Psychiatry: Mortality and Morbidity

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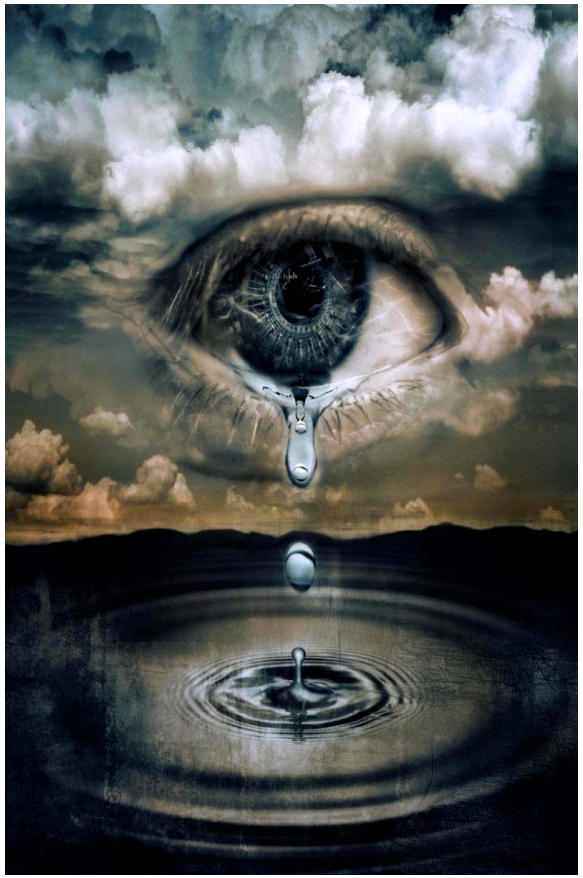
Topics

- Mortality and:
  - Depression
  - Anxiety
  - General psychiatric disorders
- Morbidity and:
  - Depression
  - Anxiety
  - General psychiatric disorders
- Functional morbidity
- Specific disease morbidity and associations e.g. Diabetes and Ischaemic Heart Disease.



“Scope of the problem”

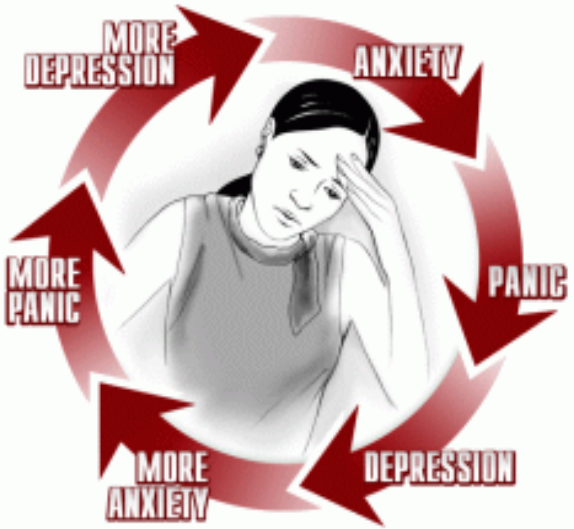
- One in 5 have a mental health problem within the past 12 months.

  (National Survey of Mental Health 2007)

- Degree of physical functional impairment with depression is similar to a chronic medical illness (diabetes, cancer, heart disease, stroke) or being 12 years older than current age. *(Surtees et al, 2003)*

“Scope of the problem”

- 2006 Norwegian prospective study of 45,000 people (not on a disability pension) found that depression and anxiety doubled the risk of being on (future) disability pension and having both increased risk by 4.5.

