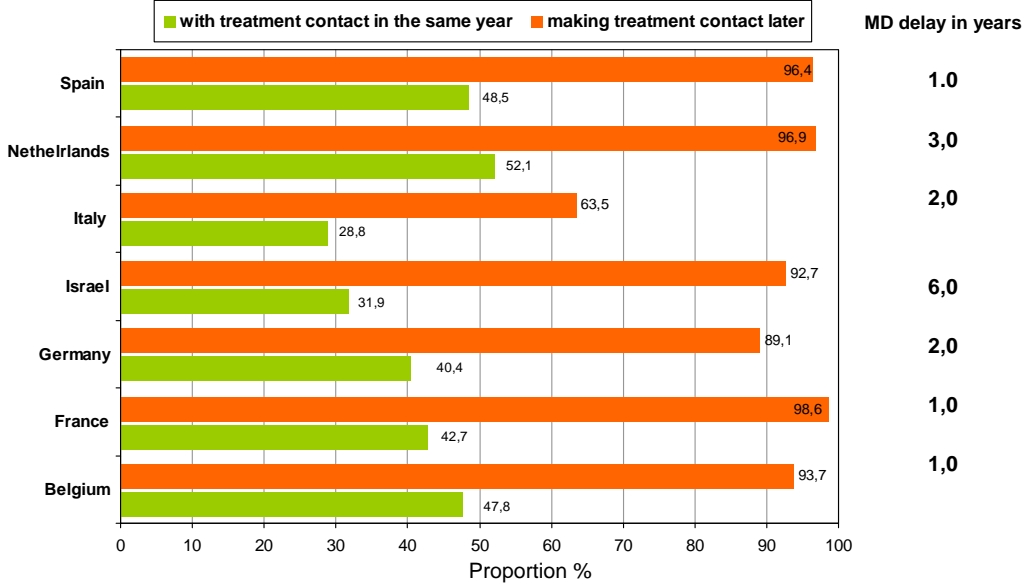
Note!

Treatment rates within EU from a low of 24% to a high of 51.6%

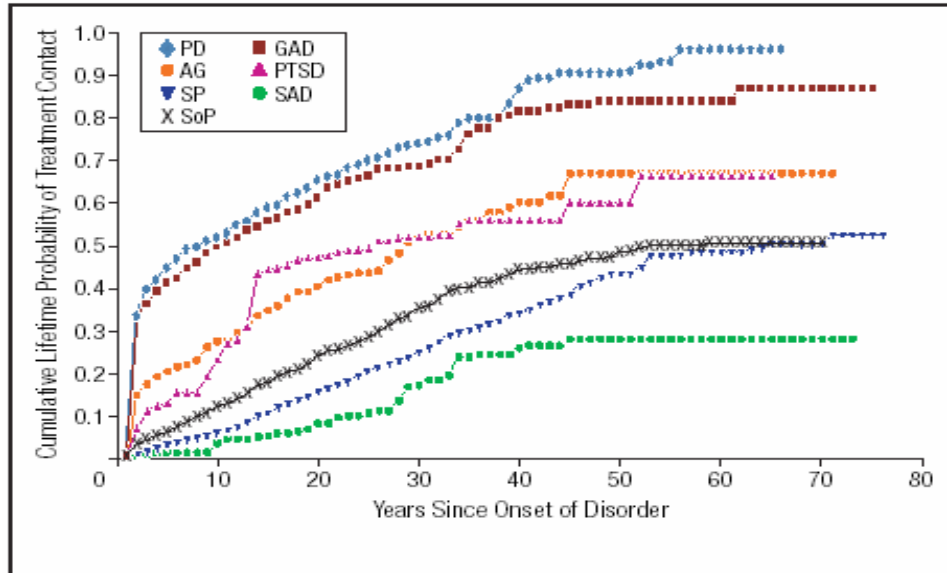
Although primary care is in all countries the most frequent provider, rates vary from 21% to 43%!

Any contact is counted irrespective of intensity or appropriateness

Delayed treatment: Proportional treatment contact in the year of onset for mood disorders and median duration of delay in cases with subsequent contact



This is also true for anxiety disorders (Wang et al., 2005)



ECNP and European Brain Council (EBC) Project 2005 and 2011

Conclusion I: The size of mental disorders

- Every year 38% of the total EU-population of 514 m suffers from at least one of the mental disorders.
- This corresponds to 164.7 m patients annually
- This is a conservative estimate for mental disorders (e.g. due to still incomplete diagnostic coverage, exclusion of mild subthreshold cases)
- As compared to our 2005-Report no evidence for changing rates
- Evidence that prevalence rates are similarly high in all age groups, with different diagnostic spectrum though
- The prevalence of males and females is similarly high, but the diagnostic spectrum is different
- The most frequent diagnostic groups were: anxiety disorders, unipolar depression, insomnia, somatoform and substance use disorders)
- The true size of „disorders of the brain“ including neurological disorders is considerably higher (no estimate provided due to lack of data on comorbidity)



Conclusion II: The deficient treatment situation

Despite the existence of a range of pharmacological and psychological treatment that are effective, treatment provision is highly deficient in the EU

Among all 12-month cases with mental disorders the majority receives no “treatment”!

- Only 30-52% (by country) had contact with any health professional
- Only 8-16% (by country) with the mental health specialty sector
- Only 2-9% has received minimally adequate treatment
 - drug tx >1 month plus > 4+ visits OR psychotherapy >8 sessions
 - mostly drugs, psychological treatments rarely provided (0-3% of all affected)
 - Considerable treatment delays after onset: MD: 15.6 years



Conclusion: Disorders of the brain are the core challenge of the 21st century

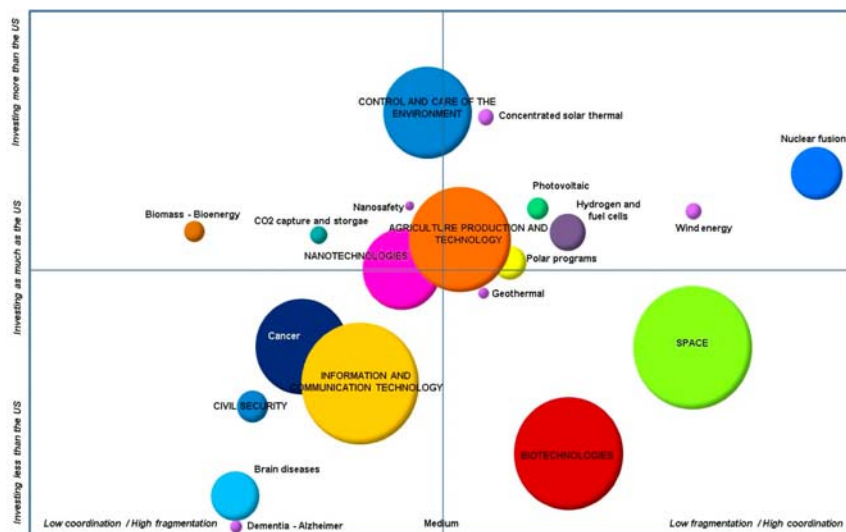
- Over 38% of the EU population is affected
- Depression and Neurodegenerative disorders are likely to increase further
- Disorders of the brain account for over 27% of the disability adjusted disease burden in Europe, being now the greatest contributor
- Challenges: Meeting the higher demand for healthcare; adapt health systems to the needs of an ageing population while keeping them sustainable
 - Unlike to other disease groups, mental and many neurological disorders are costly because of high indirect costs – and NOT because of direct treatment costs
 - E.g. medication costs account for only less than 10% of the total cost burden
 - The largest direct cost component is typically hospitalization
- *Can we reduce the indirect cost burden by increasing direct costs?*



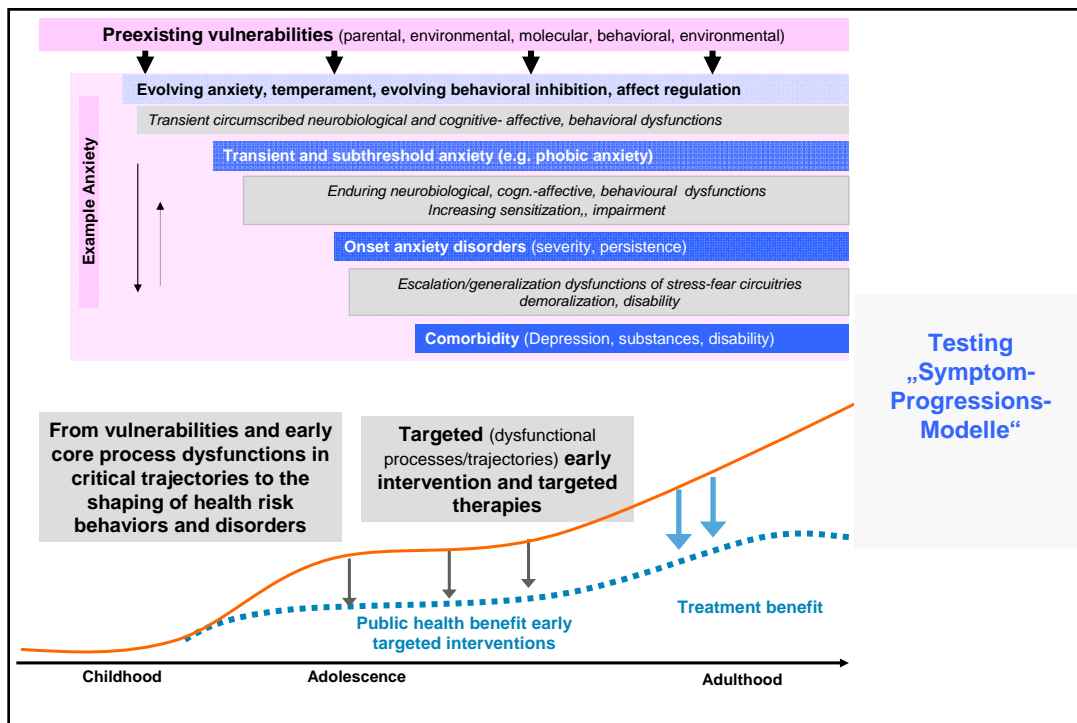
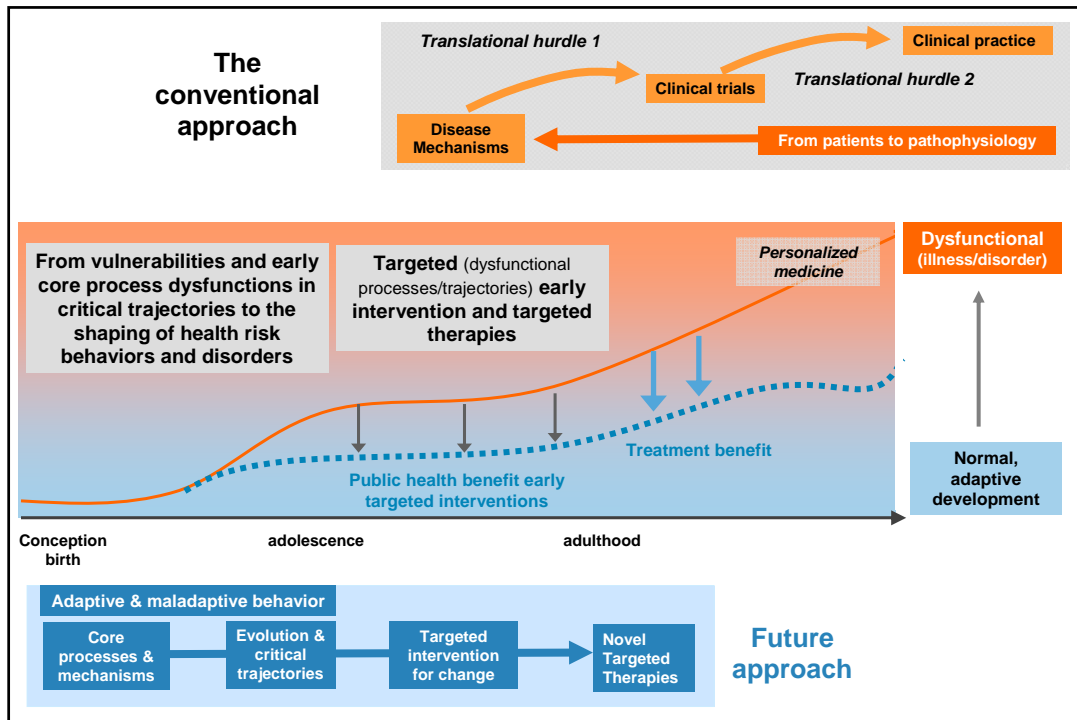
I will implement here additional slides on recommendations according to the article

