Dimensionality and the category of major depressive episode

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Abstract

Major depressive episode (MDE) is a chronic disease typified by episodes that remit and recur. It is a major contributor to the burden of disease. The diagnosis of a disorder is an expert opinion that the disorder is present. The nine symptoms of MDE exist on dimensions of greater or lesser intensity, persistence over time, change in usual state, distress and impairment. It is the clinician's task to judge whether the elicited symptoms warrant the diagnosis. The surprise is that trained clinicians can do this reliably and that diagnostic interviews and questionnaires can emulate this process.

The distribution of symptoms in community surveys is exponential, with no obvious discontinuity at the diagnostic threshold. Taxometric and primary care studies confirm this. The number of symptoms predicts severity, comorbidity, family history, disability, help seeking and treatment recommendations. The latent structure of mental disorders places MDE in the distress misery cluster.

Measures of well-being, distress, disability and neuroticism correlate with the number of symptoms but the relation is not perfect. The Patient Health Questionnaire is derived from the diagnostic criteria and does not suffer this limitation. The introduction of measures like this would acknowledge dimensionality, would facilitate recognition, guide treatment, and be acceptable to consumers, providers and funders. Copyright © 2007 John Wiley & Sons, Ltd.

Key words: major depressive episode (MDE), chronic disease, symptoms, distress misery cluster

Major depressive episode (MDE) is a common syndrome comprising depression, loss of interest and other symptoms. There are no laboratory tests for MDE and diagnosis depends on a trained clinician asking people about their symptoms. The American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (APA, 1994) criteria consists of nine symptoms, five of which must be present and at least one of the five must be 'depressed mood' or 'loss of interest or pleasure' for the diagnosis to be met. All must be judged to be significant by an experienced clinician in terms of severity, duration, abnormality, distress and impairment. These symptoms, we will argue, exist on a continuum and the 5/9 DSM symptoms is an arbitrary point above which diagnosis is made and medical intervention is deemed appropriate (Table 1).

The epidemiology of depression

Depressive symptoms in the population are common, but having symptoms is not the same thing as meeting criteria for a depressive disorder. In the Australian survey 17% of adults reported at least 2 weeks of depressed mood or loss of interest in the past year but only 6.3% met the full DSM-IV criteria at some point in the year prior to the survey, and only 3.2% were current cases.

Table 1. Summary of DSM-IV criteria for major depressive

Five or more symptoms present during the same 2-week period, including either 1 or 2:

1. depressed mood
2. loss of interest or pleasure
3. significant weight loss or gain
4. insomnia or hypersomnia
5. psychomotor agitation or retardation
6. fatigue or loss of energy
7. feelings of worthlessness or excessive or inappropriate guilt
8. diminished ability to think, concentrate or make decisions
9. recurrent thoughts of death, recurrent suicidal ideation, suicide attempt or plan

The symptoms must persist for most of the day, nearly every day within the 2-week period, be a change from the person's usual state and must involve clinically significant distress or impairment in functioning (e.g. occupational or social).

Depression occurs throughout the lifespan and is more common in women. What proportion of the population will have an episode of depression? In the US National Comorbidity Study 17% had met criteria but the average age was only 34 so only half of the age of risk had passed (Kessler et al., 1996). A modelling study, using Australian and Dutch data, and allowing for age of respondent and recall bias, estimated the lifetime risk of at least one episode of major depression as 30% for males and 40% for females (Kruijshaar et al., 2005). On the basis of prospective studies others have estimated the lifetime risk to be higher (Andrews et al., 2005).

Depression is a disorder that remits and recurs. At the severe end of the spectrum, two 15 year prospective studies of people admitted to hospital with depression found these patients did not fare well (Kiloh et al., 1988; Lee and Murray, 1988). Only a fifth of these people hospitalized for depression recovered and remained continuously well; three-fifths recovered but also had further episodes; a tenth were lost to suicide and a tenth were always incapacitated. A 12-year study in US specialist care, again presumably of people with severe illness, showed that patients had symptoms in 60% of follow-up weeks and met full criteria for a depressive episode in 15% of those weeks (Judd et al., 1998). This is one of the few studies that have documented the level of subthreshold and threshold depression in a cohort followed for a substantial period. Cuijpers and Smit (2004) have assembled a series of studies that show that people with subthreshold symptoms have, compared to people without symptoms, a five-fold increase in risk of developing MDE.