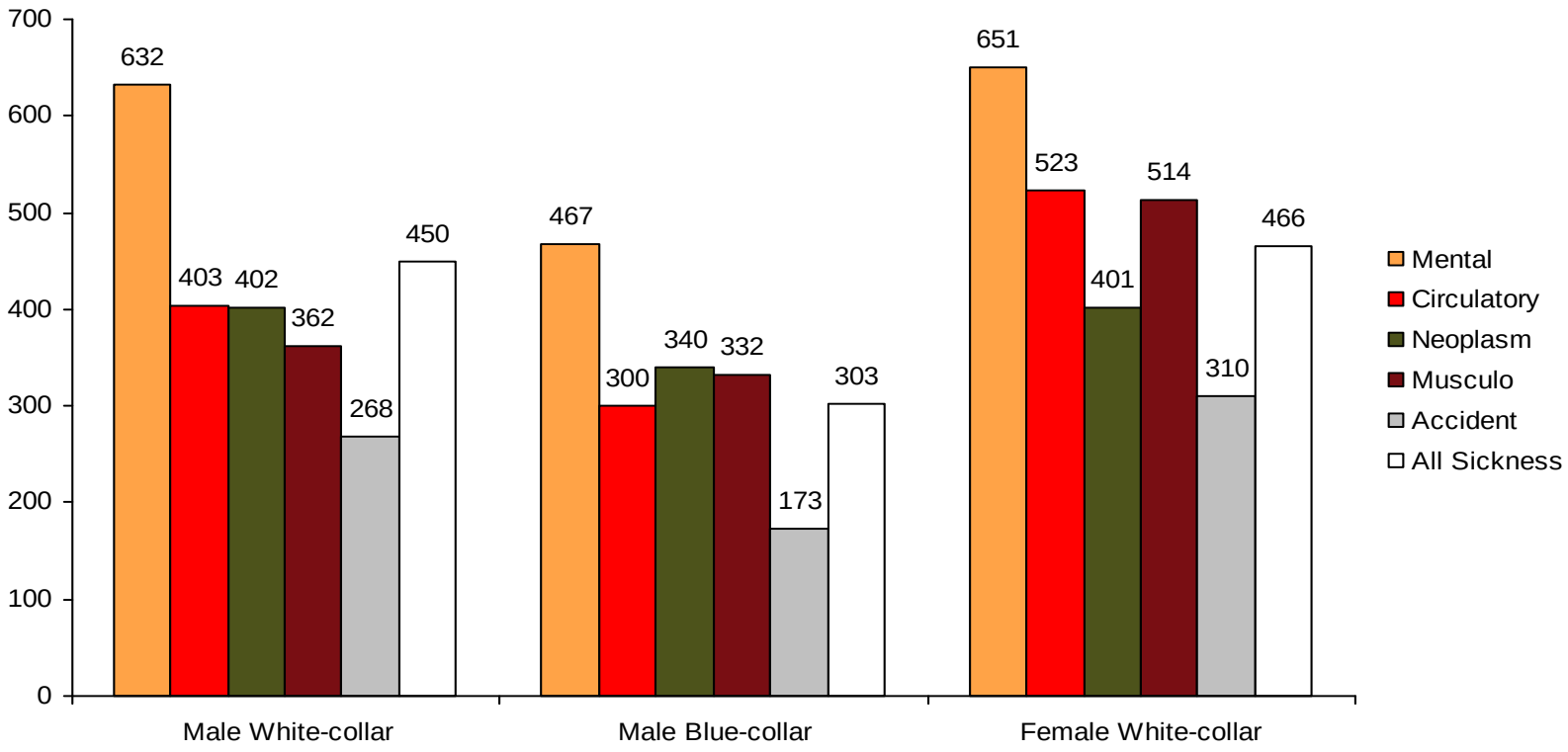


(Mykleton et al, American Journal of Psychiatry 2006; 163; 1412-18)

- Economic cost of depression was $43 billion in US in 1990 of which $31.3 billion is estimated to be due to lost work days. *(Zang et al,1999)*

Mental Illness the Longest Running Claim

Average length of claim in days

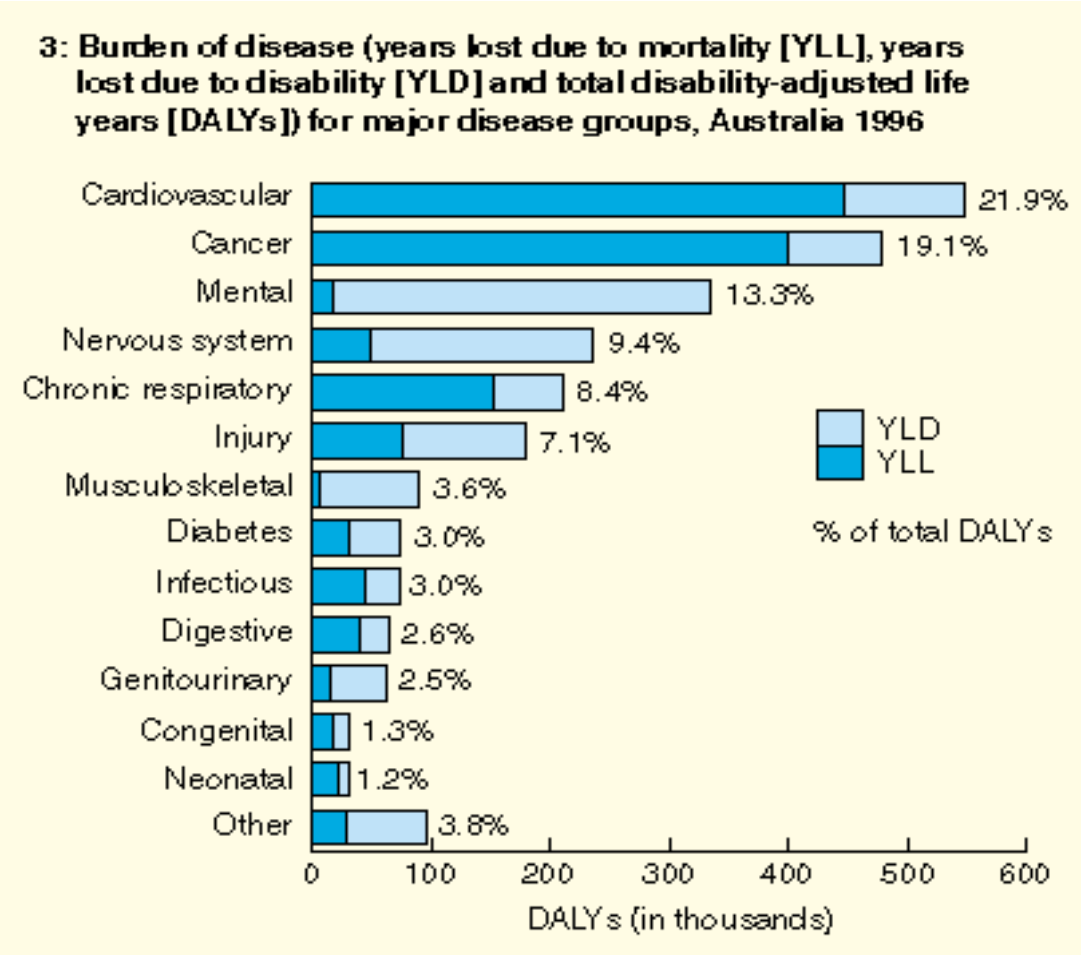


Based on 2 companies cause of claim data only.
Weighted by claim numbers
Only causes with >100 claims shown (except female white-collar circulatory)

“Scope of the problem” Depression

- Prevalence of 2-5% in the population and 5-10% in primary care setting. *(GenRe Underwriting School, Edition 1/2010)*
- Lifetime risk of 10-20% (Females: Males 2:1).
- Unipolar depression is the fourth cause of disability worldwide and may become the second cause of disability.
- Fourth highest DALY (disability adjusted life years) lost after IHD,CV disease and COPD.

