## Cost benefit analysis of psychological therapy Joint work with Richard Layard, David Clark, and Martin Knapp

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# Outline

## Introduction

### 2 Health



### 4 Longitudinal evidence

### 5 Summary of costs and benefits

# The underlying problem

• 16% of all adults meet diagnostic criteria for a mental health condition.

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- 16% of all adults meet diagnostic criteria for a mental health condition.
- Only the most severe cases—schizophrenia, bipolar disorder, severe depression—receive good treatment in most cases.
- 75% of sufferes from depression, anxiety disorders, OCD, phobia, and PTSD receive no treatment.

### The costs

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- Well below normal functioning.

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### The costs

- Direct suffering (depression, anxiety, etc.)
- Well below normal functioning.
- Costs to the exchequer:
  - Pay more benefits.
  - Receive less taxes.
  - Greater health costs.

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- But is therapy effective?
  - The National Institute for Clinical Excellence (NICE) has determined that some forms of therapy, especially but not only CBT, are often as or more effective than drugs.
  - NICE recommends nearly all patients should be offered therapy.
- The essential problem is lack of therapists and associated organisation.

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### Our aim

Analyse the economic case for implementing the NICE Guidelines. What is the cost/benefit case for (1) society as a whole, and (2) the public purse ?

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- These figures are based on Department of Health costings for mental health professionals in the mix envisioned in the implementation plan (part experienced psychologists, part CBT practioners with more specific expertise).
- Figures comparable to costings in NICE Guidelines and Curtis and Netten (2006).

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### **Benefits**

### Society as a whole

- Improvement in quality of life for the individuals treated.
- Extra output (return to work, or do not lose job in first place).
- Medical costs saved.

### The exchequer

- Extra tax income + reduced payment of benefits.
  - 2 Medical costs saved.

## Outline

### Introduction





- 4 Longitudinal evidence
- 5 Summary of costs and benefits

# Effectiveness of CBT in first four months

For every 100 patients starting treatment

|               | Retention | Recovery | Natural recovery | Net effect |
|---------------|-----------|----------|------------------|------------|
| Depression    | 80        | 60       | 30               | 24         |
| Phobia        | 85        | 70       | 5                | 55         |
| OCD           | 80        | 55       | 5                | 40         |
| Panic         | 90        | 75       | 5                | 63         |
| GAD           | 80        | 50       | 20               | 24         |
| PTSD          | 85        | 75       | 20               | 47         |
| Weighted avg. | 82        | 61       | 22               | 32         |

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## Effectiveness of CBT in first four months

Are the numbers justified?

- Judgement of professionals based on hundreds of trials.
- Actual results sensitive to details of implementation, but these numbers are seen as reasonable.
- Endorsed by leading experts in conference at Department of Health.
- Some trials show much better results.

### Relapse

Relapse is less likely following psychological therapy than following natural recovery or a drugs effected cure (unless patients take drugs chronically):



Source: Fava et al. (2004).

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# Net improvement in health

Extra months healthy as a result of starting treatment. Figures allowing for natural recovery and (for depression) relapse.

|               | 2 years | 5 years |
|---------------|---------|---------|
| Depression    | 4.6     | 9.6     |
| Phobia        | 12.5    | 27.9    |
| OCD           | 9.0     | 20.2    |
| Panic         | 14.2    | 31.9    |
| GAD           | 4.5     | 7.6     |
| PTSD          | 8.8     | 14.9    |
| Weighted avg. | 6.5     | 13.1    |

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# Employment and IB/IS rates (ages 16-64)

### Figures from the Psychiatric Morbidity Survey

|               | Full-time | Part-time | Unemp. | Inactive | % IB/IS |
|---------------|-----------|-----------|--------|----------|---------|
| Depression    | 36        | 14        | 4      | 45       | 42      |
| Phobia        | 22        | 11        | 6      | 61       | 54      |
| OCD           | 22        | 23        | 3      | 52       | 42      |
| Panic         | 30        | 20        | 5      | 45       | 35      |
| GAD           | 42        | 18        | 4      | 36       | 24      |
| PTSD          | 36        | 14        | 4      | 45       | 42      |
| Weighted avg. | 35        | 16        | 4      | 45       | 38      |
| No disorder   | 55        | 19        | 3      | 23       | 8       |

- IB = Incapacity Benefit.
- IS = Income Support.

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Employment and IB rates (ages 16-64)

### **Bottom line**

- 51% of people with disorder are at work vs. 74% of people with no disorder.
- Net difference of 23%.

#### What we assume

 In our calculations we conservatively assume only 60% of this effect, i.e. time in employment goes up by about 14% per extra time in health (exact figure depends on disorder).