Depression is usually episodic. The US National Comorbidity Survey showed that three-quarters of people aged 15–54 years who had ever met criteria for depression had had more than one episode. Their mean age was 34, and they reported an average of four episodes in the 11 years since their first episode (Kessler et al., 1996). The WHO Global Burden of Disease 2000 study estimated a mean episode duration of 26 weeks (Ustun et al., 2004) and the literature is consistent with this. The median duration of an episode is less, around 13 weeks.

To summarize: If depressive episodes have a mean duration of about 6 months, some episodes will last weeks, others (perhaps 5–10%) will not remit for some years. As some will suicide, we will never know when they would have remitted. Episodes recur, with the average number of episodes predicted from community survey data being around eight in a person's lifetime. Thus the average person with depression can expect to meet criteria for a depressive episode for some 4 years in their lifetime. In addition, judging from the data on more severe cases, they will report symptoms of depression that do not meet criteria for a diagnosis but nevertheless are associated with some disability for three or four times as long, that is for 12–16 years in their lifetime. But, provided they do not suicide, they can expect 60 years in their lifetime without depressive symptoms, including some 35 years of their working life. Nevertheless, depressive illness is common and can be very disabling.

The diagnosis of depression

A disease is a harmful state that is, or could be, of clinical relevance. The purpose of medicine is to reduce the burden of human disease by reducing risk factors, by educating people how to manage themselves, and by the direct treatment of disease in patients who seek help. Mental diseases are called disorders, if only because we remain unsure of the disease processes that underlie the disorders. To quote Kraemer (article in this issue) a 'diagnosis of a disorder is an expert opinion that the disorder is present'. Clearly the disorder was present before the expert clinician made the diagnosis, and will

still be present when treatment has reduced the symptoms on which the diagnosis was based. When the disorder began it was probably mild and would not have satisfied the formal diagnostic criteria, after effective treatment it probably does not satisfy the criteria any longer but it would be specious to argue that the disorder changed simply because it failed to match the threshold required for the formal diagnosis. The purpose of a diagnostic system like DSM-IV is simply to describe common patient presentations of a disorder in ways that might help a clinician to recognize the disorder, educate the patient and apply an effective treatment to produce a better outcome.

The symptoms of MDE listed in Table 1 all exist on dimensions of greater or lesser intensity, persistence over time, change in usual state, distress and impairment. It is the clinician's task to judge whether the severity, duration, abnormality, distress and impairment of the elicited symptoms warrants the assignment to a diagnostic category, that is, the symptoms exceed a hypothetical threshold in this multi-dimensional space whereby a diagnosis can be justified and lead to a course of beneficial action. If all this seems complex, it is. Clinical training is about developing the expertise to differentiate significant symptoms from everyday expressions, for example: 'It would be better if I was dead' is a serious communication whereas 'I could honestly die' (Adelaide's Lament in Guys and Dolls) is a non-pathological expression of chagrin. The surprise is firstly that this complex task can be done reliably by well trained clinicians, and secondly that we have been able to develop structured diagnostic interviews and questionnaires like the Patient Health Questionnaire (PHQ-9) that reliably emulate this process (see Appendix).

The first International Classification of Disease (ICD) was written at the beginning of last century when countries needed a standard way of naming the causes of death. The tenth revision of this classification was organized by the World Health Organization (WHO, 1993). ICD-10 and DSM-IV were designed in parallel and describe the diagnostic criteria for the same range of mental disorders. While there are differences of detail, the similarities were so great that an international edition of DSM-IV was published that was able to apply the ICD-10 diagnostic codes to the DSM-IV diagnostic criteria. Remember that no one can show a mental disorder like a surgeon can show an excised tumour, and so the classifications describe phenomenology, the different changes in thoughts, emo-

tions and behaviours thought to be characteristic of each mental disorder. Neither classification included changes at the cellular level for any criteria. To reiterate, experts from all over the world were able to agree on the taxonomy of mental disorders that afflicted the human race and on the criteria that health services could use to diagnose people with these distinct disorders. Depression, therefore, was regarded as a category of disorder for which treatment could be indicated. Five of nine on a dimension of nine symptoms was the threshold above which MDE could be diagnosed.

