



## **A MEASURE FOR ASSESSING DEPRESSION IN THE MEDICALLY ILL: THE DMI-10 AND THE DMI-18**

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### **Description of the measure**

The DMI-10 and DMI-18 measures were developed and refined in consultation with medically ill patients suffering from depression.

The original intention was to produce a measure of depression in the medically ill that would overcome confounding by symptoms of medical illness. This confusion occurs because many of the physiological symptoms of depression are similar to symptoms associated with medical illnesses such as cancer and heart disease. For example, sleep disturbance, appetite disturbance, and changes in weight may either be symptoms of the medical illness or symptoms of depressed mood. Thus, individuals who have a distinct medical illness might be fatigued and have poor sleep as a consequence of the illness, rather than as a consequence of depression, and yet have such features rated as 'depressive' which will inflate their score on depression inventories that include such items.

The DMI measure was therefore developed with the key objectives of deriving a short and valid screening measure for depression in the medically ill, with items independent of medical illness features. The initial study was reported by Parker, Hilton, Hadzi-Pavlovic, and Bains in 2001 [1] and a refined study was subsequently undertaken in 2002 [2], which identified the final set of eighteen items (the DMI-18) and a briefer 10-item version of the measure (the DMI-10).

The measure has been tested in a large sample of patients attending general practitioners, and its utility as a screening measure of state depression established [3]. In the development work, validation of the derived measures was undertaken by comparing scores against a structured interview computer-generated diagnosis of DSM-IV defined clinical depression (using the CIDI [4]) and by reference to an interviewing psychiatrist's judgment about whether the individual had clinical depression or not. Finally, the measure has been tested as a measure of depression 'caseness' in psychiatric out-patients, with impressive differentiation [5].

The conceptual approach underpinning the development of the measure was to only include 'cognitive-based' items which reflect the quintessential mood state of depression and to therefore exclude so-called 'somatic' (or physical) items. In development, items such as suicidal ideation were also deleted as some patients found inquiry into suicidal thinking as intrusive and, as we established that those

who did report suicidal ideation all scored above the cut-off score, this obviated the need to include such items. The final self-report measure takes little time to complete and is acceptable to both patients in general hospitals and those attending their general practitioner.

### **Scoring instructions**

Items are scored as follows:

Not true = 0

Slightly true = 1

Moderately true = 2

Very true = 3

The final score is the sum of all the items.

For the briefer version of the measure, the DMI-10, a score of 9 or more is suggestive of probable or definite depression. For the extended version, the DMI-18, a cut of 20 or more is indicative of probable or definite depression.

### **Populations measured**

The two development studies were conducted in 369 patients suffering from diverse medical illnesses. Most patients were hospitalized under the care of Cardiology, Respiratory Medicine, Gastroenterology, Nephrology, Haematology, Rheumatology and Endocrinology. A group of outpatients currently receiving radiation therapy were also included from the Radiation Oncology Department. The characteristics of the measure have also been examined more recently in a sample of more than 600 general practice attendees.

### **Reliability and Validity**

Internal consistency was high for the both the DMI-10 and DMI-18 with Cronbach's alpha's 0.89 and 0.93 respectively in medical inpatients [2]. The DMI-10 was also tested in a general practice setting where it returned a Cronbach's alpha of 0.92 [3].

Both scales had high convergent validity with two other depression scales compared in our samples, the BDI-PC (Beck Depression Inventory for Primary Care) and the HDS (the Hospital Anxiety and Depression Scale). The DMI-10 returned Spearman correlations of 0.80 with the BDI-PC and 0.70 with the HDS. The DMI-18 returned (Spearman) correlations of 0.78 with the BDI-PC) and 0.72 with the HDS.

The criterion related validity of the DMI was reflected in the high sensitivity and specificity estimates of the measure against two criteria: the clinical judgement of

a psychiatrist, and the computer-generated DSM-IV diagnosis from the CIDI interview. The DMI-10 for a cut off of  $\geq 9$  yielded sensitivity estimates of between 93.5-100% and specificity varied between 65.7-69.8%, while the DMI-18 for a cut-off of  $\geq 20$  yielded sensitivity estimates of 91.7-95.0%, while specificity varied between 68.1-72.4% [2].

### **Availability**

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### **References**

- [1] Parker G., Hilton T., Hadzi-Pavlovic D., Bains J. (2001). Screening for depression in the medically ill: the suggested utility of a cognitive-based approach. *Australian & New Zealand Journal of Psychiatry*, 35:474-480.
- [2] Parker G., Hilton T., Bains J., Hadzi-Pavlovic D. (2001). Cognitive-based measures screening for depression in the medically ill: the DMI-10 and DMI-18. *Acta Psychiatrica Scandinavica*, 2002, 105(6):419-426.
- [3] Parker G., Hilton T., Hadzi-Pavlovic D., Irvine, P. (2001) Clinical and personality correlates of a new measure of depression: a general practice study. *Australian & New Zealand Journal of Psychiatry*, 37(1): 104-9, 2003 Feb.
- [4] World Health Organization (WHO) Composite International Diagnostic Interview 2.1 CIDI Interview manual (1997).
- [5] Parker G., Gladstone G., (2004) Capacity of the DMI-10 depression in the medically ill screening measure to detect depression 'caseness' in psychiatric out-patients. *Psychiatry Research*, 127: 283-287.
- [5] Wilhelm K., Kotze B., Waterhouse M., Parker G., Hadzi-Pavlovic D. (2004) Screening for depression in the medically ill: A comparison of self-report measures, clinician judgement and DSM-IV diagnoses. *Psychosomatics*, 45: 461-469.

**DMI-10**  
**PATIENT SELF-REPORT QUESTIONNAIRE**

**Patient name**

**Age**

**Sex**

Please consider the following questions and rate how true each one is in relation to how you have been feeling **lately** (i.e. in the last two to three days) **compared to how you usually or normally feel**.

Tick ✓ the most relevant option

|                                                               | Not True                 | Slightly True            | Moderately True          | Very True                |
|---------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Are you stewing over things?                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Do you feel more vulnerable than usual?                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Are you being self-critical and hard on yourself?          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are you feeling guilty about things in your life?          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Do you find that nothing seems to be able to cheer you up? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Do you feel as if you have lost your core and essence?     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Are you feeling depressed?                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Do you feel less worthwhile?                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Do you feel hopeless or helpless?                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Do you feel more distant from other people?               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**DMI-18**

**PATIENT SELF-REPORT QUESTIONNAIRE**

**Patient name**

**Age**

**Sex**

Please consider the following questions and rate how true each one is in relation to how you have been feeling **lately** (i.e. in the last two to three days) **compared to how you usually or normally feel.**

Tick ✓ the most relevant option

|                                                                    | Not True                 | Slightly True            | Moderately True          | Very True                |
|--------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Are you stewing over things?                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Do you feel more vulnerable than usual?                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Do you feel more 'alone' than usual?                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Are you more tearful than usual?                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Do you find you don't enjoy doing the things you usually enjoy? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Do you feel gloomy about things?                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Have you been feeling bad about yourself?                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Do you feel more insecure than usual?                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Are you being self-critical and hard on yourself?               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Do you feel demoralized (i.e. disheartened)?                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Are you feeling guilty about things in your life?              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Do you feel as if you have lost your core and essence?         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Are you feeling depressed?                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Do you feel less worthwhile?                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Do you feel hopeless or helpless?                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Do you feel more distant from other people?                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Have you lost interest in your usual activities?               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Do you find that nothing seems to be able to cheer you up?     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |