Common mental disorders, subthreshold symptoms and disability: longitudinal study

Dheeraj Rai, Petros Skapinakis, Nicola Wiles, Glyn Lewis and Ricardo Araya

Summary
In a representative sample of the UK population we found that common mental disorders (as a group and in ICD–10 diagnostic categories) and subthreshold psychiatric symptoms at baseline were both independently associated with new-onset functional disability and significant days lost from work at 18-month follow-up. Subthreshold symptoms contributed to almost half the aggregate burden of functional disability and over 32 million days lost from work in the year preceding the study. Leaving these symptoms unaccounted for in surveys may lead to gross underestimation of disability related to psychiatric morbidity.

Declaration of interest
None.

Method
We used data from the longitudinal subset of the 2000 UK Psychiatric Morbidity Survey (details available elsewhere). Briefly, 8580 adults representative of the UK population participated in face-to-face interviews at baseline (T1) in 2000. A representative subsample (n = 2406) was followed up 18 months later (T2). Ethical approval was granted by the Multi-centre Research Ethics Committee in England.

Psychiatric morbidity was assessed using the revised Clinical Interview Schedule (CIS–R). A CIS–R score of ≥12 indicates the presence of a common mental disorder and algorithms allow identification of ICD–10 diagnoses of depression, anxiety-based disorders (phobias, generalised anxiety disorder, panic disorder and obsessive–compulsive disorder) and mixed anxiety/depression. We defined three main exposure groups: no common mental disorders (CIS–R score <6 and no ICD–10 diagnosis); subthreshold psychiatric symptoms (CIS–R score 6–11 and no ICD–10 diagnosis); and common mental disorders (CIS–R score ≥12 or an ICD–10 diagnosis).

Functional disability was studied using seven domains of activities of daily living including personal care, using transport, medical care, household activities, practical activities, dealing with paperwork and managing money (see online supplement). Those employed were asked to report the number of days they had been off sick from work in the past year preceding the study. Leaving these symptoms unaccounted for in surveys may lead to gross underestimation of disability related to psychiatric morbidity.

We defined three main exposure groups: no common mental disorders (CIS–R score <6 and no ICD–10 diagnosis); subthreshold psychiatric symptoms (CIS–R score 6–11 and no ICD–10 diagnosis); and common mental disorders (CIS–R score ≥12 or an ICD–10 diagnosis).

Results
Among people with no functional disability at baseline (n = 1573), 15.2% had subthreshold symptoms and 11.9% a common mental disorder. In total, 60% of those with common mental disorders had mixed anxiety/depression, 28.6% had an ICD–10 anxiety-based disorder and 11.4% a depressive episode.

For regression analyses we studied two outcomes. First, new-onset functional disability (defined as report of new activities of daily living difficulties at T1 (n = 1573). Second, 1 or more days, and >14 days lost from work in the year in a cohort employed at both waves (n = 1317). Logistic regression was used to estimate the association of psychiatric morbidity and the outcomes, while adjusting for potential confounders (Table 1). Analyses were conducted using the aflogit procedure.

Discussion
The association between psychiatric morbidity and subsequent disability may have been underestimated because disability related to subthreshold symptoms is not included in calculations. Previous longitudinal studies on this subject have concentrated mainly on depression and its subthreshold presentations, and cross-sectional studies cannot ascertain the direction of causality. Furthermore, disability related to anxiety-based disorders and mixed anxiety/depression is sparsely documented. We studied the relative contribution of subthreshold psychiatric symptoms and common mental disorders at baseline as predictors of new-onset functional disability and days lost from work at 18 months follow-up in the UK population.

The association between psychiatric morbidity and subsequent disability may have been underestimated because disability related to subthreshold symptoms is not included in calculations. Previous longitudinal studies on this subject have concentrated mainly on depression and its subthreshold presentations, and cross-sectional studies cannot ascertain the direction of causality. Furthermore, disability related to anxiety-based disorders and mixed anxiety/depression is sparsely documented. We studied the relative contribution of subthreshold psychiatric symptoms and common mental disorders at baseline as predictors of new-onset functional disability and days lost from work at 18 months follow-up in the UK population.
CI 1.6–5.2.) Population attributable-risk fractions for subthreshold symptoms explained a much greater proportion of new-onset functional disability (11.1%) than ICD–10 depression (3.0%) or anxiety-based disorders (5.3%).

### Discussion

We found that both subthreshold symptoms and common mental disorders pose a substantial risk of functional disability and absence from work, even after accounting for potential confounders. Almost half the aggregate burden of new-onset functional disability in the population as a result of psychiatric morbidity could be attributed to subthreshold symptoms. Almost two-thirds of the future disability attributable to psychiatric symptoms in the population may be missed if analyses are restricted to individuals with anxiety and depressive disorders.

Our results add to previous findings that disability rises in increments with increasing psychiatric symptom load,1,3 not just for depression but for the entire spectrum of common mental disorders. We found that the largest proportion of disability even in the common mental disorders group was contributed by mixed anxiety/depression that is itself often considered a subthreshold category.4 We highlight that the aggregate costs of psychiatric symptoms to society may be grossly underestimated when studying specific psychiatric diagnoses in isolation.