Evidence for the dimensionality of depression

The distribution of symptoms
The idea of a threshold on a continuum of symptoms is not new. At the lower end of the intelligence distributions in general populations there is a clear excess of cases that represent the distinct pathology of severe mental retardation. Therefore a recent study aimed to establish whether such sub-populations exists in distributions of common mental disorder (mixed anxiety and depression current symptoms), above epidemiological 'case' cutoffs. Data from 9556 non-psychotic respondents to the 1993 Office of Population Censuses and Surveys National Household Psychiatric Morbidity Survey were analysed (Melzer et al., 2002). The programme of surveys includes general population surveys of adults living in the community in Great Britain. The principal UK survey diagnostic interview used the revised Clinical Interview Schedule (Lewis et al., 1992) to collect data about common psychiatric symptoms. This schedule yielded standardized quantitative (i.e. dimensional) scores and diagnostic categories for which additional information needed for diagnostic criteria was also collected.

The symptom scores, when combined into a single score, yield an operational definition of a case; a cutoff of 12 or more symptoms being conventionally used for this purpose. The distribution of total neurotic symptom and depression scores from the revised Clinical Interview Schedule were examined. Automated Least Squares methods were used to fit the best single statistical distribution to the data (Figure 1). A single exponential curve provided the best fit for the whole population, but floor effects produced deviations at symptom counts of 0–3 (two in three respondents in the general population had no current symptoms). After truncation, exponential distributions fitted the

Expon(6.8557) Shift=+4.0000
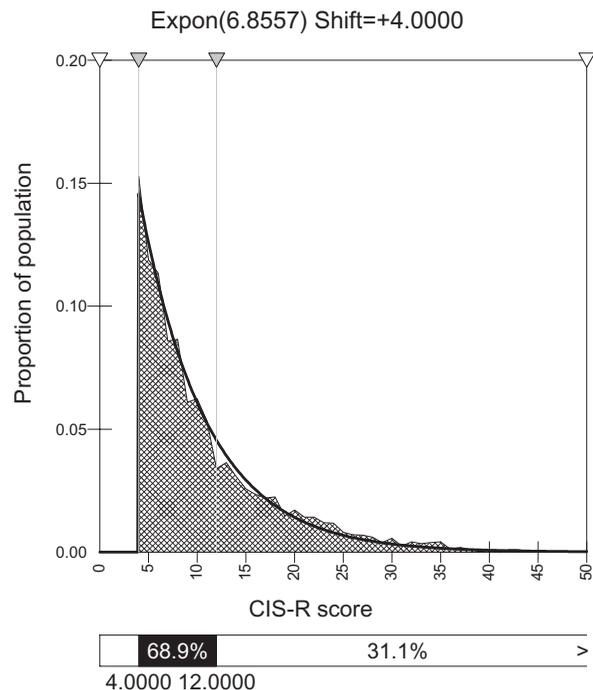
Figure 1. Proportion of population by full range of CIS-R scores, and fitted exponential curve. Goodness of fit (RMS error) test statistic = 0.0286E-04. Note: Expon (6.8557) Shift = +4.000. Figure reproduced from Melzer et al., Psychological Medicine 2002; 32: 1195–1201, with permission of Cambridge University Press.

symptom data excellently. Proportions of the population above the conventional cutoffs of 12 or more symptoms differed by less than 12% from expected for a range of low and high prevalence groups. These low and high prevalence groups were also then identified by the presence or absence of putative risk factors such as recent stressful life events. Symptom counts for the common mental disorders fall within single population distributions, with little apparent numerical excess in the case range. High and low prevalences of these disorders appear to be population characteristics, with shifts in exponential means predicting proportions above case cutoffs. The single exponential model also fitted the depression scores alone.