1. Research spending
2. Targeted prevention
3. Public health impact

European Programmatic Research by Science area



Source: COM (2008) 468, *Towards Joint Programming in Research*, Box 1, p. 5.
http://ec.europa.eu/research/press/2008/pdf/com_2008_468_en.pdf





Increasing burden and costs?

- As a result of an aging population, increasing life expectancy, and imperfect care and treatment provision
 - Increased size and burden for neurodegenerative disorders and depression
- The burden for these disorders is increasing at a slower pace than size
 - Effect of improved care and treatment provision?
- Disorders of the brain are characterized by exceedingly high indirect costs (by diagnosis: 82 - 50% of total costs)

Are the direct cost high?

Over 32% of the total morbidity burden is due to disorders of the brain –
Versus 7% of the health care expenditure!

Increase of direct costs – reduction of indirect costs?

If yes what type of direct costs expenditures will be most effective?



ECNP and European Brain Council (EBC) Project 2005 and 2011



Results:

The burden of mental disorders and disorders of the brain in Europe



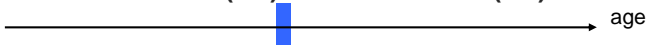
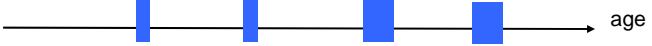

Burden is a complex concept with different connotations

- **Patient burden** (e.g. suffering of symptoms, social role restriction, reaction by others)
- **Caregiver burden** (e.g. partner/family, distress, guilt, everyday life, financial burden)
- **Treatment system burden** (e.g. emotional, time, logistical burden, referral)
- **Society/social policy: (e.g. health care, psychosocial, economic, DALY)**
- **Health economic and cost burden**
 - direct health care costs (e.g. hospital, medication costs, therapists costs)
 - Indirect costs (e.g. work days lost, work productivity lost, life years lost, DALYS)
 - Social costs (e.g. providing sheltered work settings or accomodation)
 - Other costs (e.g. legal costs, prisons)

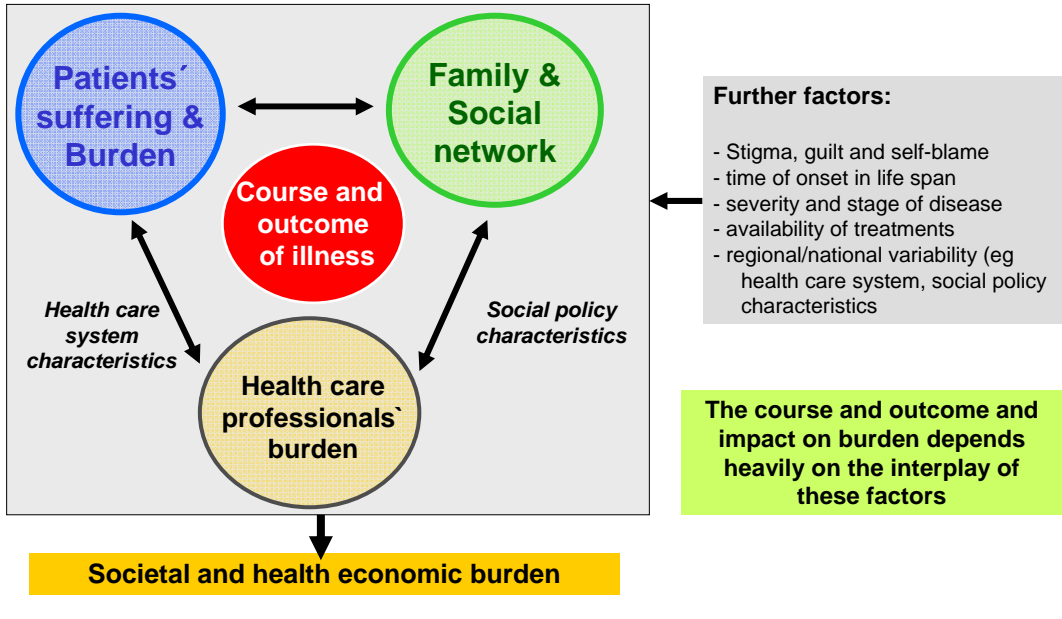
Wittchen & Jacobi. *Eur Neuropsychopharmacol.* 2005;15(4):357-76; European Brain Council: Size and burden of Mental Disorders in Europe 2006
Kessler & Wittchen in press: World Mental Health Survey Variation in Europe in press



Example depression – course and impairment

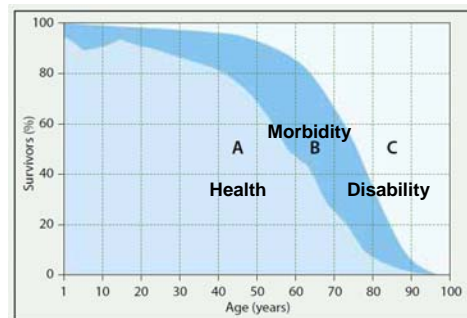
- **Depressive illnesses can occur less severe or very severe forms, are often episodic (about 1/3); and can be recurrent (1/3) or even chronic (1/3)**
 - single episode 
 - Recurrent episodes 
 - Chronic 
- **Depression burden and challenges**
 - 50% of depressive episodes remit within 3 months, severe and comorbid depression: 7 months, „the longer the episode - the lower the probability of remission“
 - 75% of all depressions are comorbid
 - **Severe impairment/disability and suffering during the acute phase (episode)**
 - **Impairment/disability persists often beyond the depressive episode**
 - **Academic, work failure/underperformance, unemployment, longterm disability**
 - **suicide attempts, suicide and other reasons of premature mortality**
 - Core treatment goals: acute episode, risk and relapse prevention, disability reduction

Complexity and interaction of burden



Burden is a complex concept with different connotations

- **Patient burden** (e.g. suffering of symptoms, social role restriction, reaction by others)
- **Caregiver burden** (e.g. partner/family, distress, guilt, everyday life, financial burden)
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How is the DALY exactly calculated?

Jürgen ???



Why is a new calculation needed for this project?

Jürgen ???

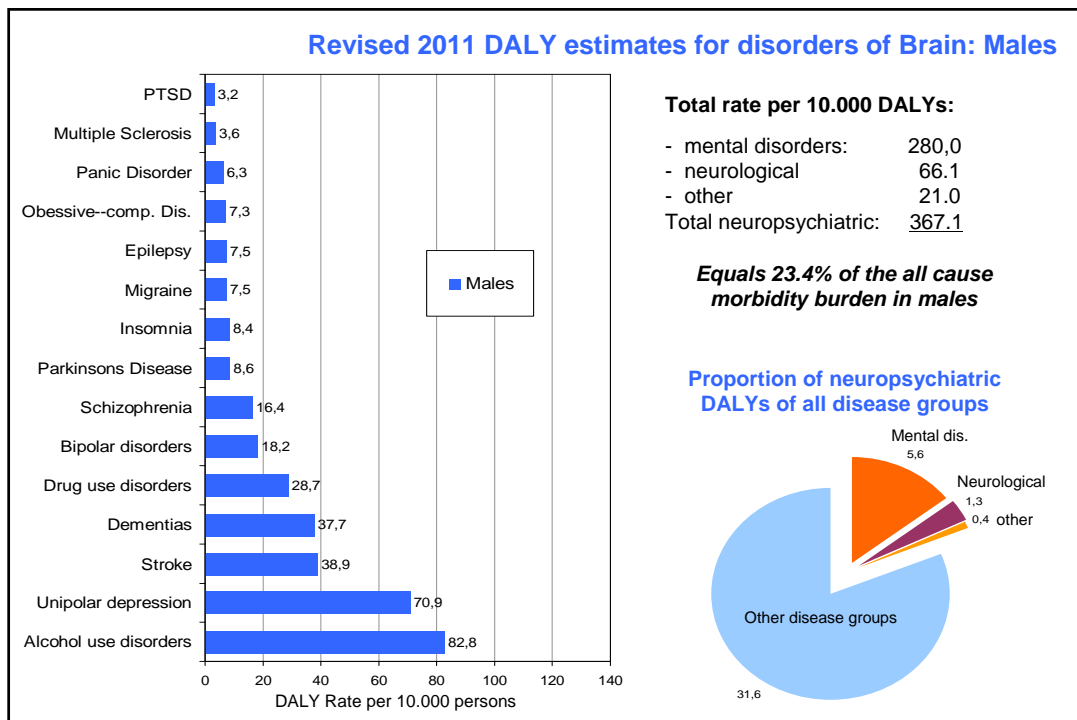
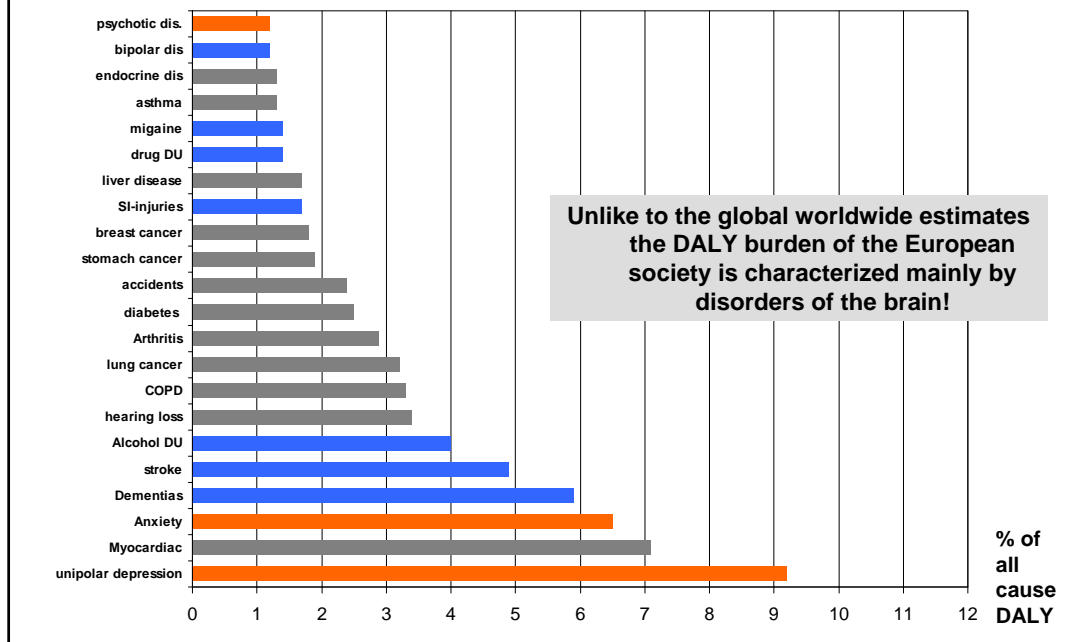
WHO uses different data