Depression and DALYs



“Scope of the problem” Depression Prognosis

- Relapse: 50% of those with a major depression will relapse. After a second or third episode the relapse rate goes up to 70 and 90%.

  (Kupfer et al, 1991)

- Dysthymia: remission rate likely to be 10% per year. *(Up to date, 2010)*

- Recovery rates vary widely from 35% at 9 months to 65% at 6 months. In addition,15-20% have symptoms lasting 2 years or longer.

  (Pincus et al)

“Scope of the problem” Depression

- Most episodes last 12-16 weeks if untreated.
- The more severe the depression, the higher the risk of recurrence e.g. being hospitalised or treated in outpatient clinics up to 90% recurrence (vs. 50% recurrence rate in a community study).
- 60% of individuals with major depression reported psychosocial functioning which was severely or very severely impaired.

(AMA, 2003 June 18;289(23):3095-105)

“Scope of the problem”
NSW GPs and Mental Health

- Self-administered questionnaire to a stratified random sample of New South Wales general practitioners.
- SUBJECTS: 721 full-time general practitioners, of whom 534 (74%) responded.

(Med Journal of Australia 1995 Feb 6;162(3):139-42. Mental health care practices and educational needs of general practitioners. Phongsavan, R. Ward, JE, Oldenburg BF, Gordon JJ.)

NSW GPs and Mental Health

RESULTS: Mental health problems recognised by general practitioners at least once per week were:

- psychosomatic (93%)
- emotional (89%)
- addiction (79%)
- social/economic (71%)
- family (69%)

- 64% of general practitioners reported that patients felt uncomfortable about being referred to psychiatrists,
- 53% that referral service waiting lists were too long,
- 51% that there were insufficient local mental health services, and
- 25% that communication difficulties between referring general practitioners and mental health specialists obstructed optimal care.
- Educational priorities were diagnostic and counselling skills, with particular emphasis on crisis, family, individual and marital counselling and strategies to prevent general practitioner burn-out.

“Scope of the problem”
NSW GPs and Mental Health

- Cross-sectional national audit of general practices throughout Australia in 1998-1999.
- PARTICIPANTS: 46,515 ambulatory care patients attending 386 GPs:
  - Reported recognition of psychological disorders by GPs,
  - actual prevalence of disorders and patient,
  - GP and practice characteristics predicting the failure to recognise disorders.

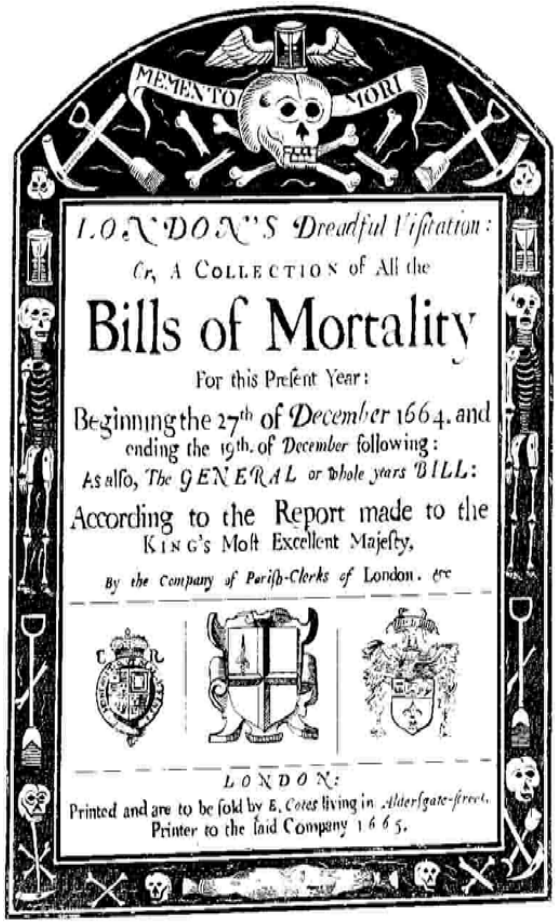
NSW GPs and Mental Health

RESULTS:

- GPs did not recognize mental disorder in 56% (11,922 / 21,210) of patients.
- These comprised 46% of patients with more severe mental disorders.
- 58% with predominantly psychological symptoms, and 76% of those with predominantly somatic /physical symptoms.
- Characteristics of doctors associated with correct diagnoses were:
  - being aged > 35 years,
  - having an interest in mental health,
  - having had previous mental health training

(Medical Journal of Australia,. 2001 Jul 16;175 Suppl:S18-24. Unmet need for recognition of common mental disorders in Australian general practice. Hickie, IB, Davenlport, TA, Hadzi-Pavlovic, D. Naismith, SL, Koschera, A.)