Is there a discontinuity at 5/9 symptoms?
This prompts an important question; is there any evidence of a natural break in the distribution of symptoms at or around the threshold between four or fewer and five or more symptoms? This issue has been explored

in a number of ways. Kessler et al. (1997) using data from the National Comorbidity Survey examined the relationship between groups, defined by the number of depressive symptoms, and risk of multiple clinical correlates including parental history of mental illness, number of duration of depressive episodes and comorbidity. They found that the risk of these clinical correlates increased with increasing numbers of symptoms. Ustun and Sartorius (1995) lead a study of 5000 primary care attendees in 14 countries and found a linear relation between disability and number of depression symptoms. Sakashita et al. (2007) selected all people who endorsed the symptoms of either 'sadness or loss of interest' in the Australian National Survey of Mental Health and Well-being (NSMHWB) and examined the distribution of the remaining seven possible symptoms of depression as predictors of four measures of impairment. The relationship between the number of symptoms and impairment was linear with no evidence of any natural discontinuity that would support the use of 5/9 symptoms as a diagnostic threshold.

Both these studies examine the manifest or observable relationship between the number of depressive symptoms and suggested validators of disease. However, recent focus has shifted to investigation of the latent structure of constructs such as depression. These studies concentrate on the internal relationship between symptoms of depression and how these relationships give rise to the surface expression of symptomatology. Slade and Andrews (2005) examined the latent structure of depression in the Australian NSMHWB using taxometric analysis, a statistical technique designed specifically to determine whether a given construct is best conceptualized by two latent discrete categories or one latent continuous dimension. They concluded, as had Ruscio and Ruscio (2000) before them, that depression is best conceptualized, measured and classified as a continuously distributed syndrome rather than as a discrete diagnostic entity. One of the implications of this finding is that the decision to offer treatment can be made at any level on the continuum.

Correlates of severity
Although major depressive disorder is a categorical classification (i.e. patients either meet criteria for the diagnosis or they do not), a number of relevant dimensions convey useful information about the individual's clinical state. Among these, a unitary dimension of symptom severity is arguably the most important, conveying

valuable descriptive and prognostic information. Clinical correlates of high pre-treatment severity include suicidality, melancholic and psychotic features, and various types of comorbidity (i.e. anxiety disorders, high scores on trait-like measures of neuroticism and dysfunctional attitudes, and increased likelihood of selected cluster B and C personality disorders). Likewise, as depression symptom severity increases, the probability of biological correlates of dysphoric activation increases. Neurobiological correlates include hypercortisolism, changes in regional cerebral metabolism (increased activation of amygdala, decreased activation of prefrontal cortical structures) and increased peripheral levels of norepinephrine metabolites. Increased symptom severity has important treatment implications, such as a lower likelihood of responding to an acute phase therapy, longer time to remission and recovery, a relatively lower likelihood of placebo response compared to antidepressant response, and a greater likelihood of response to combined psychotherapy and pharmacotherapy compared to therapy with either alone. These differences can be large and very clinically meaningful. For example, in a meta-analysis of individual patient data pooled from six different studies conducted at the University of Pittsburgh Medical Center in the 1980s, Thase et al. (1997) found that whereas the combination of antidepressant medication and psychotherapy had a modest advantage over psychotherapy alone for patients with milder depressive episodes (i.e. about a 10% difference in remission rates), among those with moderate to severe levels of pretreatment severity, the advantage of receiving both medication and psychotherapy was a nearly 30% advantage in remission rates as compared to treatment with psychotherapy alone.

It is becoming clear that mental disorders are best described in terms of dimensions, doctors do have to make binary decisions – i.e. to treat or not. But the idea that psychiatrists should only use categorical diagnoses may also be based on the misconceived idea that this is what physicians actually do. Best current practice for the medical management of cardiovascular risk prediction recommends the use of a range of dimensional or continuous assessments of blood pressure and cholesterol HDL ratio, a recommendation that is widely disseminated to UK medical practitioners through the regularly updated British National Formulary (2000). Levels of severity of depression below and above the conventional diagnostic threshold are also being used nationally for treatment decisions based on explicit

ICD-10 criteria for depressive episode and disorder which is closely equivalent to major depression. The National Centre for Clinical Excellence in the UK recommends that while the decision to treat could be made in all cases of depression, the response would be stepped or graded according to severity of the depression as operationally defined in ICD-10. That is, while mild cases would be offered 'watchful waiting and guided self-help', moderate cases would be offered medication and psychological therapies, and very severe cases, in which there was a risk to life, would be offered inpatient care and treatments including medication, psychological therapies and/or electro-convulsive therapy (ECT). People with symptoms of depression that did not meet the diagnostic threshold are regarded as not needing treatment at all as though there was a categorical difference between them and those with mild depression.