No data for EU available

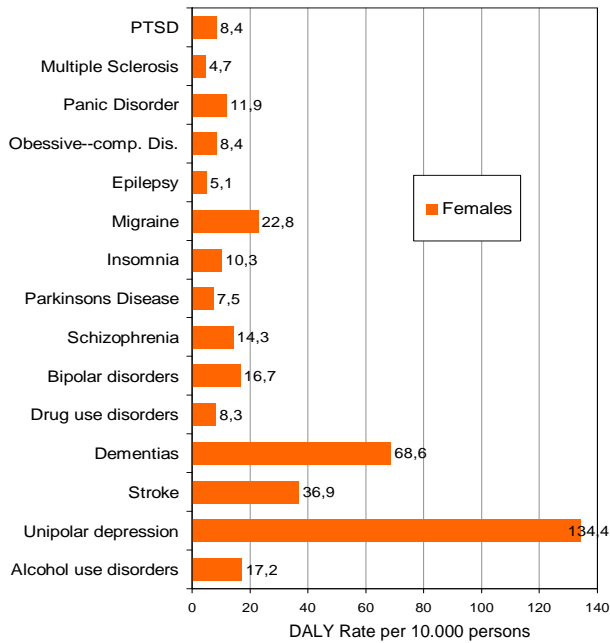
Lack of standardized rates per 10.000

ect

Sollen wir die alte rank list als Referenz berichten? Jürgen?



Revised 2011 DALY estimates for disorders of Brain: Females

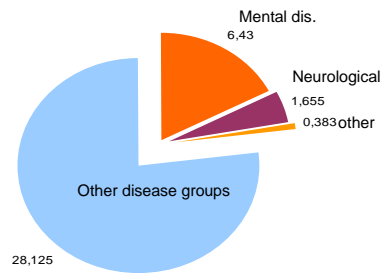


Total rate per 10.000 DALYs:

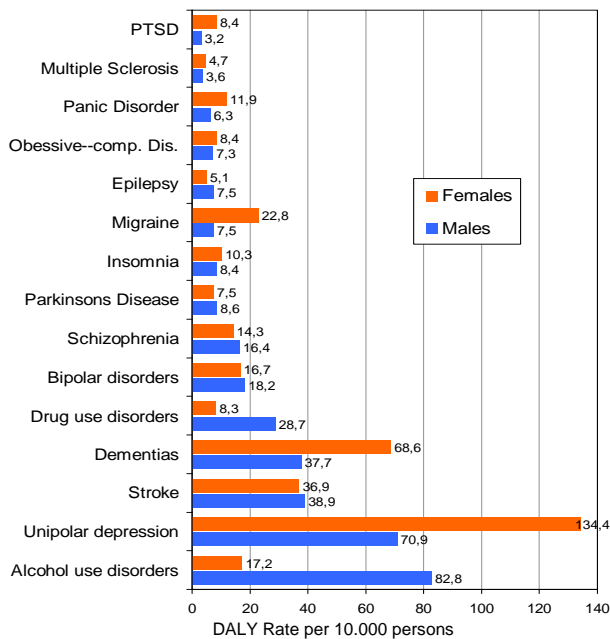
- mental disorders: 298.8
- neurological 66.9
- other 17.8
- Total neuropsychiatric: 293.5

Equals 30.1% of the all cause morbidity burden in females

Proportion of neuropsychiatric DALYs of all disease groups

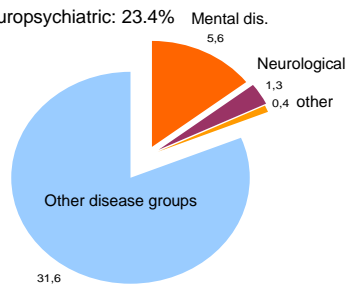


Revised 2011 DALY estimates: Gender comparison



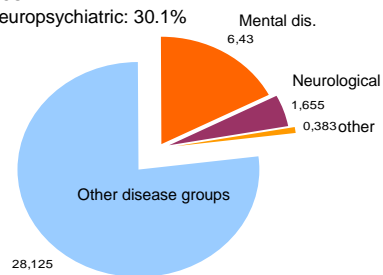
Males:

Total neuropsychiatric: 23.4%



Females:

Total neuropsychiatric: 30.1%

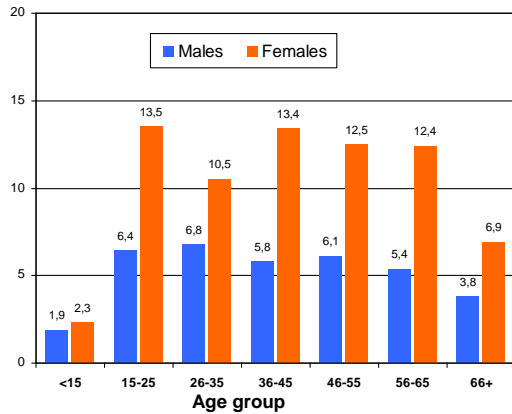


Depression: The disability burden is not equally distributed

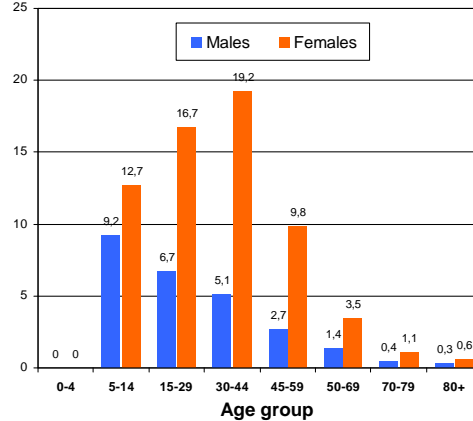


12-months rates (%)

Prevalence by age and gender



In proportions (%) of all cause DALYS



ECNP/EBC Report 2011 on the Burden of disorders of the brain: What is new?

- More diagnoses covered
- First time ever data specifically for the EU
 - Inclusion of new EU membership states (plus Norway, Switzerland, Iceland)
- Etc.... Jürgen!

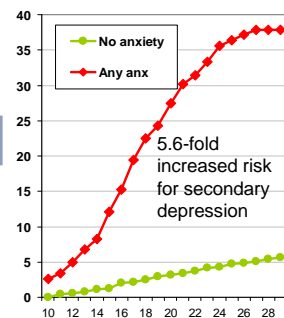
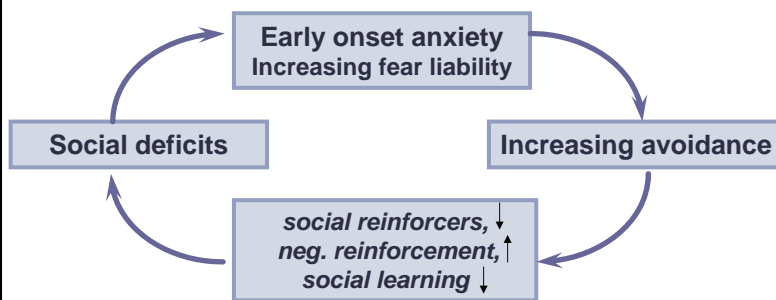
Hence – a much more comprehensive coverage and picture of the DSYL burden of disorders of the brain in Europe



ECNP/EBC Report 2011 on the Burden of disorders of the brain: Limitations

- The prevalence data used to estimate the burden are not the same as those used in our prevalence data
- The disability weights are based on expert opinions and might thus not reflect the appropriately the EU empirical findings
- Disability weights for some disorders are highly problematic:
 - Underestimation (anxiety?)
 - Overestimation?
- Etc (Jürgen

Why is the burden high for anxiety disorders?



Fear, anx, avoidance

Reduction of:

- Social learning
- skills acquisition
- developm. milestone achievement
- competencies