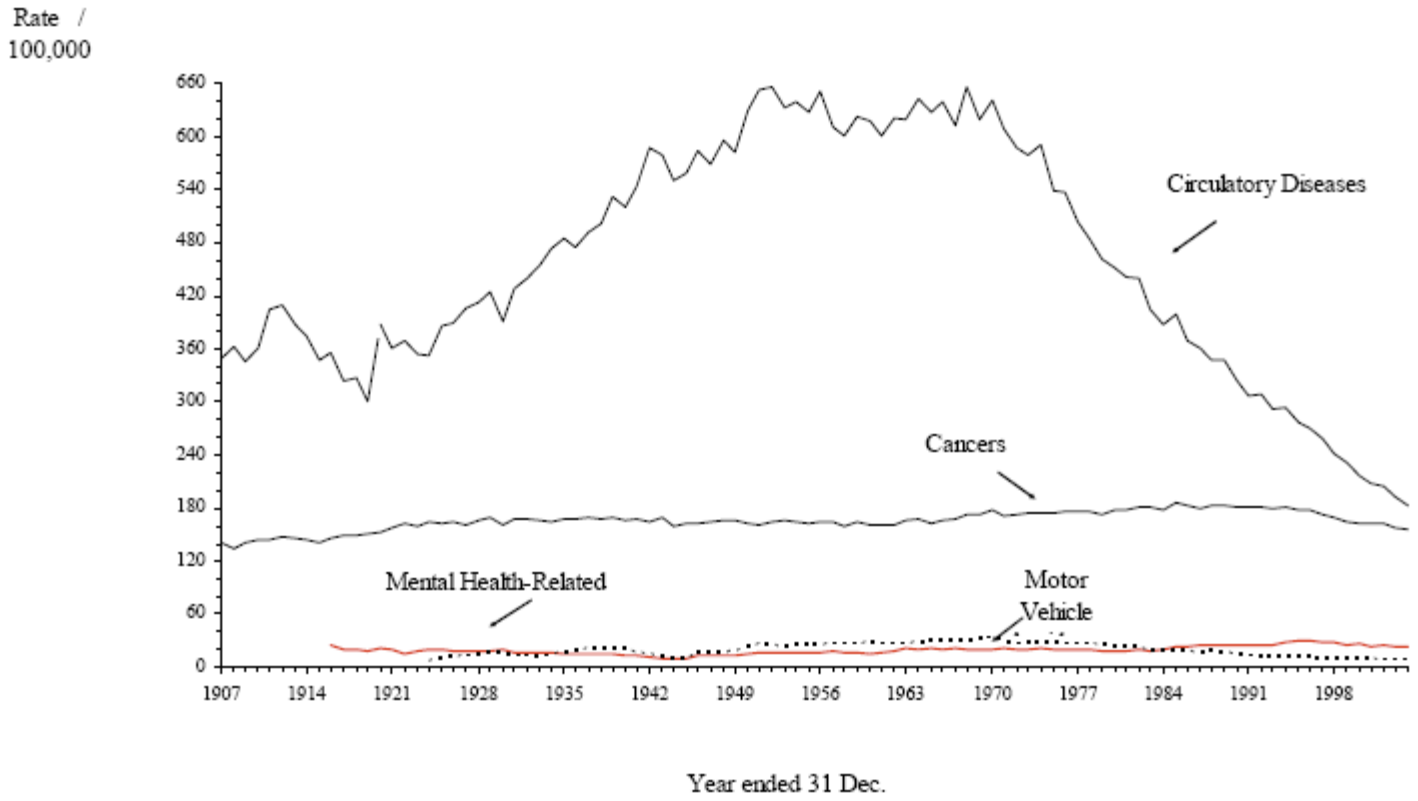
Mental Health Mortality



This study finds the temporal trend in mental health-related mortality rates (which reflects the longevity of people with mental illness) has worsened through time.

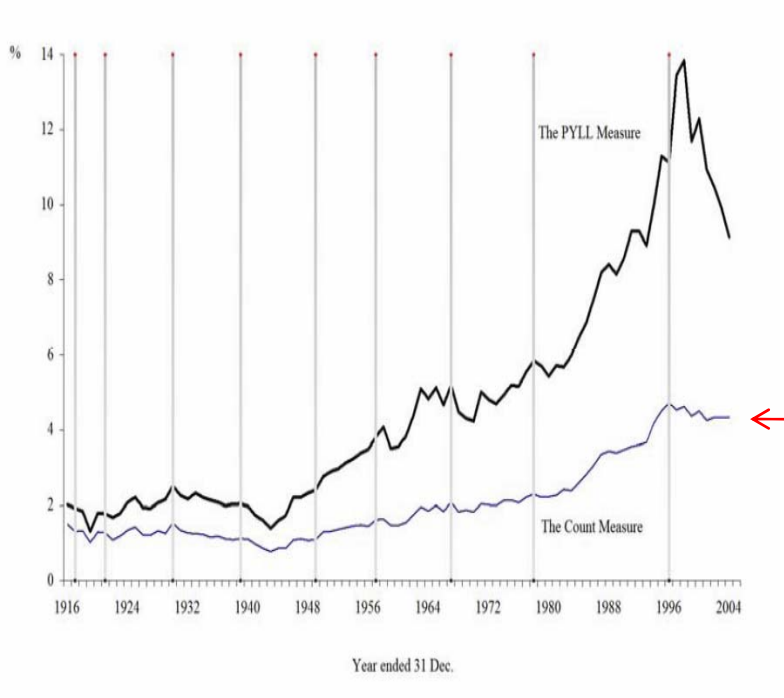
(The Trend in Mental Health-Related Mortality Rates in Australia 1916-2004: implications for policy: Darrel P Doessel, Ruth FG Williams and Harvey Whiteford)

Total Mental Health Mortality Is Not Falling

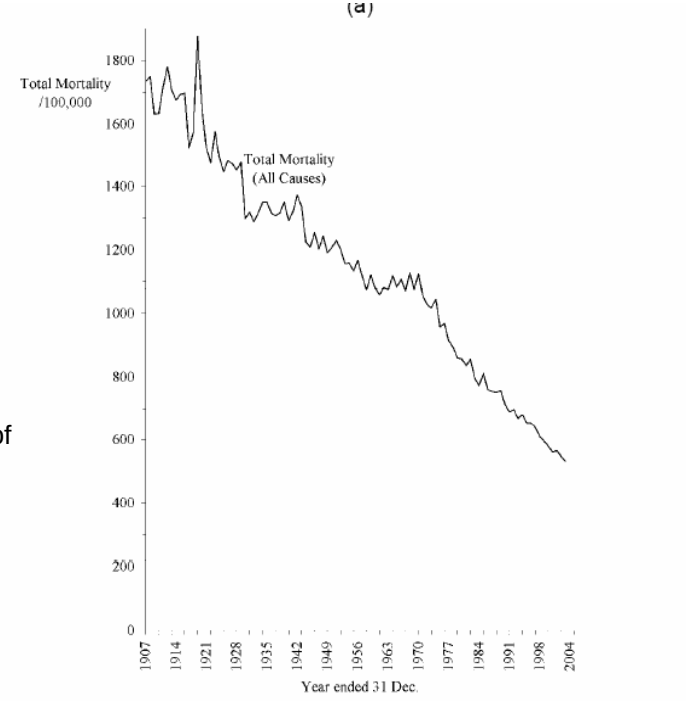


The trend in mental health-related mortality rates in Australia 1916-2004: implications for policy.