# Net improvement in health and employment

### Extra months in period

|               | Healthy |         | Emp     | loyed   |
|---------------|---------|---------|---------|---------|
|               | 2 years | 5 years | 2 years | 5 years |
| Depression    | 4.6     | 9.6     | 0.7     | 1.3     |
| Phobia        | 12.5    | 27.9    | 3.3     | 6.8     |
| OCD           | 9.0     | 20.2    | 1.6     | 3.5     |
| Panic         | 14.2    | 31.9    | 2.0     | 4.6     |
| GAD           | 4.5     | 7.6     | 0.4     | 0.7     |
| PTSD          | 8.8     | 14.9    | 1.2     | 2.1     |
| Weighted avg. | 6.5     | 13.1    | 1.0     | 2.1     |

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### **Employment effects**

### • Increased employment can result from either,

- Moving into a job.
- Not losing a job.

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## **Employment effects**

- Increased employment can result from either,
  - Moving into a job.
  - Not losing a job.
- There is also an effect on productivity in an existing job:
  - Fewer days off sick (we analyse this).
  - Being generally more productive (we ignore this, as hard to quantify, though surely significant).

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## Days lost to sickness absence

| Psychiatric Morbidity S | Survey: days los | t to sic | kness |  |
|-------------------------|------------------|----------|-------|--|
|                         | No disorder      | 5        |       |  |
|                         | Depression       | 24       |       |  |
|                         | Phobia           | 52       |       |  |
|                         | OCD              | 34       |       |  |
|                         | Panic            | 39       |       |  |
|                         | GAD              | 14       |       |  |
|                         | PTSD             | 24       |       |  |
|                         | Weighted avg.    | 25       |       |  |

The net effect of treatment works out to be 0.15 extra months of work per person treated (taking into account percentage of patients who work, and net effect of treatment on health).

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- Rollman et al. finds 15% increase in employment, and 31 days reduction in absenteeism, as a result of treatment.

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- Camberwell questionnaire finds 19 days reduction in absenteeism per year as a result of treatment.

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- Rollman et al. finds 15% increase in employment, and 31 days reduction in absenteeism, as a result of treatment.
- David Clark in UK finds similar effects to what we assume.
- Camberwell questionnaire finds 19 days reduction in absenteeism per year as a result of treatment.
- Simon et al. found 15% employment increase + 12 days reduction in absenteeism per worker as a result of cure.

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## Assumptions

### Period under consideration

 We focus on short term benefits (two years), ignoring substantial longer term benefits.

### Medical cost saved

- We assume savings to NHS at 300 pounds in two years. This includes:
  - Less spending on mental health treatment (medication, in patient treatment, visits to GP).
  - Less spending on unrelated health complaints (estimated at 350 dollars per year by Greenberg et al.)

### Quality of Life

- We assume 0.2 improvement in Quality Adjusted Life Year (QALY) as a result of cure.
- Each QALY valued at 30,000 pounds (NICE assumptions).

## Assumptions

### Salary and benefits

- We assume annual salary of 12,000 pounds if at work—though Labour Force Survey suggests 18,200 pounds is average for workers with a mental health disorders.
- Taxes (payroll+income) are valued at 25% of that, or £3,000 per year.
- In the data there is a difference of 30% between mentally ill and non-ill in percent on IB/IS. We assume a successful cure would eliminate 60% of that difference.
- Benefits (incapacity benefits and income support) are valued at 6,000 pounds per year.
- Total value to exchequer of £9,000 per year for person moving from benefits into work.

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# Average costs and benefits per person treated (in $\pounds$ )

| Costs               |   |                                |  |
|---------------------|---|--------------------------------|--|
|                     | Costs 750   |                                |  |
| Benefits to Societ  | у   |                                |  |
|                     | Extra output<br>Medical costs saved<br>Extra QALYs<br>Total | 1,100<br>300<br>3,100<br>4,700 |  |
| Benefits to the exc | chequer   |                                |  |
|                     | IB/IS/HB/CT + Taxes   | 900                            |  |

Total 1,200

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### Conclusion

- Evidence based psychological treatment is compelling on both economic and human grounds.
- UK government has accepted this case, and authorised spending for programme of training and setting up of psychological treatment centres.
- Trials have been conducted, and training is due to start later this year.
- Full scale planned in about 5 years.

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### References

Please refer to the published paper: Layard et al. Cost Benefit Analysis of Psychological Therapy, in *National Institute Economic Review*, No. 202, October 2007.

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## Cost benefit analysis of psychological therapy Joint work with Richard Layard, David Clark, and Martin Knapp

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17 May 2008

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