Impairment/disability

- School
- career & work
- social network
- Higher-order cognitive functions

Demoralisation

- negative affect
- depression risk factors

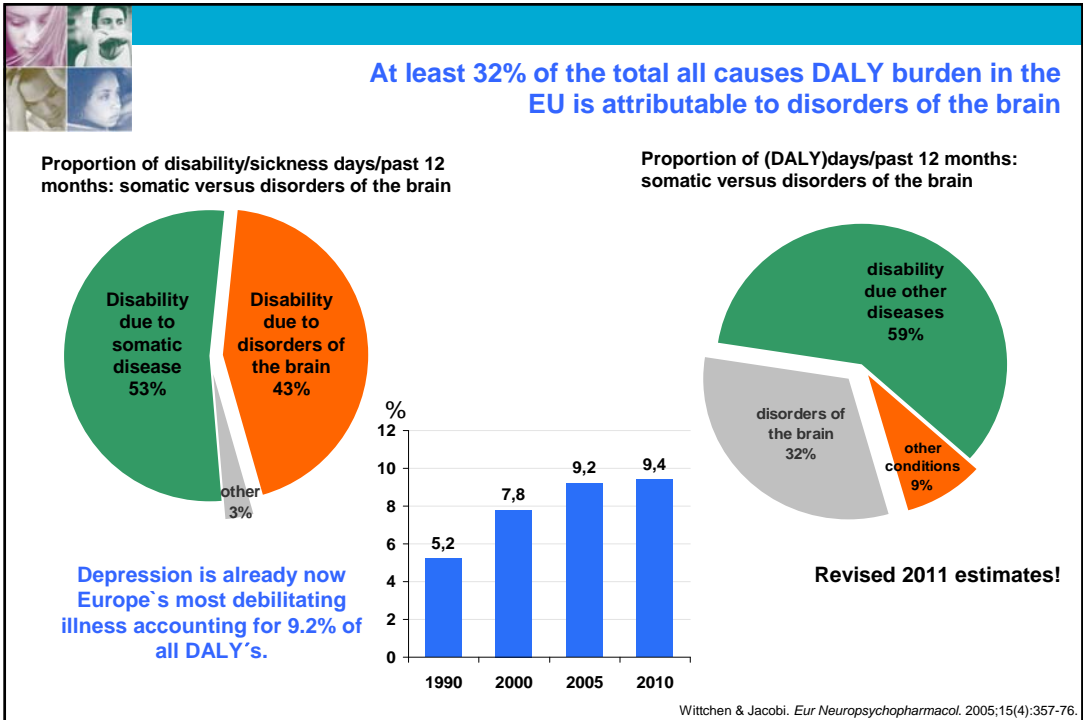
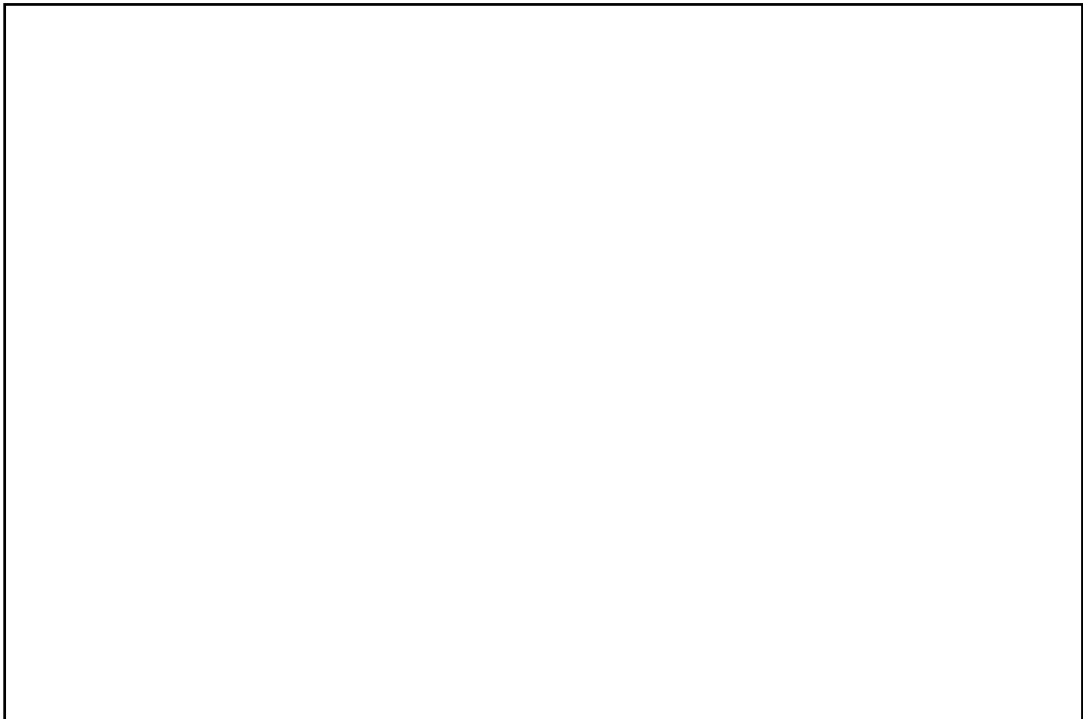
Compensation

- Maladaptive choices
- substances

Escalation

- ↑ restrictions
- ↑ longterm disab.
- ↓ quality of life
- depression

Age/duration



recommendations for political action

- [\[misn1\]](#)
- The European Commission and national governments should make disorders of the brain a high priority topic, and should must be maintain and further strengthen [\[misn2\]](#) . existing programme initiatives in this field
- The current focus on mental health of the European Commission should be expanded to include all brain disorders
- Core emphasis should be laid on research into the causes and developmental pathways of disorders of the brain and their relationship in order to develop oimproved drug and psychological treatments as well as to allow for empirical based prevention. [\[W3\]](#) .
- The European Commission should consider the state of curricula and training in all health professions regarding coverage of disorders of the brain..Current curricula and training appear to be [\[misn3\]](#) inappropriate and outdated, negelecting in some places entirely the size and burden of disorders of the brain. .
- The European Commission should take all necessary steps to encourage industry and investors to engage in disorder of the brain research as the core helath challenge of the future .
- The momentum and expertise from the present effort on the the "Size, burden and cost of disorders of the brain" should be maintained by funding and supporting all initiatives aiming to provide further improved research into the prevalence and cost of brain disorders in Europe.
- National policies in each state of Europe should adopt and respectively modify these agenda points according to the specific situation in their country in order to promote the health of their citizens and to contain the immense and expanding costs of disorders of the brain.
- [\[misn1\]](#) As for the summary, I think we should not use terminology as "huge", "astounding figures" etc.
- [\[misn2\]](#) I have the similar view here as for the recommendations in the executive summary. I think it is too strong and I think this makes us vulnerable for significant criticisms that we are "over-interpreting" what policy conclusions can be objectively drawn from COI-studies.
- [\[W3\]](#) This old point 2 does not make sense, prevention requires a firm knowledge on causal mechanism, we do not have this yet
- [\[misn3\]](#) Consider the use of "grossly" and "huge" Other slides including those on cost



ECNP and European Brain Council (EBC) Project 2005 and 2011



Results

The cost of mental disorders and disorders of the brain in Europe

Figure X. Total cost by disorder and type of cost (€PPP million, 2010), all disorders

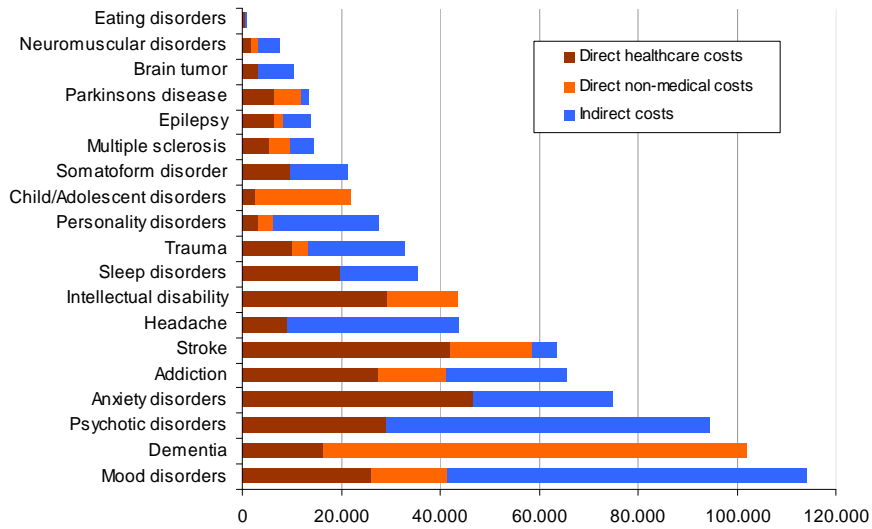


Figure X. Cost per capita by country and type of costs (€PPP 2010), all disorders

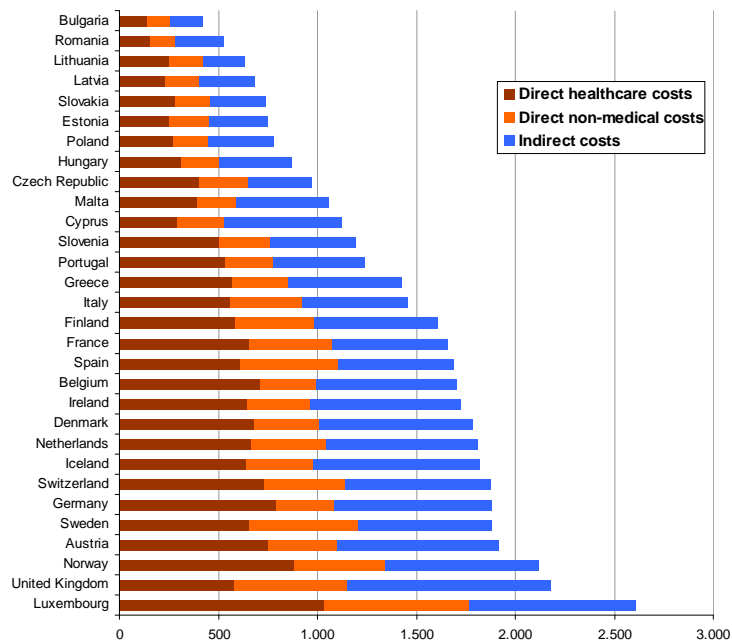


Figure X. Distribution of cost by disorder, the proportions of three types of costs as a share of the total stratified by disorder

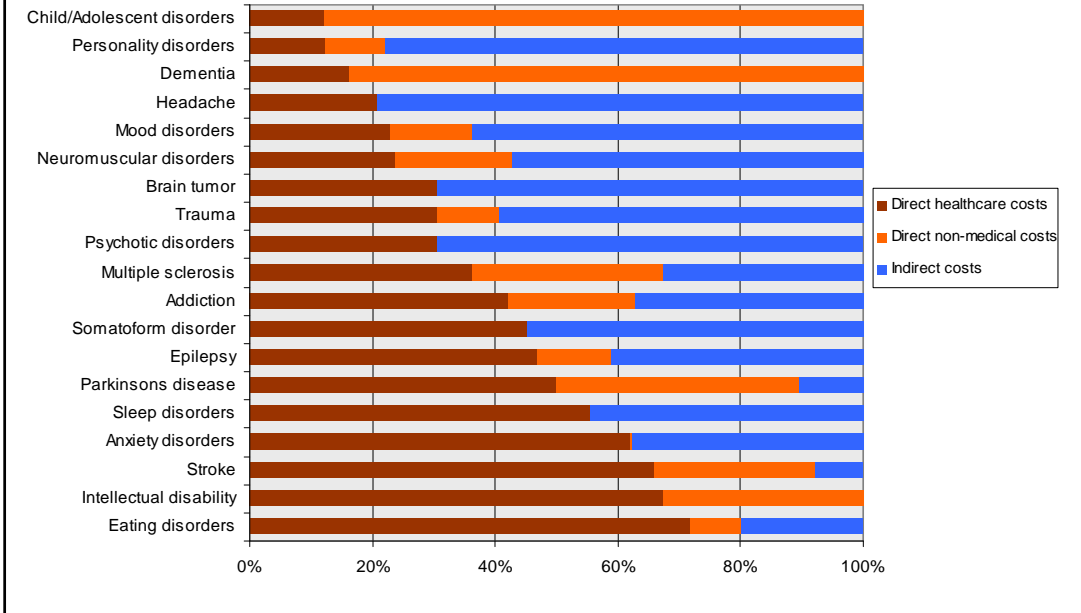


Figure X. Distribution of cost by mental disorders, the proportions of three types of costs as a share of the total stratified by disorder