The latent structure of mental disorders

If the boundaries of MDE shade into 'normal' depression, are the boundaries between it and related mental disorders distinct? If this were indeed the case then the rates of co-occurrence among individual mental disorders would occur at, or around, chance levels. However, the rates of co-occurrence among the mental disorders are higher than would be expected by chance (Andrews, 1996; Andrews et al., 2002). It has been suggested that such rates could reflect the existence of higher order dimensions of psychopathology. A number of studies have examined this and found consistent and meaningful groupings of mental disorders (Krueger, 1999; Kessler et al., 2005). Using methodology originally outlined in Krueger (1999) the most recent of these studies (Slade and Watson, 2006) identified a hierarchical three-factor structure as the best fit to 10 common DSM-IV and 11 common ICD-10 mental disorders. This structure was characterized by a distress and a fear factor (which were best considered lower order facets of a broader internalizing factor), as well as an externalizing factor. As can be seen in Figure 2, the individual mental disorders that were characteristic of the distress factor were major depression, dysthymia, generalized anxiety disorder, post-traumatic stress disorder and neurasthenia (in the ICD-10 model). The mental disorders that were characteristic of the fear factor were social phobia, agoraphobia, panic disorder and obsessive-compulsive disorder. The externalizing factor was best characterized by drug and alcohol dependence.
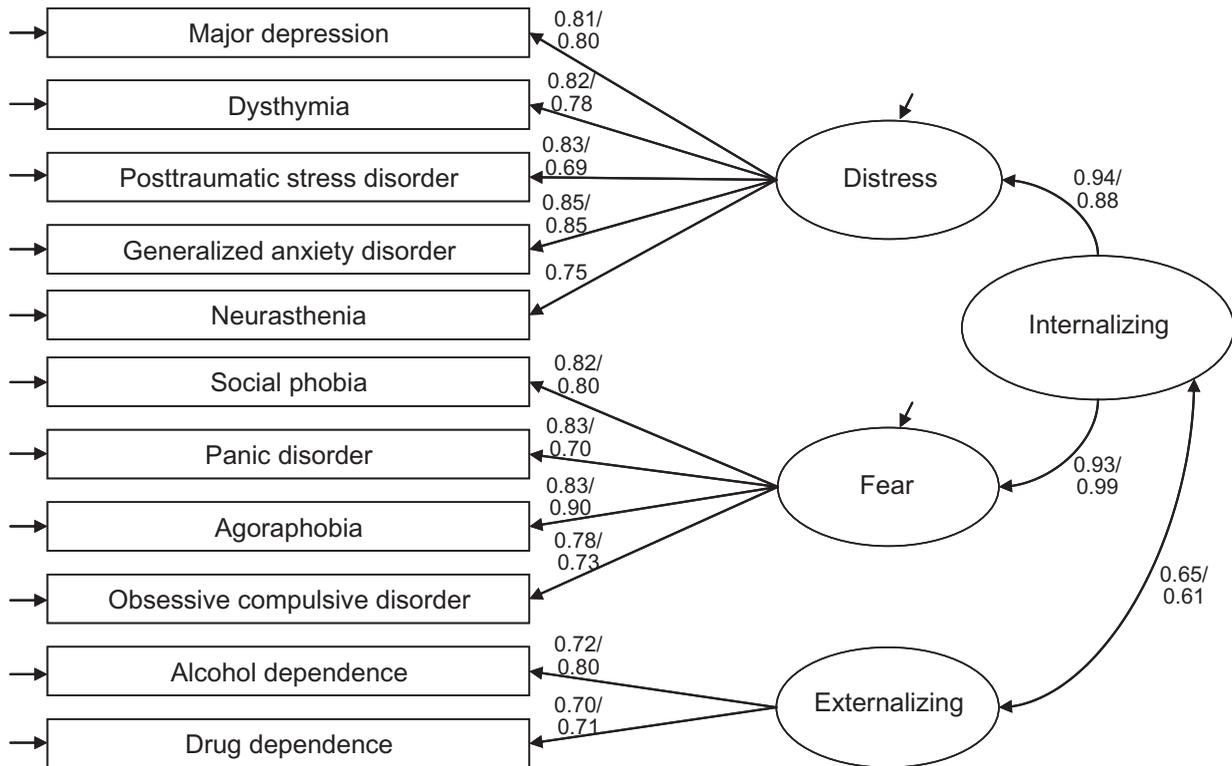
Figure 2. Best fitting model of the structure of 10 common DSM-IV and 11 common ICD-10 mental disorders from the Australian NSMHWB, 1997. All parameter estimates (DSM-IV/ICD-10) are standardized and significant at *p* < 0.05. Note: All parameter estimates, except for Neurasthenia, relate to DSM-IV/ICD-10. The single parameter estimate for Neurasthenia relates to ICD-10 only. Copyright Cambridge University Press. Slade and Watson, Psychol Med 2006; 36: 1593–1600, published with permission.