Total Mental Health Mortality Is Not Falling



Total no. of deaths



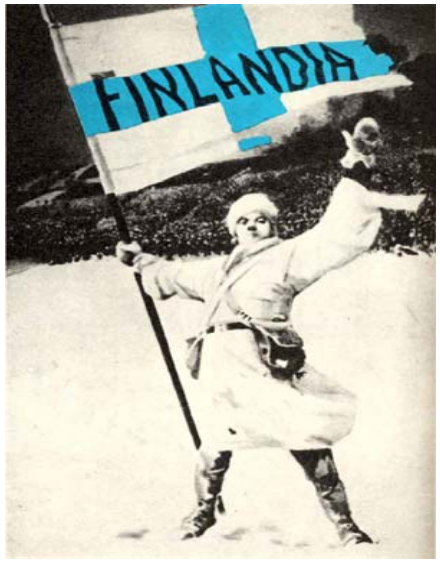
% Mental health-related mortality compared to All Causes mortality.

Years of potential life lost (**YPLL**) or **potential years of life lost** (**PYLL**), is an estimate of the average years a person would have lived if he or she had not died prematurely.

Mortality and Psychiatric Illness - Community Group

- Community based sample, not “patients” – never studied before.
- 7, 217 Finnish population, aged >30, representative of general population given a 36 item GHQ.
- Finnish people >15-17 year follow-up – all Mental Health Disorders increased Relative Risk of dying by 1.56 in men and 1.38 in women mainly from:
  - cardiovascular disease (including stroke),
  - respiratory disease, and
  - suicide

(Joukamaa et al, 2001)



Mortality and Psychiatric Illness - GP Patient Group

- GP retrospective sample, Netherlands.
- 68,000 people were followed between 1970 and 1990.
- Hazard Ratio of mortality for depressed vs. no depressed 1.39.

(Ensinck et al, 2002)

Mortality with Affective Disorders - Hospitalised Group

- 406 patients hospitalized at the University Hospital of Zurich with bipolar and unipolar illness were followed for between 34-38 years.
- 99.3% were followed up: 83% of males and 72% of females had died.
- Increased death rate (SMR) overall of 1.61.
- SMR for unipolar depression was 1.63 : bipolar depression was 1.58.

*(**Mortality of Patients with Mood Disorders.** Angst et al, 2002)*

Mortality with Affective Disorders

- Treated patients had a lower mortality than untreated patients.
- Suicide risk was constant over time and not related to proximity of diagnosis.
- Increased death by neoplasm NOT increased.

***(Mortality of Patients with Mood Disorders**. Angst et al, 2002)*

Mortality and Affective or Mood Disorders

Authors	Diagnoses	Observation Period (Years)	Males SMR	Females SMR	Total SMR	n
Berglund & Nilsson (1987)	Unipolar or Bipolar	14 – 27	1.29	1.20	1.23	1,206
Eastwood et al (1982)	Affective Disorders	9.5	1.14	1.55	1.37	585
Murphy et al (1987)	Affective Disorders	16	2.10	1.20	1.50	1,003
Black (1998)	Unipolar or Bipolar	30 -40	1.41	1.82	1.61	1,593
Angst (1998)	Unipolar or Bipolar	34 – 38	1.64	1.59	1.61	406
Weeke (1979)	Unipolar or Bipolar	1 – 8	1.95	1.55	1.69	8,136

Criteria for inclusion: either large sample (n.5000) or long observation period (.5 years) and expected deaths calculated out of all years of observation period.

(Mortality of patients with mood disorders, Angst et al. 2002)

Mortality and Affective Disorders (cont.)

Authors	Diagnoses	Observation Period (Years)	Males SMR	Females SMR	Total SMR	n
Week & Vaeth (1986)	Unipolar or Bipolar	5 – 7	2.17	1.45	1.73	2,168
Ciompi & Medvecka (1976)	Depression	22 – 47	1.69	1.95	1.85	523
Lee & Murray (1988)	Depression	22	--	--	1.90	89
Hoyer et al (2000)	Unipolar or Bipolar	5 – 25	2.18	1.81	1.94	54
Zheng et al (1997)	Depression	2.5	3.10	1.70	2.49	1,499
Brodersen et al (2000)	Unipolar or Bipolar	16	2.42	2.56	2.50	133

Criteria for inclusion: either large sample (n.5000) or long observation period (.5 years) and expected deaths calculated out of all years of observation period.

(Mortality of patients with mood disorders, Angst et al. 2002)

Mortality in Western Australian
Hospitalised Psychiatric Patients

- 133,105 patients in WA admitted for psychiatric care between 1980-1995.
- 11% died during this period.
- Of all deaths suicide comprised 9% (not more).
- Increased mortality ratio of 2.57 overall and increased with every group except for females with adjustment reaction.

Mortality in Western Australian Psychiatric Patients

- All causes of death were increased more than 2 fold except for acute myocardial infarction and neoplasms (MRR 1.59 and 1.50 respectively).
- Risk was almost twice as high for males than females.
- Risk was highest within the first 7 years after initial contact with mental health services.

(Lawrence et al, Society of Psychiatric Epidemology 2000;35;341)

What about Suicide Risk ??