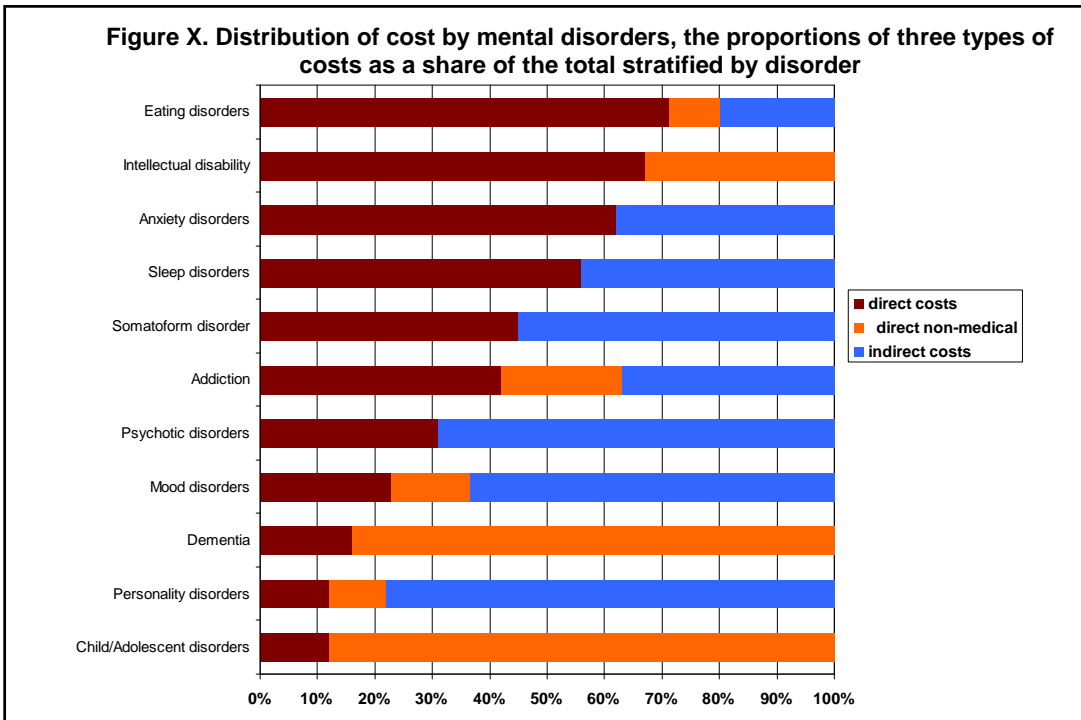
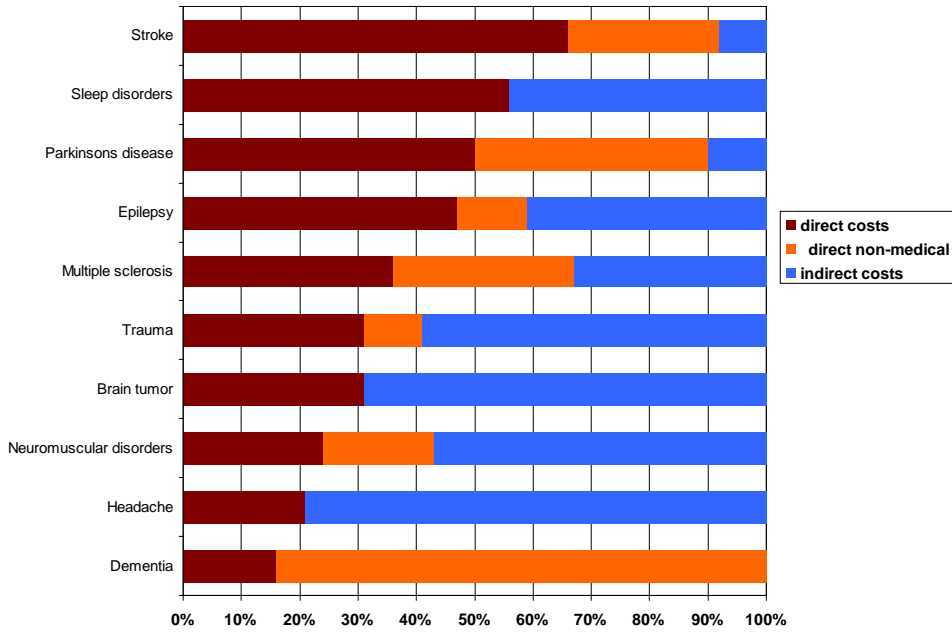


Figure X. Distribution of cost by neurological disorder, the proportions of three types of costs as a share of the total stratified by disorder



The total distribution of the total direct medical, direct non-medical and indirect costs for disorders of the brain and by mental and neurological disorders

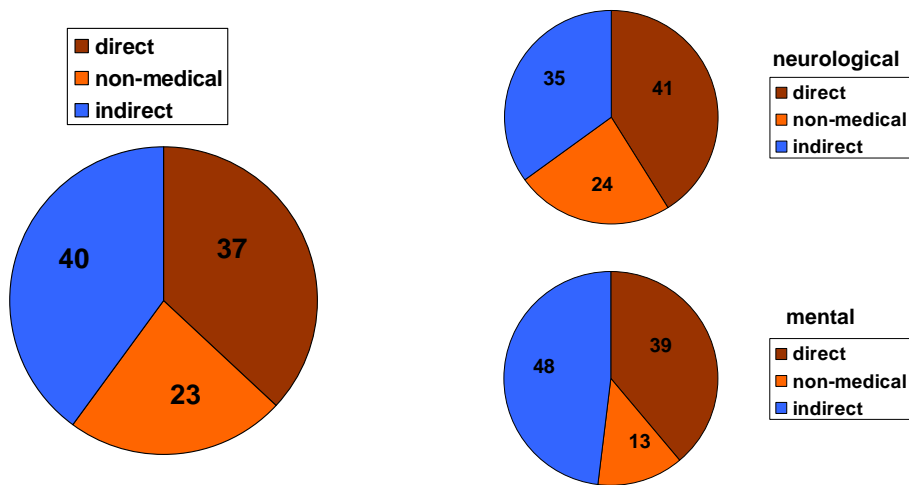
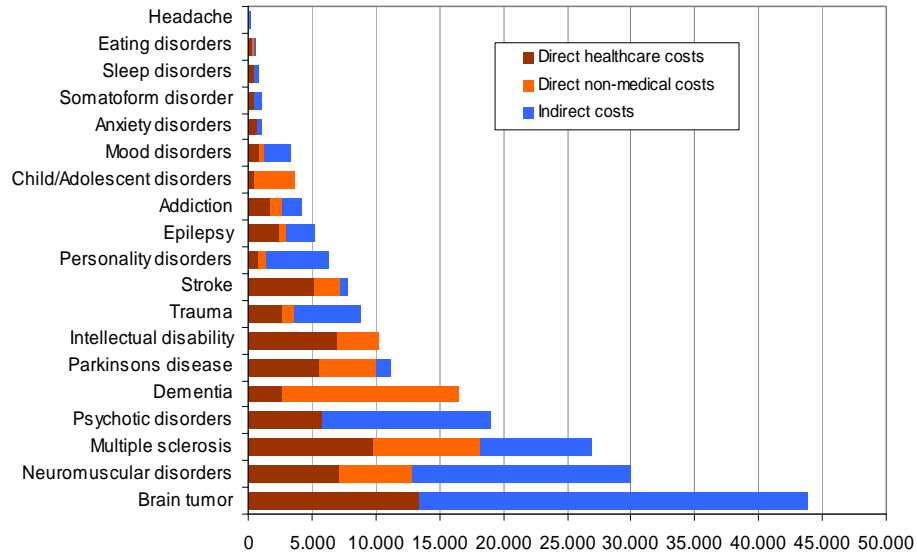
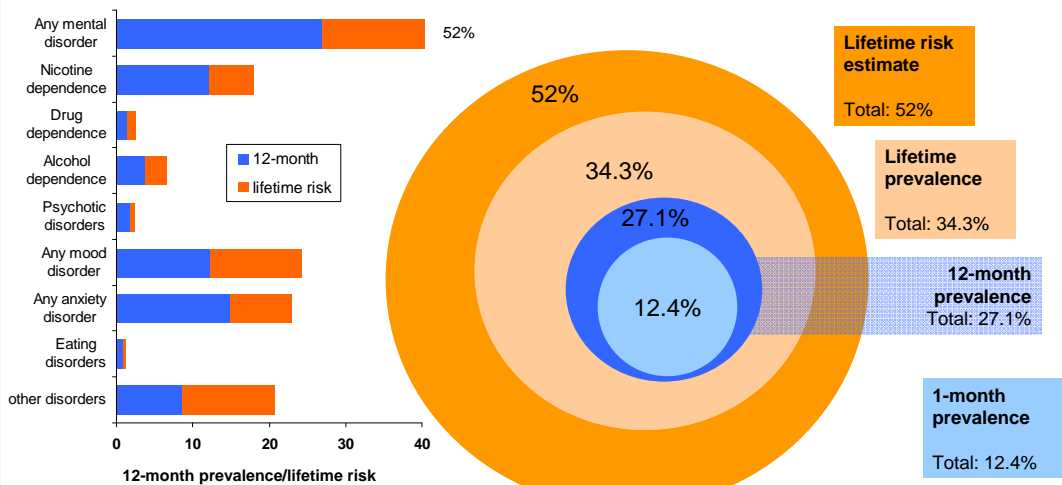