It has been supposed that as genetic and brain structure and functioning information became more precise it would support the existence of categories of mental disorders. This has not yet proved to be the case. The genetic underpinnings of depression are probably more related to the higher order dimensions of psychopathology demonstrated earlier than to the individual syndromes. The information from brain function and structure appears to be similar.

One dimension or many?
The diagnosis of MDE depends on a clinician identifying the number and severity of symptoms, their duration, abnormality, and the resulting distress and impairment. Most patients seek help because their symptoms have resulted in impairment and most clinicians make a diagnosis on the basis of the abnormal nature of the 5–9 symptoms that the patient describes. Are all these elements present in all cases? In data from

the Australian National Survey (Andrews et al., 2001) there were cases who met criteria for current MDE who reported being satisfied with life, or who were not distressed or disabled. In fact about 20% of people who were currently depressed report that they were delighted, pleased or mostly satisfied with life. Compared to the remainder of cases this minority was more likely to have only five symptoms, have a lower neuroticism score, report fewer comorbid conditions and lower levels of help seeking characteristics similar to those with subthreshold conditions (Table 2).

This is further evidence of the dimensional nature of MDE within a higher order of distress disorders. If remission in particular and prognosis in general depends on symptom severity then clinicians need an instrument to allow them to easily document the level of severity and the response to treatment. While the number of depressive symptoms are highly correlated with the measures of well-being, distress, disability and

Table 2. The responses of the 10 641 respondents to the Australian NSMHWB on a scale of well-being (Andrews and Withey, 1976) against the probability of having a current ICD-10 diagnosis of major depression and of being significantly disabled (SF-12), distressed (K10) or having a high neuroticism score (EPQ short form)

Delighted terrible scale (Andrews and Withey, 1976)	ICD-10 major depression Last 1-month N = 423 weighted % (SD)	SF-12 Mental scale score is greater than 1 SD below mean weighted % (SD)	K-10 (psychological distress score) > 20 (indicating likely to have mild, moderate or severe mental disorder) weighted % (SD)	EPQ-Neuroticism scale score > 1 SD from the mean score observed for NSMHWB respondents weighted % (SD)
1 (Delighted) N = 1102	0.8 (0.3) positive n = 10***	11.1 (1.1) positive n = 129	2.7 (0.5) positive n = 32	6.9 (0.9) positive n = 79
2 (Pleased) N = 3140	0.6 (0.1) positive n = 25	15.9 (0.8) positive n = 502	4.4 (0.4) positive n = 140	11.1 (0.5) positive n = 351
3 (Mostly satisfied) N = 3893	1.4 (0.2) positive n = 60	24.7 (0.7) positive n = 952	7.6 (0.6) positive n = 284	18.1 (0.7) positive n = 686
4 (Mixed) N = 1943	7.5 (0.6) positive n = 166	55.1 (1.0) positive n = 1077	27.7 (0.9) positive n = 532	40.5 (1.4) positive n = 795
5 (Mostly dissatisfied) N = 305	16.3 (2.5) positive n = 54	79.8 (2.8) positive n = 243	55.0 (3.4) positive n = 167	59.6 (4.0) positive n = 179
6 (Unhappy) N = 180	37.0 (3.9) positive n = 77	83.7 (3.4) positive n = 153	62.3 (4.1) positive n = 126	67.2 (4.1) positive n = 125
7 (Terrible) N = 78	42.0 (6.7) positive n = 31	90.4 (4.6) positive n = 70	75.3 (4.4) positive n = 59	75.9 (4.3) positive n = 60

Note: SD, standard deviation.

neuroticism mentioned earlier (and the four measures listed do inform about aspects of patient status that is not captured by the diagnosis alone), there are a number of people who meet criteria for mild MDE who express themselves as pleased with life, or not distressed, or not disabled, or not normally nervous. Clearly these measures are inappropriate as clinical indicators of the main dimensional nature of MDE. The Patient Health Questionnaire is derived from the diagnostic criteria and does not suffer from this limitation.