- In the 1970's (*Guze and Robbins*) and even up to 1980 (*Goodwin and Jamieson*), it was accepted that about 15% of depressed people committed suicide.
- Of those that suicide, estimates of major depression as a cause varies from 56-85%. *(Gen Re Risk Insights December, 2008)*
- Most (78-89%) are depressed at time of suicide - rarely are they manic.
- Most studies agree that the overall suicide risk for depression is *between* 2-6%.
  (Gen Re Risk Insights December, 2008)

Suicide and Mental Health

- Simon and Vorkoff (1998) reviewed 35,546 records of depressed patients in an insured US population over a 3 year period and analyzed death rates.
- Risk per 100,000 of suicide was higher with more intensive treatment needed:
  - 224 with any inpatient treatment
  - 64 with outpatient specialty treatment
  - 43 among those treated with outpatient antidepressants
  - none in those with no antidepressants
- Of the 60,000 person years there were 850 deaths of which 36 were definite or possible suicides (4%).
- Risk was higher in men and those with more severe illness.

(Gen Re Risk Insights December, 2008)

Depression, Diseases and Mortality

- 4000 patients with Diabetes Mellitus - questionnaire sample surveyed and followed up for 3 years:
  - 8.3 % died with no depression compared to 13.6% with minor depression and 11.9% with major depression.
  - Minor depression had RR of 1.67 and major depression RR of 2.3 of mortality.
- Increased risk with:
  - sedentary lifestyle
  - old age being male
  - on Insulin and increased diabetic complications (not smoking in this study)

*(Katon et al, **The Association of Co-morbid Depression with Mortality in Patients with Type 2 Diabetes.** Diabetes Care, 28;11;Nov 2005 p.2668)*

Possible Reasons for Increased Mortality with Mental health disorders

- Smoking: 42.9% of Western Australians with a diagnosable mental health issue smoked compared to 24.4 % of the national population. *(Mortality in Western Australia Psychiatric Patients 2000).*
- Increase in vascular risk factors.
- Depressed people are:
  - less physically active
  - are heavier
  - smoke, and
  - consume more alcohol

(Black et al, Annals of Epidemiology 1999;9;45-52).

Other Possible Mechanisms for Mortality

- Sympatho adrenal hyperactivity
- Decreased heart rate variability (sympathetic vs parasympathetic activity)
- Ventricular instability and arrythmias
- Myocardial *ischaemia* related to stress
- Serotonin linked increase in platelet thrombosis

*(Gump et al, **Stroke** 2005;36;98-102)*

Summary

- All studies show increase in mortality across the board for all MH conditions except maybe for mild depression or anxiety.
- Death rate is increased not just due to suicide but many other common illness (esp. vascular and diabetes) possibly due to other lifestyle (diet, smoking, overweight, inactivity) and neuroimmuno humoral mechanism.

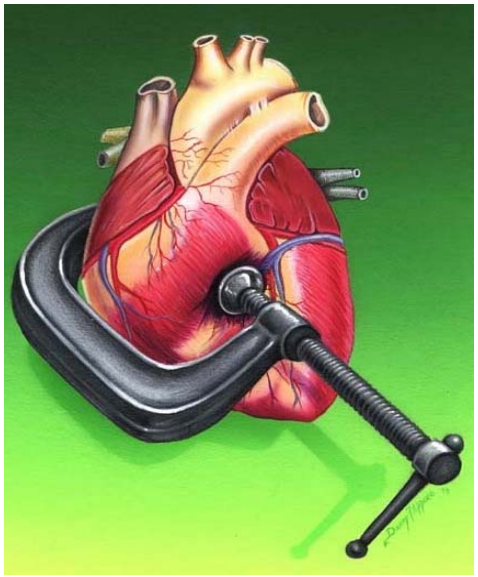
  Need to underwrite for vascular risk factors.
- Suicide risk is higher for men and those hospitalised for depression or suicide attempts.

Mental Health and Morbidity

Mental Health and Ischaemic Heart Disease

- Meta analysis of 6,362 events amongst 145,538 participants in 54 observational studies.
- Observational studies suggested links with ischaemic heart disease but treating depression did not reduce future risk of IHD.
- Increased RR of future IHD with depression - pooled estimate of 1.8 (CI 1.53-2.15).

(Nicholson et al, European Heart Journal 2006; 27;2763-2774)



Mental Health and Ischaemic Heart Disease

- Association between depression and death from CHD was 1.80 (1.5-2.15).
- Incomplete and biased reporting of adjustment for conventional risk factors means "*depression cannot yet be included in the group of established independent coronary risk factors*".
- Also found some evidence of reverse causality whereby IHD may cause depression (almost 1/2 of increased risk was accounted for by increase in severity of depression).

Mental Health and Ischaemic Heart Disease

- Depression as a risk factor for IHD (review article).
- People with depression have increased RR(1.5 to 3.9) of developing coronary artery disease, even after controlling for severity of disease and other risk factors.
- *Wulsein et al: increased relative risk of 1.64 in their meta-analysis of developing CAD.*

(Lett et al, ***Depression as a Risk Factor for CAD in Psychosomatic Medicine,*** *2004 66;305-315)*

Mental Health and Ischaemic Heart Disease

- If you have CAD, you are more likely to develop depression (RR 1.69-2.2) and do worse with increased death (increased 2-3 fold)from heart attacks.
- Depressed people are twice as likely to be non adherent to medications – cardiac and other
- Women are at higher risk of mortality than men and have higher rates of depression than men.

(Lett et al, ***Depression as a Risk Factor for CAD in Psychosomatic Medicine*** *2004 66;305-315)*

Mental Health and Ischaemic Heart Disease

- Depressed people are increasingly likely to be smokers (47% versus 20%).
- Depressed people have increased platelet reactivity (serotonin also involved here).
- Depressed people have higher cortisol, the sympathetic nervous system may be dysregulated with depression (higher BP, Pulse rate etc) , more inflammation (CRP) with depressed populations.