Figure X. Cost per subject by type of costs (€PPP 2010), all disorders

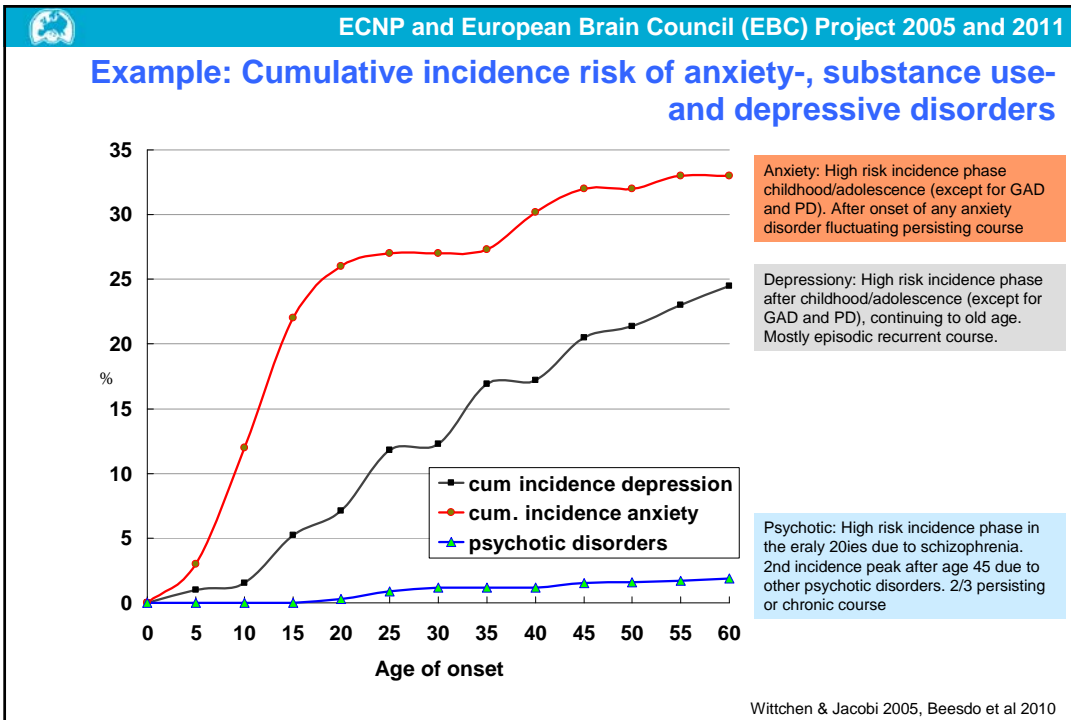
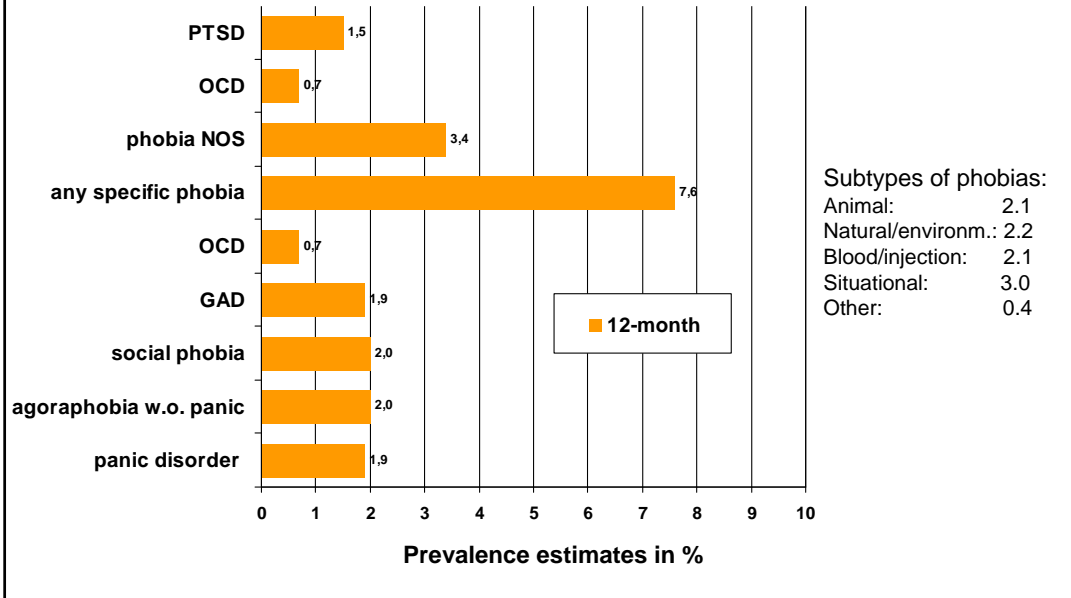


12-month and lifetime risk estimates of mental disorders

DSM-IV disorders

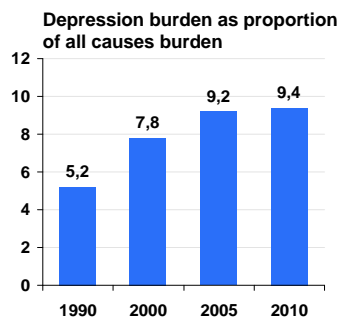


12-month prevalence of anxiety disorders: Subtypes





Has the size of mental and neurological disorders increased since 1980?



Will it increase further?

Is the burden increasing?



III. Are mental disorders in the EU increasing?

Prevalence of mental disorders – increasing, decreasing, stable?

Disorder	Total	Sex	Time/Region*
Dementias	+++	F>M	?
Parkinson`s Disease	+	?	?
Somatoform disorders	+	F>M	+
PTSD (ACS)	+/-/-	?	+
OCD	=	-	-
Alcohol dependence	=	-	?
Nicotine dependence	+/-	F>M	?, na
Drug dependence	+/-/=	F>M	?, +
Psychotic disorders	=	-	-
Anxiety disorders	=	=	?
Depressive disorders	++	F & M	?

* Regional effects: Somatoform disorders in regions with dense health care structures, drug abuse

Except for depression and dementia no increase of prevalence!

In the EU, firm evidence for increased rates of depression: BUT no evidence of an epidemic!

- **Evidence for increased depression rates in young cohorts**
 - E.g. subjects born after 1934 have twice the risk, those born after 1964 almost three times the risk for MDE
 - age of onset for 1st episode has been decreasing
 - Increase in recurrence risk in young cohorts
 - Evidence for longer duration of episodes in older subjects
- **Increases due to higher incidence of comorbid secondary depression**
 - Increase among young adults with primary anxiety, somatoform stress dis.
 - Increase due to an aging population (comorbid depression somatic disease, in the elderly neurodegenerative diseases, higher chronicity risk in the elderly)
- **The depression increase is larger (3:1) than the burden increase, so we were partially successful!**

Would an increase of direct costs/better allocation decrease the indirect costs?
What type of expenditures will be most effective?

Wittchen et al 2010, Medicographica)



Increasing rates and burden? Conclusion

- **For most disorders no evidence for increasing prevalence rates**
- **Exceptions:**
 - **Depressive disorders** (2-fold increase since 80ies)
 - **Neurodegenerative disorders: e.g. dementias** (2.2 fold increase since 80ies), **Parkinsons Disease** (1.5-fold increase)
- **These disorders are likely to increase further**
 - **Life expectancy:** By 2050, the number of people in the EU aged 65+ is expected to grow by 70%, the number of people aged over 80 by 170%.
 - **Comorbidity effects**
- **Will the disability burden increase further till 2030?**
 - **Yes – but at a much lower pace for some disorders**
 - **For example depression DALY burden increase from 9.4% to 9.8%**
 - **Effect of improved treatment and care?**

Wittchen & Jacobi. *Eur Neuropsychopharmacol.* 2005;15(4):357-76; European Brain Council: Size and burden of Mental Disorders in Europe 2006
Kessler & Wittchen in press: World Mental Health Survey Variation in Europe in press



How can we stabilize or reduce the burden?

What are promising targets and strategies?



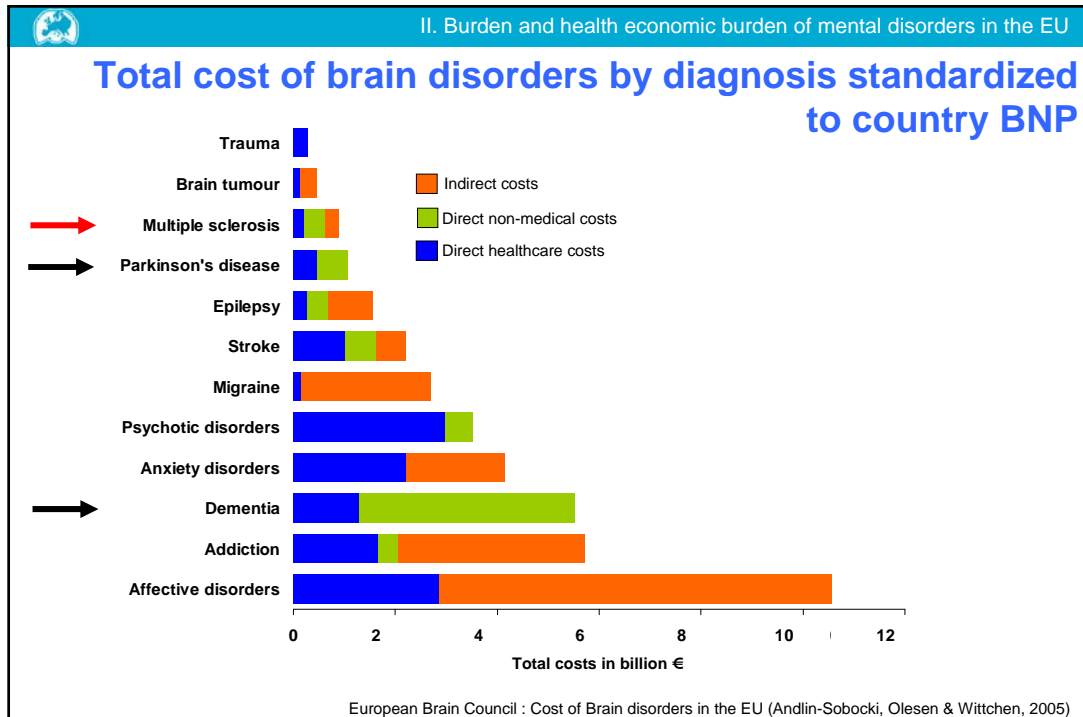
How can the size and burden of disorders of the brain be reduced?

- Reducing the size and burden within a coordinated public health effort
 - 1. Preventing the occurrence of new cases (primary prevention)
 - 2. Preventing recurrence risk and chronicity
 - 3. Preventing secondary comorbid disorders
 - 4. Slowing down the disease progression
 - 5. Reducing the associated psychosocial impairment/disability
- Except for primary prevention, effective (though imperfect) drug and non-drug interventions to reach these goals partially are established
- However these options are not yet exploited, particularly for mental disorders
- *We need improved treatments by investing lots of funds and effort into the research about the causes of these disorders and*
- *the development of novel treatments*