The PHQ-9
The nine-item Patient Health Questionnaire (PHQ-9) (see Appendix) is a patient self-report instrument that

parallels the symptom criteria for depressive disorders listed in DSM-IV. It is one option that could introduce some dimensionality into DSM-V without a radical alteration in the diagnostic criteria. The dimensionality is achieved because each symptom is extended to include four levels of severity based on the frequency of the symptoms over a 2 week period. The respondent is asked, 'Over the last two weeks, how often have you been bothered by any of the following problems?' and is given four choice options for each nine symptoms: 0 = not at all; 1 = for several days; 2 = more than half the days; 3 = nearly every day. The total score, which must be validated by a clinician, can therefore range between 0 and 27. Depression severity is judged from the total

score as follows: 0–4 None, 5–9 Mild, 10–14 Moderate, 15–19 Moderately severe, 20–27 Severe (www.pfizer.com/phq-9; Kroenke and Spitzer, 2002). Because of its brevity and sensitivity to change over time, the PHQ-9 can be used for screening new patients for depression as well as for routine use in evaluating outcome and response to treatment. There are longer and more detailed scales available, but the PHQ-9 is recommended as being simple, acceptable to patients, and practical for clinicians to use. It is, within the bounds set by self report, brief, reliable and valid (Kroenke et al., 2001).

Based on the PHQ-9 diagnostic instructions, a diagnosis of major depressive disorder can be achieved when at least one of the first two questions (feeling depressed, little pleasure) is endorsed for more than half the days or nearly everyday in the past 2 weeks together with four other symptoms endorsed at a similar range for intensity. Other depressive disorders may be considered if there are two to four symptom criteria endorsed for more than half the days or nearly everyday, one of which correspond to depressed feeling or loss of interest or pleasure. Item # 9, which concerns suicidal thoughts, counts as a positive if present at all, regardless of its duration (Kroenke and Spitzer, 2002).

In employing the PHQ-9 to introduce dimensionality into depression diagnoses, it is important to make note of potential sources for misclassification. For example, if neither of the questions on depressed feelings or loss of interest are endorsed, but the score on other symptom criteria add up to 10 or more, a diagnosis of depression can not be achieved. Similarly, if one symptom is endorsed at 'more than half the days' level and all other eight symptoms are endorsed at the 'several days' level (totaling to 10), an individual may not technically qualify for moderate severity of depression according to the PHQ-9 instructions, although presence of suicidal thoughts certainly need to be further probed. Therefore, in marginal cases, review by trained clinical staff is essential.

When used to assess treatment response, a drop of five points from baseline after 4–6 weeks of treatment qualifies as a clinically significant response whereas a drop of less than two points is considered inadequate and indicates the need for a review of treatment. An absolute PHQ-9 score of less than 10 is considered a partial response and a score of less than five qualifies as remission (Kroenke and Spitzer, 2002). Patients may complete the scale at home and telephone the results

to the clinic or bring in the completed form during each scheduled appointment.

The PHQ-9 does have limitations. It does not cover the symptoms associated with the complex forms of depression, nor with comorbid or mixed states. It is not yet validated in youth, nor is it available in very many languages. Its brevity as well as its dual use in making a diagnosis and assessing severity and improvement of depressive disorders are great advantages, but at a cost in terms of its sensitivity and comprehensiveness. Nevertheless, a combined assessment of depression diagnosis and severity can support clinicians in screening and identify probable cases, in focusing clinical attention or providing timely referral for severely depressed patients, and in providing care to less severely impaired patients who need treatment (Nease and Malouin, 2003).