*(Lett et al, **Depression as a Risk Factor for CAD in Psychosomatic Medicine,** 2004 66;305-315)*

Mental Health and Ischaemic Heart Disease

- Several studies (IHD Life Stress monitoring program, Myocardial ischaemia intervention trial) showed improved cardiac outcomes with stress management and psychosocial intervention from the time of the heart attack.
- Meta analysis by Linden et al, 1996 concluded that psychosocial interventions increased quality of life and improved outcomes.

*(Linden et al, **Psychosocial Intervention for Patient with CAD ,***
1996 Archives of Internal Medicine 1996;156;745-52.)

Depression and Future Diabetes Mellitus

- Almost 6,000 participants aged > 65.
- Annually filled out depression scales.
- Looked at single report, increase in symptoms or persistently high symptoms.
- If you had a high baseline score of depression you have a 60% increased risk of developing diabetes.
- Any worsening Mental Health or persistently high score also increased relative risk by 50% .

*(Carnethoen et al, **Longitudinal association between depressive symptoms and incident Type 2 Diabetes Mellitus in older adults**, Archives Internal Medicine 2007;167;802-807)*

Depression and Future Diabetes Mellitus

- *Golden et al 2008:*
- Noted prior longitudinal studies showing elevated depressive symptoms with increased future risk of Type 2 DM.
- Possibly due to obesity promoting health behaviours.
- Depression leads to activation of neuroendocrine and inflammatory responses (cortisol, catecholamines and cytokines) leading to Insulin resistance.

(Golden et al, JAMA June 18, 2008; 229;23;2751)

Depression and Future Diabetes Mellitus

- Studied 5,201 participants without DM by depressive symptoms status.
- Those with depressive symptoms are more likely to:
  - smoke
  - have higher caloric intake
  - higher BMI
  - higher inflammatory markers, and
  - lower BP
- Depression increased risk of future DM in this study by 20% after controlling for other risk factors e.g. lifestyle, inflammatory markers BMI etc. Therefore ?other factors at work here not just lifestyle risks.

(Golden et al, JAMA June 18, 2008; 229;23;2751)

Mental Health and Functional Impairment

- Ormel found significant decreases in work productivity with mental health conditions.
- Studied 1994 patients aged mid 30s, GP patients, Netherlands.
- Compared type and severity of psychiatric diagnoses (depression//anxiety/somatic symptoms) with level of social and occupational disability.
- Social disability (including self care, family roles) and occupational disability higher with depression than anxiety.
- If mental health condition improved, then ability to function improved – regardless of nature of psychiatric illness.

(Ormel et al, American Journal of Public Health 1993; 83;385-390)

Depression on Daily Functioning and Disability

- Depression is associated with increase in somatic distress, poorer self reported health and functional impairment.
- Intervention in depressed patients n=156, all on medications with intensive treatment of depression (education, frequent follow-ups, monitoring of medications and adjustment behavioral activation) versus usual care.
- Results – With intensive treatment, 7 out of 10 patients had at least a 50% reduction in symptoms (versus 4 out of 10 in the usual care group).

(Simon et al, Psychological Medicine 1998 ,23,693-71)

Interventional Study - Simon et al, 1998

- The intensively treated group had:
  - Improved functional ability in work or activities- but not statistically significant (? not measured well enough by authors' self report)
  - Improved self reported health was greater in the intensively treated,
  - There was less lost productivity - again not statistically significant.
- Conclusion: "*depression treatment which placed greater emphasis on return to productive activities might help reduce the interval between symptomatic and functional recovery* "

Functional Morbidity

- Long term sick leave in Norwegian workforce and Mental Health problems - 100% sickness benefit for first 12 months (like insurance).
- 101,512 individuals with one or more sick leaves > 2 weeks due to psychological problems were identified in 1997 and 1998.
- Annual incidence was 2.47% for sick leave was for psychological illness (females 3.53%, males 1.66%).
- Median duration of absence was 79 days.
- Percentage leaving work on a longer or more permanent basis are for differing disorders:
    - anxiety 10.5%,
    - neurotic conditions 8.8%
    - depressive conditions 8.7%
    - alcohol and substance abuse 10.1%.
    - crisis reactions were only 2.2%.

(Nystuen et al, Scandinavian Journal of Public Health 2001;29;175-82)

Long-Term Sick Leave in Norwegian Workforce and Mental Health Problems

- Return to work:
  - 25% within 4 weeks
  - 52% within 12 weeks
  - 72.6 % within 26 weeks
  - <2% return per week after 14 weeks

Mood Disorders and Work Performance in US Workers

- N= 9,282 respondents in 2001 and 2003.
- Prevalence of bipolar illness 1.2%, depression 6.4%.
- Bipolar illness 65.5 days lost and depression 27.2 days lost (self report).
- Included both absenteeism and presenteeism, the latter contributing more e.g. with bipolar 35 days lost with presenteeism vs 27 days with absenteeism.

(Kessler et al Am J Psychiatry 2006;163;1561)

Mood Disorders and Work Performance

- Mintz et al literature review: 10 published treatment studies n= 827 investigating treatment of depression and functional return to work.
- Symptom relief after intervention with depression occurs more rapidly than improvement in work status often by a period of 4-6 months or more (supported by other authors).
- The longer the treatment the better (4-6 months at least).
- Reliable work history is the best predictor of long term outcomes in the chronically mentally ill.

(Mintz et al, Archives of General Psychiatry :49;761-768)

Mood Disorders and Work Performance

- Of the depressed group in the review, one in two had some level of work impairment:
  - one in ten were unemployed
  - the remaining four in ten were quite impaired
- Found a clear improvement in work capacity if depression was treated.
- Noted no work rehabilitation component was present in any of the studies.
- The longer the treatment duration the better.
- Relapse was associated with poor long term work outcomes.