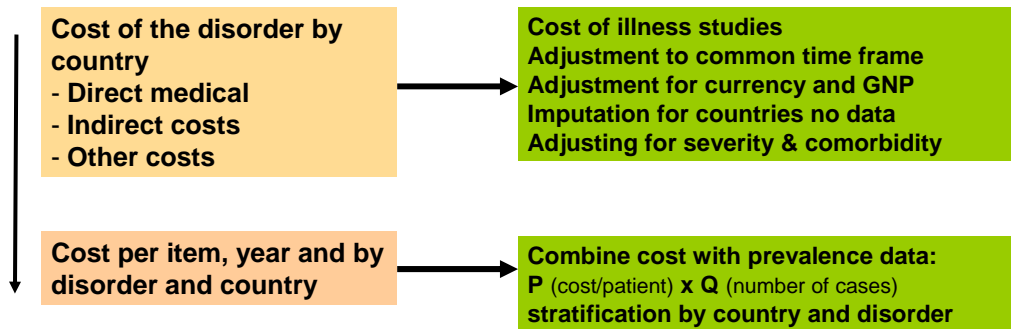
Slides not used

such as
Older slides form the previous cost study





Estimating the cost burden: General cost model

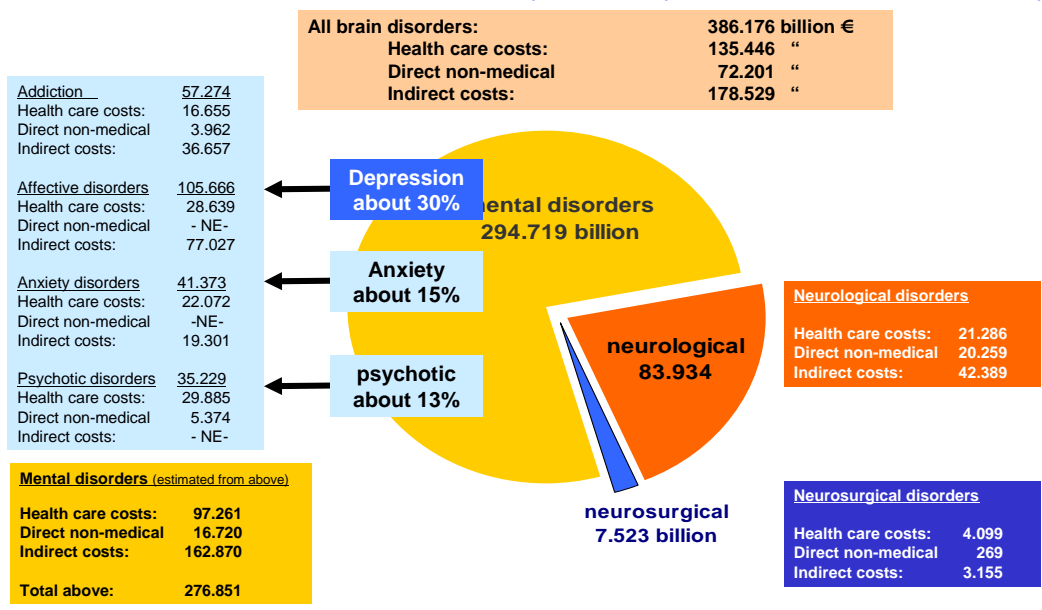


- System differences not accounted for
- Unavailability of treatments not considered
- Extremely variable cost estimates (e.g. for GAD: 102 € - 4.945.- €)
- Poor indirect or other costs estimates
- Impairment/disability costs frequently not diagnostically accounted or omitted



II. Burden and health economic burden of mental disorders in the EU

The total estimated cost of brain disorders in Europe by disease area (€PPP billion) Andlin-Sobocki et al 2005, modified)

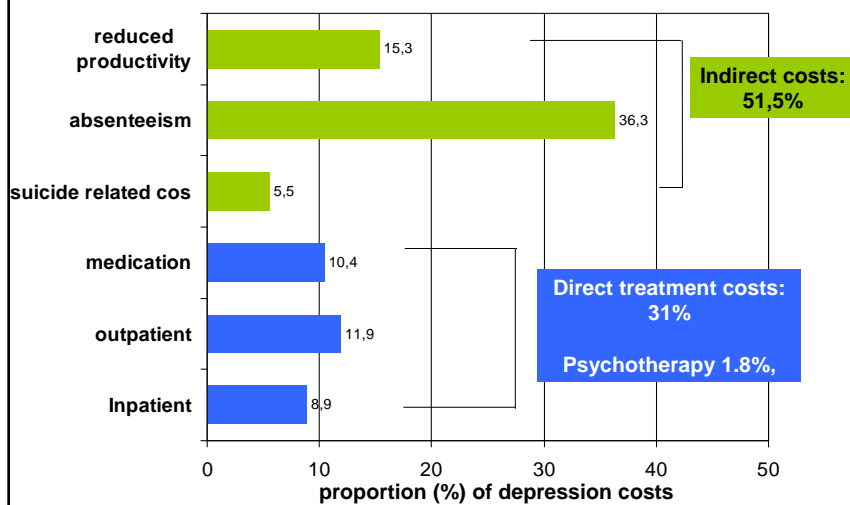


Depression ranks among the mostly costly disorder – anxiety as the least costly

% attributable to Schizophrenia	% attributable to depression	% attributable to anxiety
•Health care costs: 30.7% •Direct non-medical: 32.1% •Indirect costs: 18.3% •Total above: 23.5%	•Health care costs: 29,5% •Direct non-medical: ???% •Indirect costs: 47,3% •Total above: 38,2%	•Health care costs: 12,7% •Direct non-medical: ???% •Indirect costs: 11,9% 33,4% •Total above: 14,9%

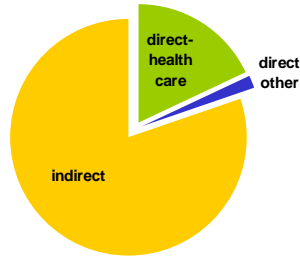
- Depression is the most costly, due to high prevalence, disability and treatment – 38.2% of the total costs of mental disorders in the EU (12% month prevalence 7%)
- Anxiety is the least costly: 12.7% of direct, 14.9% of total cost (prevalence: 14%), due to extremely low treatment costs
- Schizophrenia – although rare (prevalence: 1%) proportionally the highest costs (total 23.5%, direct: 30.7%) due to costly and long treatment

Depression and even more so anxiety is characterized by high indirect and low direct costs

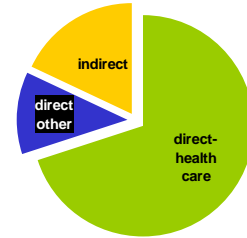


Distribution of disorders of the brain are markedly different from other treatable diseases: A comparison

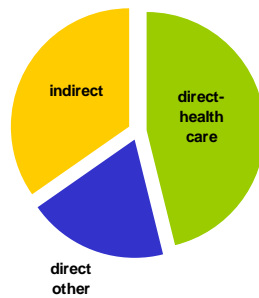
Anxiety



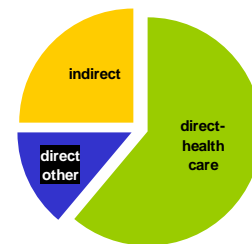
CVD



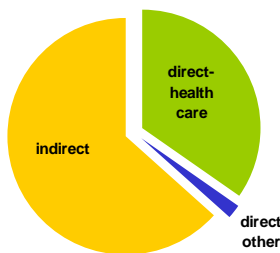
Schizophrenia



Diabetes



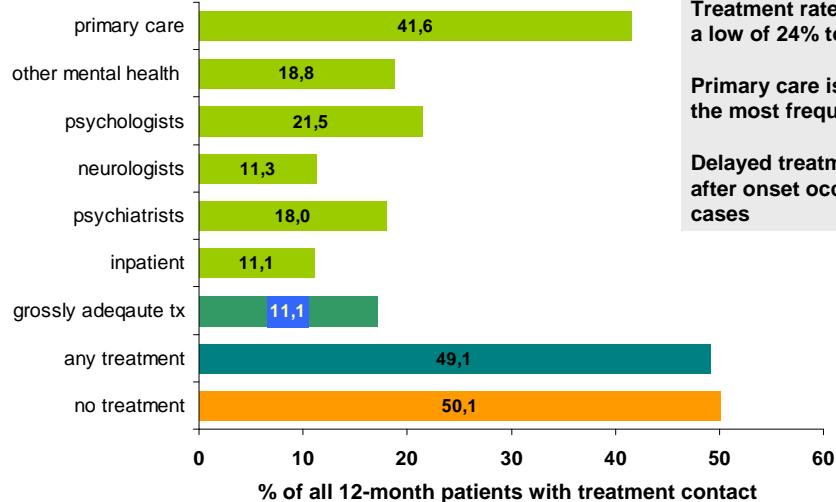
Depression



Disorders of the brain: disproportionately higher indirect costs

Why are disorders of the brain characterized by such high indirect costs? Only 50% of all 12-month cases receive "treatment"!

Health care sector



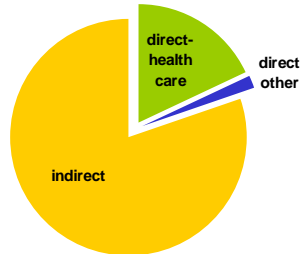
Treatment rates within EU from a low of 24% to a high of 51.6%

Primary care is in all countries the most frequent provider!

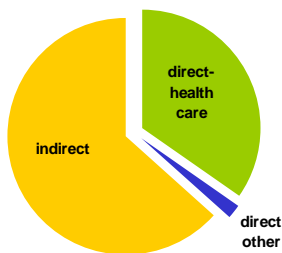
Delayed treatment (> 6 month) after onset occurs in 62% of all cases

Distribution of disorders of the brain are markedly different from other treatable diseases: A comparison

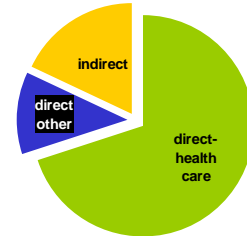
Anxiety



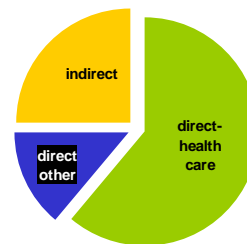
Depression



CVD



Diabetes



The cost burden of depression and other mental disorders is mainly determined by indirect costs!

This contrasts sharply to the situation for prevalent somatic diseases

Would an increase of direct costs for better and timely treatment reduce indirect costs and the overall cost burden?

II. Burden and health economic burden of mental disorders in the EU



Is the health economic burden increasing?

- Countries with currently few resources will increase expenditures
- Increasing health expectancy – patients with mental disorder will live longer – thus extending possibly treatment periods
- Increase of mental disorders in the elderly
- Increase of treatment rates (childhood and adolescence, depression and anxiety)
- Offset effects (fewer indirect costs by higher direct)?

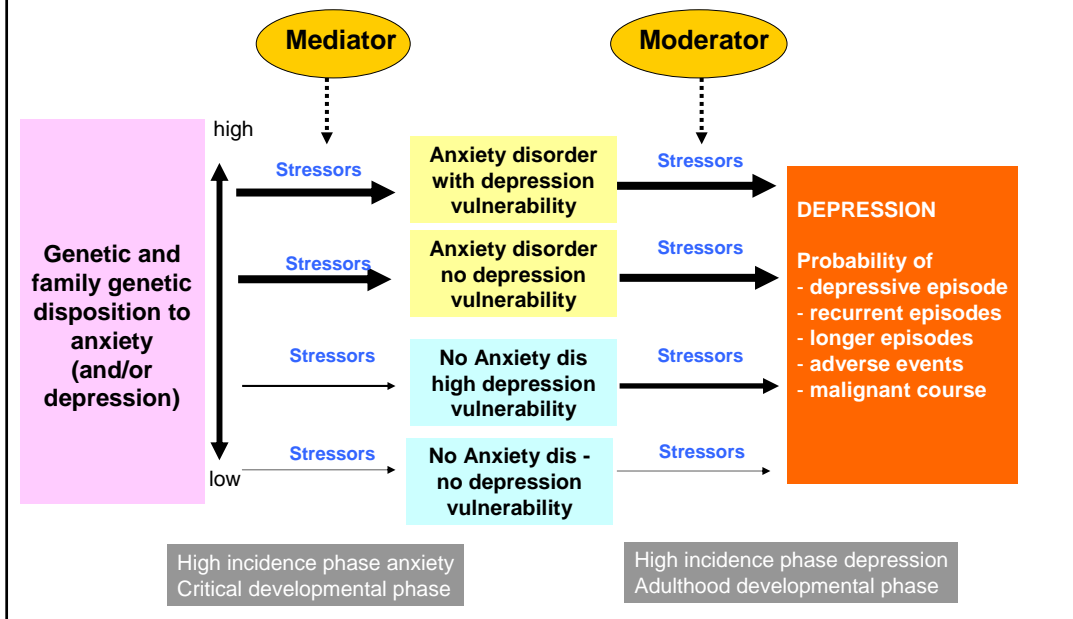
Are the direct cost high?