In a study by Spitzer et al. (1999), 87% of primary care physicians rated the diagnostic information provided by the PHQ-9 as somewhat or very useful in management and treatment planning. The investigators found that 22% of patients with PHQ-9 diagnosis of major depression had follow-up visits, 10% were prescribed antidepressants, and 5% were referred to mental health professionals (Spitzer et al., 1999). In a recent study psychiatrists rated PHQ-9 score as helpful in their treatment decisions in 93% of contacts for patients with depressive disorders. In those instances, the overall PHQ-9 score or item review led to a treatment change for 40% of contacts (e.g. change in dose of antidepressant, adding other medications, starting or increasing psychotherapy, switching antidepressants, etc.), while in 60% of encounters with patients, the score affirmed the benefits of continuing a course of treatment (Katzelnick et al., 2006).

Implications of a dimensional approach
If the PHQ-9 was approved as part of DSM-V then there could be a number of consequences. Firstly we contend that the recognition and treatment of people with depression would improve. Secondly people would become alert to their depression levels and be able to actively participate in treatment. Thirdly, the seriousness with which the media and the general public view the concept of 'Major Depressive Disorder' (MDD) could be challenged. Depression is a normal affect and it is conceivable that many members of the general public who have been depressed believe they know all there is to know about depressive disorders. Some

symptoms of depression are tolerable and the general pubic would like to believe that mental illness is not a great issue. The publication of a self administered test could compound this situation because they will be able to complete the PHQ-9, and match symptoms that have been present to a mild degree with the symptoms required to meet criteria for MDD, and falsely claim that they know that depression is not usually that terrible. We therefore contend that the ancillary information offered in DSM-V should contain information about the epidemiology of MDE listed in at the beginning of this article.

There are other implications that stem from a dimensional (and open) approach to diagnosis. Clinicians use categories to facilitate brief and efficient communication with colleagues, and to organize treatment. They also use a dimensional approach for the same purpose, whether they are presenting a full formulation that identifies a patient's strengths and weaknesses, just identifying the severity, or noting the change in severity with treatment. The PHQ-9 will facilitate each of these steps. The idea that most disorders are dimensional may raise political questions. For example, funders currently use categories, but dimensions would be more applicable if payment was titrated to the degree of difficulty likely in treatment. Many Diagnostic Related Group classifications already have a primitive dimensional aspect related to treatment difficulty. Similarly, lawyers already use dimensions. Journalists will prefer categories for a brief news item but will understand the value of the dimensional approach for a longer opinion piece.

The introduction of measures like the PHQ-9 is a modest step towards dimensionality and will have several very positive advantages. Firstly, as was shown in the section on the PHQ-9, it facilitates treatment, both confirming the continuation of an effective treatment and stimulating the change to an alternative treatment when the first choice is not working. Other advantages are more theoretical. Dimensional data provides link to higher order dimensions that may be of considerable importance to the understanding of the pathogenesis, course and co-occurrence of emotional disorders (Brown et al., 1998). Dimensional data may also contribute to the precision of the diagnosis of depression and identify subtypes of individuals who require different treatment strategies. Using a broader dimensional assessment of mood spectrum, that includes DSM-IV criteria for mood disorders and asso-

ciated features, Cassano et al. (2004) found that in depressed patients without a history of hypomania according to the DSM-IV criteria, the occurrence of manic-hypomanic spectrum symptoms was associated with increased levels of suicidality and paranoid/delusional thoughts.

There is consensus that the distress disorders are associated with negative emotionality. The four disorders in the anxious-misery set, i.e. MDE, dysthymia, bipolar disorder and generalized anxiety disorder can be amenable to a dimensional approach. The PHQ-9, we suggest, will describe the dimension of MDE, dysthymia and the depressed phase of bipolar disorder, the Penn State Worry Questionnaire will describe generalized anxiety disorder, and the Altman Self-Rating Mania Scale (Altman et al., 1997) will describe the acute phase of bipolar disorder. There are self-report measures that would provide comparable information about the fear disorders and the substance use disorders, both generally and specifically, but they are beyond the scope of this article.

Conclusion

MDE refers to an agreed threshold on a dimension of a set number of symptoms. It is argued that the use of a matching scale like the PHQ-9 that establishes the presence and frequency of each individual symptom would facilitate recognition, guide treatment, and be acceptable to consumers, providers and funders.

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Appendix: The PHQ-9

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