(Mintz et al, Archives of General Psychiatry : 49;761-768)

Mood Disorders and Work Performance

Conclusion:

- Behavioural impairments including:
  - missed time
  - decreased performance, and
  - significant interpersonal problems

  are common features of depression that appear to be highly responsive to symptomatically effective treatment given adequate time.

- Effects of treatment on social adjustment may not be evident for at least 6 - 8 months.

(Mintz et al, Archives of General Psychiatry :49;761-768)

Who is absent from work?

Elinson et all (2004) investigated depression and the ability to work and reported:

- 50% of those reporting major depression were in the workforce,
- Found that compared to non working depressed persons, working depressed persons tended to be:
  - younger
  - male
  - better educated
  - higher income
  - physically healthier
  - live alone or with a relative
  - live in urban or suburban location

(Elinson et al, Psychiatric Services, 55:29-34:2004)

Who should treat?

Zang et al:

- Net economic savings if depression treatment is provided by mental health specialists, probably as a result of patients' greater functional improvement.

- Specialists tended to treat more according to established guidelines.

(American Journal of Psychiatry, 1999; 156:108–114)

Prevalence and Nature of Disability with Mental Health Conditions

- N=1000 randomly selected patients at 4 primary care sites, mean age 55, 60% female. Interviewed by a GP with a Mental Health Questionnaire.
- Mental health disorders in 39%:
  - mood disorders in 26%
  - anxiety in 18%
  - alcohol in 5%
  - eating disorder in 3%
  - somatoform disorders in 14%
- 56% have more than 1 mental health disorder.
- All mental health conditions were associated with impairments:
  - social functioning
  - role functioning
  - physical functions

Prevalence and Nature of Disability with Mental Health Conditions

- Patients with mood disorders over a 3 month period had an excess of 4.3 disability days compared to those with no mood disorders, somatoform was 4 excess days and anxiety 3.5 excess days.
- Common MH disorders accounted for more days of disability than common medical disorders (e.g. cardiac disease, arthritis, HT and diabetes) on most measures except for physical function.

(Spitzer et al, JAMA 1995;274;1511-1517)

Unique Association of Mental and General Medical Disorders With Self-reported Disability Days in the Past 3 Months

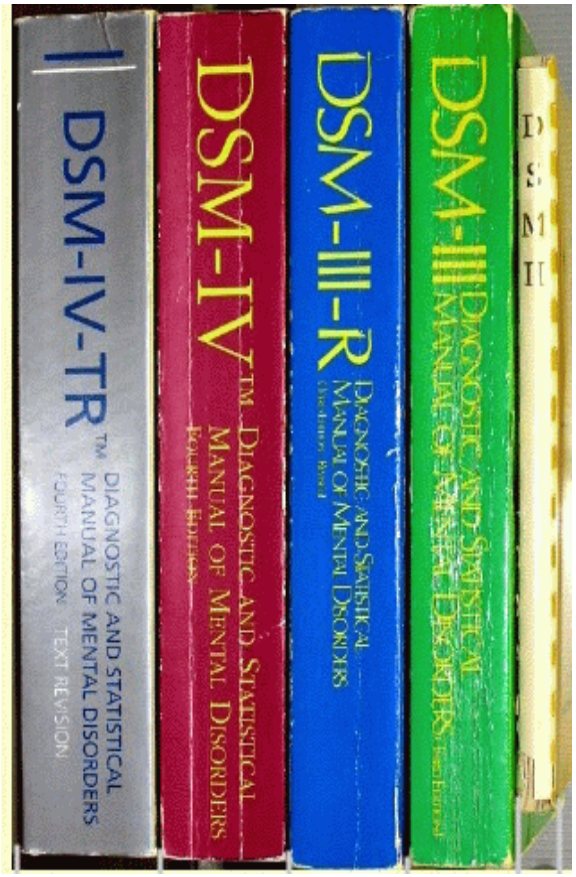
Disorder	No. of Patients	Excess Disability Days (uniquely due to disorder)	95% Confidence Interval
Hepatic	19	12.5	5.7 - 19.4
Cancer	20	9.0	1.2 - 16.8
Pulmonary	78	6.2	2.4 - 9.9
Mood	260	4.3	1.7 - 6.9
Somatoform	139	4.0	0.8 - 7.1
Anxiety	178	3.5	0.5 - 6.5
Cardiac	150	2.8	-0.1 - 5.7
Renal	33	1.9	-3.7 - 7.5
Arthritis	230	1.5	-1.0 - 4.0
Hypertension	480	-0.1	-2.3 - 2.1
Diabetes	170	-0.6	3.4 - 2.1
Eating Disorders	32	-1.1	-6.6 - 4.3

Summary

- Mental health conditions increase the risk of death by approximately 40-100% in most studies. One variable is the severity of the illness and the nature of the illness (anxiety less a risk than depression/psychotic disorders).
- Most studies agree that the suicide risk for depression is between 2-6%.
- There appears to be an increased future risk of cardiovascular disease and diabetes with depression.
- Symptom relief after intervention with depression occurs more rapidly than improvement in work status, often by a period of 4-6 months or more (supported by other authors).

Summary

- Disability is common with mental health conditions – and more severe than a number or medical conditions.
- Many depressed people are at work.
- Presenteeism can be measured and can cause more lost productivity than absenteeism.
- Consider intensive treatment modalities involving more than one health professional.



Summary

- Treat early.
- Rehabilitate as soon as diagnosis is established and plant the seed "*You are going back to work*" – work is central to happiness and well being.
- Aim to get back to work within a 6 month period.
- Treat intensively - psychiatrists should probably be involved.
- Underwrite carefully – look for signs of mental health disorders on application e.g. somatic symptoms and other "red flags" e.g.:
  - excessive time of work or doctors visits
  - unexplained somatic symptoms
  - history of severe mental illness e.g. hospitalisation