Over 32% of the total morbidity burden is due to disorders of the brain –
Versus 7% of the health care expenditure!

Increase of direct costs – reduction of indirect costs?

If yes what type of direct costs expenditures will be most effective?

Pathways (mod. Leonardo & Hen, 2008)



III. Are mental disorders in the EU increasing?

In the EU and most Western countries – there is evidence for increased rates of depression since the 70ies

- **Consistent evidence for increased depression rates in successively higher incidence in young cohorts**
 - E.g. subjects born after 1934 have twice the risk, those born after 1964 almost three times the risk for MDE
- **age of onset for 1st episode has been decreasing**
- **Increases due to higher incidence of comorbid secondary depression**
- **Little evidence for artefacts** (criteria, willingness to admit sx, etc)
- **Effects are weakening though in younger cohorts**
- **Situation in the elderly (65+) remains unclear!**



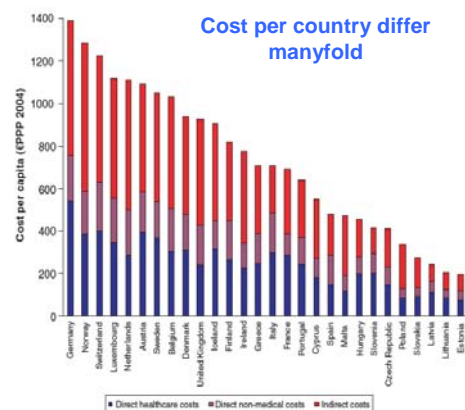
Did we fail so far to reduce the burden, because treatments are unavailable, difficult, ineffective and expensive?

- **Not true!**
 - effective treatments exist – despite the apparent need of improved therapeutic options
 - Treatments are increasingly acceptable to the public and patients
 - Treatment delivery is not difficult – given appropriate training, cost effectiveness is robustly established
 - The burden has increased at a slower pace than the incidence and prevalence for most disorders
- However, there is still tremendous room for improvement!
 - Providing proactive and earlier diagnosis and treatment
 - Designing and providing improved targeted treatments
- *Concerted action - better models of service provision and research strategies*

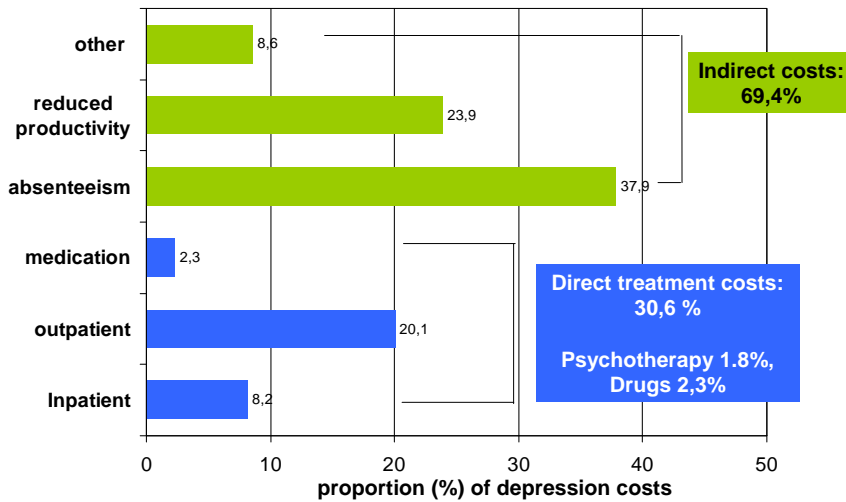


Cost of disorders of the brain in Europe by disease area (in Euro PPP million)

€ million	Healthcare costs	Direct non-medical costs	Indirect costs	Total cost
Neurosurgical diseases	4099	269	3155	7523
Brain tumour	1162	269	3155	4586
Trauma	2937			2937
Neurological diseases	21 286	20 259	42 389	83 934
Epilepsy	2752	4240	8554	15 546
Migraine and other headaches	1495		25 507	27 002
Multiple sclerosis	2194	3977	2598	8769
Parkinson's disease	4582	6140		10 722
Stroke	10 263	5901	5730	21 895
Neurological/mental disorder	12 840	42 337		55 176
Dementia	12 840	42 337		55 176
Mental disorders	97 221	9336	132 985	239 542
Addiction	16 655	3962	36 657	57 274
Affective disorders	28 639		77 027	105 666
Anxiety disorders	22 072		19 301	41 373
Psychotic disorders	29 855	5374		35 229
All brain disorders	135 445	72 200	178 530	386 175



Anxiety is characterized by high indirect and low direct costs

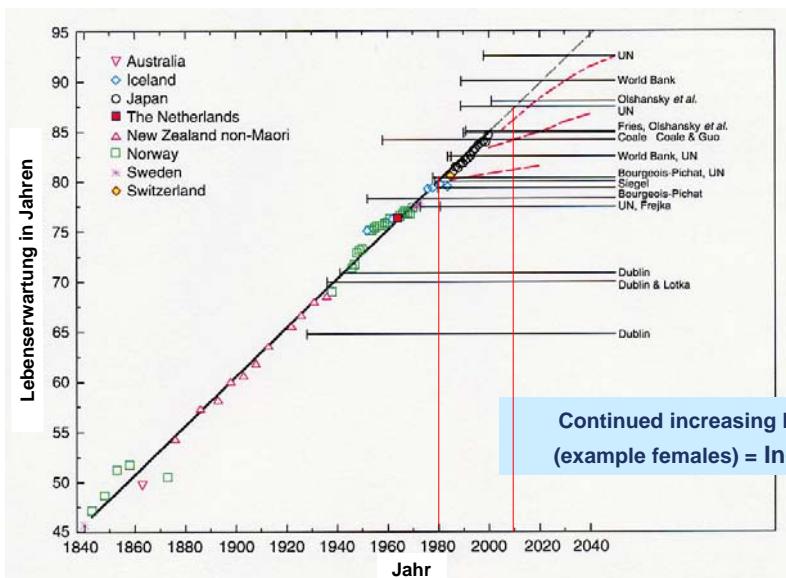


Andlin-Sobocki et al 2005, Wittchen & Jacobi 2011



IV. Is the burden increasing?

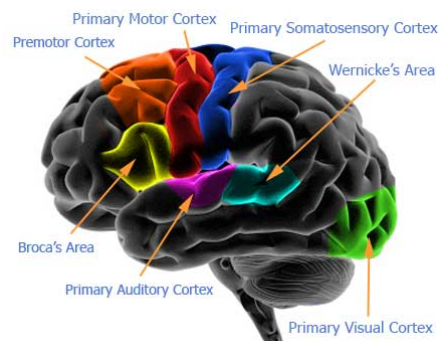
The „broken limit“ phenomenon of life expectancy



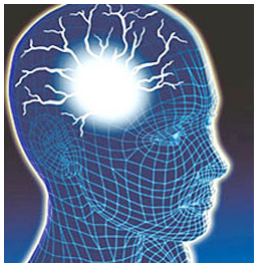
Quelle: Oeppen J et al. Broken limits to life expectancy. Science 2002; 296: 1029



- **The puzzling complexity of mental and neurological disorders („disorders of the brain“)**
- **The size (How many persons in the EU are affected?)**
- **The burden (How disabling are they? What is their overall disease burden for the society?)**
- **The cost (How costly are these disorder for our health care systems and the society overall?)**

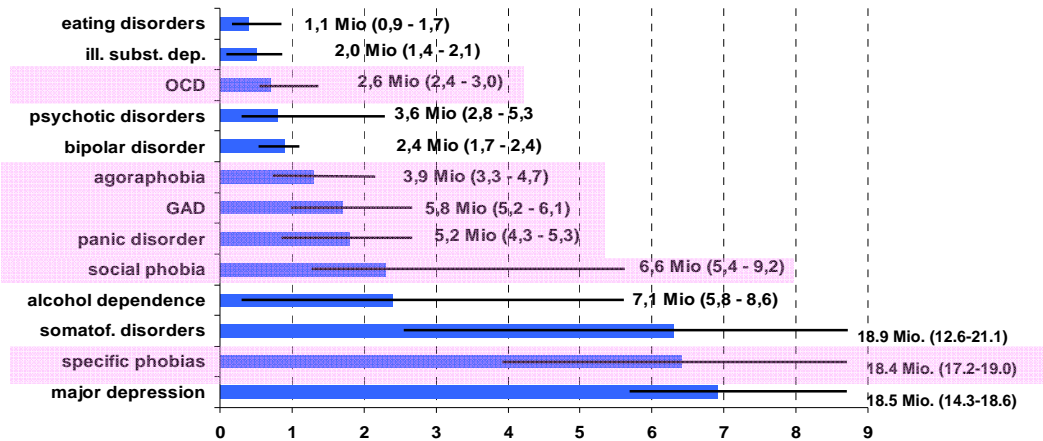


www.BrainHealthandPuzzles.com





12-month prevalence (% , 95% CI) in the EU and estimated number of subjects affected in Germany (original data reanalyses)

**Note:**

Numbers add up to more than 27% and 82 million subjects because subjects can have more than one disorder (comorbidity)

Wittchen & Jacobi (2005), *Neuropsychopharmacology*



Challenges of determining the size and burden

- When does a disorder start? What are the high incidence risk phases of a disorder?
- How is the onset (insidious-slow, acute rapid etc)?
- What are the associated impairment and disabilities?
- What is the natural course (episodic/recurrent, fluctuating, progressive, chronic)?
- What are associated risks and complications of the natural course?
- Relationship among each other - comorbidity: aetiologic (unique and shared vulnerabilities and risk factors, moderator and mediator effects, symptom progression models)?
- Are they preventable - are they treatable? (assumed effect on size and burden)
- Are they recognized, diagnosed and treated? (actual effect on size and burden)

There is a need to describe the size and burden:

- by diagnosis (e.g. panic disorder)
- by diagnostic group (e.g. any anxiety disorder)
- and by „caseness“ (e.g. having any disorder)