The use of a structured psychiatric interview, a large representative sample and prospective design are strengths of this study. Limitations include attrition in the two waves leading to an overall 56% response rate, although we accounted for non-response using probability weights. Data collection at two time points, with little knowledge of the intervening period may lead to some random misclassification. Finally, our broad definition of functional disability may overestimate disability; and the possibility of recall bias of reported work days lost cannot be excluded.

The importance of subthreshold symptoms should not be underestimated. However, this should not be interpreted as if we suggest the creation of a new diagnostic category. Since subthreshold symptoms are likely to be on the same continuum as common mental disorders,1,3 rather than distinct disorders, adding dimensional approaches to supplement categorical diagnostic systems may help improve their recognition.11 Development of strategies to identify and manage these problems may reduce future disability associated with them, generating significant societal savings.

### Table 1 Relationship between baseline psychiatric morbidity and new-onset functional disability and >14 days off work at 18-month follow-up: weighted logistic regression analyses and population attributable fractions

<table>
<thead>
<tr>
<th>No common mental disorders</th>
<th>Onset of functional disability at T2 (in cohort with no functional disability at T1, n = 1573)</th>
<th>&gt;14 days off work in past year at T2 (in cohort employed at both waves, n = 1317)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crude OR (95% CI)</td>
<td>Adjusted OR* (95% CI)</td>
</tr>
<tr>
<td>Subthreshold symptoms</td>
<td>1.7 (1.1–2.7)*</td>
<td>2.2 (1.3–3.4)**</td>
</tr>
<tr>
<td>Common mental disorders</td>
<td>2.1 (1.3–3.1)**</td>
<td>2.5 (1.5–4.3)**</td>
</tr>
<tr>
<td>Mixed anxiety/depression</td>
<td>1.7 (1.0–3.0)</td>
<td>2.2 (1.1–4.3)*</td>
</tr>
<tr>
<td>ICD–10 anxiety-based disorder</td>
<td>2.7 (1.5–4.8)**</td>
<td>2.9 (1.5–5.6)**</td>
</tr>
<tr>
<td>ICD–10 depression</td>
<td>2.9 (1.3–6.6)*</td>
<td>3.3 (1.3–8.1)*</td>
</tr>
</tbody>
</table>

a. Adjusted odds ratios (OR) and 95% confidence intervals derived by models adjusted for age, gender, marital status, ethnicity, social class, employment status, highest educational qualification, area type, tenure of housing, size of primary support group, life events at T1 and between T1 and T2, current smoking, past year illicit drug use, Alcohol Use Disorders Identification and Treatment (AUDIT) score, baseline psychiatric treatment (medication or psychotherapy) and self-reported physical complaints.

b. Population attributable-risk fractions (PAFs) % derived from the adjusted unweighted logistic regression models. The PAFs denote the proportion of an outcome in the population that would be prevented if the exposure were completely removed assuming the association was causal and all confounding accounted for.

*P < 0.05, **P < 0.01.

c. Aggregated PAF.

### Funding

Data collection was funded by the Department of Health and the Scottish Executive Health Department.

### Acknowledgements

We thank the Office of National Statistics for initial design work, fieldwork and data preparation.

### References


Activities of daily living items in the questionnaire

Based on the Medical Research Council Needs for Care Assessment.8

Do you have any difficulty with any of the following activities:
(a) personal care such as dressing, bathing, washing, or using the toilet? (yes/no)
(b) getting out and about or using transport? (yes/no)
(c) medical care such as taking medicines or pills, having injections or changes of dressing? (yes/no)
(d) household activities such as preparing meals, shopping, laundry and housework? (yes/no)
(e) practical activities such as gardening, decorating or doing household repairs? (yes/no)
(f) dealing with paperwork such as writing letters, sending cards or filling forms? (yes/no)
(g) managing money such as budgeting for food or paying bills? (yes/no)

Fig. DS1 Onset of activities of daily living (ADL) difficulties at follow-up by symptom group in those with no difficulty at baseline (n = 1573, weighted percentages)
Common mental disorders, subthreshold symptoms and disability: longitudinal study
Dheeraj Rai, Petros Skapinakis, Nicola Wiles, Glyn Lewis and Ricardo Araya
Access the most recent version at DOI: 10.1192/bjp.bp.110.079244

Supplementary material can be found at:
http://bjp.rcpsych.org/content/suppl/2010/11/01/197.5.411.DC1

This article cites 9 articles, 1 of which you can access for free at:
http://bjp.rcpsych.org/content/197/5/411#BIBL

To obtain reprints or permission to reproduce material from this paper, please write to permissions@rcpsych.ac.uk

You can respond to this article at
http://bjp.rcpsych.org/letters/submit/bjprcpsych;197/5/411

Published by The Royal College of Psychiatrists

To subscribe to The British Journal of Psychiatry go to:
http://bjp.rcpsych.org/site/subscriptions/