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Research report

Development and psychometrics of the five item daily index in a psychiatric sample

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ABSTRACT

Background: Effective treatment of affective disorders requires the ability to reliably monitor patient progress and outcome. The current study aimed to establish the Daily Index-5 (DI-5) as a psychometrically sound and clinically valid measure of treatment response in psychiatric care for use as a companion measure with the WHO Wellbeing Index (WHO-5; Bech et al., 1996. Psychother. Psychosom. 65, 183–190.).
Method: Eight hundred and ninety four consecutive inpatients and day-patients at a psychiatric facility completed the DI-5, WHO-5, SF-36 (Ware et al., 1993. SF-36 Health Survey: Manual and Interpretation Guide. The Health Institute, New England Medical Centre, Boston, MA.) and DASS-21 (Lovibond and Lovibond, 1995b. Manual for the Depression Anxiety Stress Scales. Psychology Foundation, Sydney, Australia.; Ware et al., 1993. SF-36 Health Survey: Manual and Interpretation Guide. The Health Institute, New England Medical Centre, Boston, MA.) routinely during treatment.
Results: The DI-5 was shown to be a measure with high reliability and validity. In addition criteria for clinically significant recovery are presented with an example implementation of a Clinical Significance Monitoring system. Finally, the latent structure of the DI-5 is established as a uni-dimensional index of affective disorder.
Limitations: The results may be generalized to samples with primary diagnoses of depressive and/or anxiety disorders though assessment of the DI-5 as a measure of treatment response is warranted in patients with other primary diagnoses.
Conclusions: The current study indicates that the DI-5 is a quick to administer and interpret, reliable and valid measure for assessing patient outcome that is appropriate for use in monitoring patient change.

1. Introduction

For affective disorders, outcomes following both pharmacotherapy and psychotherapy are generally positive, but at the individual level they can vary from deterioration to recovery (Lambert and Ogles, 2004; Nathan and Gorman, 2007). Variability in outcomes suggests that monitoring clients during treatment may provide clinicians with additional information identifying when patients are not on track to achieve a satisfactory outcome. Monitoring client outcomes allows clinicians to tailor treatment where the expected response to treatment is likely to be poor (Newnham and Page, 2010; Smith et al., 1997). Consistent with this idea, when outcome monitoring is used to inform therapists of client progress during treatment, final treatment outcomes are improved (Lambert et al., 2003).

Currently one of the few validated measures for outcome monitoring for a day-hospital treatment setting (for example the Outcome Questionnaire-45, Doerfler et al., 2002) is the World Health Organisation's 5-item Wellbeing Index (WHO-5; Bech et al., 1996; Newnham et al., 2010a). Newnham et al. (2010b) found that when expected response to treatment with regards to wellbeing was delivered to therapists and patients in a day-hospital treatment setting, patients initially not on track for a positive treatment outcome demonstrated reduced scores on the depression subscale of the Depression Anxiety Stress Scales (DASS-21; Lovibond and Lovibond, 1995b) and rates of subsequent readmission were reduced (Byrne et al., 2012). One limitation to the study by Newnham and colleagues was that feedback was limited to well-being. Hence, they provided no specific information about changes in the core symptoms of affective distress. Given that affective disorders are not only characterized by decreases in well-being, but also by elevations in the depressive and anxious symptoms, there is a clear need for a companion measure to allow clinicians to monitor the progress of patients through treatment.

Thus, the goal in creating the Daily Index-5 (DI-5) was to develop a daily measure capable of monitoring patients' affective distress during treatment. Measures of affective psychological distress have been shown to capture additional variance to

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wellbeing measures (Massé et al., 1998; Matthews et al., 1996; Veit and Ware, 1983). Hence, the assessment of affective psychological distress and wellbeing is likely to provide clinicians with additional information relevant to patients' response to treatment.

One of the unique challenges that affective disorders present is the potential severity of the condition and the accompanying suicide risk. As a consequence, treatment may need to be provided intensively and using inpatient services. Hence, a measure is needed that not only can monitor affective symptoms, but it can do so in a way that suits inpatient services. To this end, it was necessary to consider (i) the construct to be measured and (ii) the optimal mode of assessment.

Considering the construct to be measured, it was apparent that despite important diagnostic differences, affective symptoms cluster together, as evidenced by the comorbidity between depressive and anxious disorders (Watson et al., 2005). Clark and Watson (1991) proposed that depression and anxiety share a common component of negative affect that indicates the extent to which an individual feels distressed or unpleasantly engaged in their daily life; a sense of high objective distress. This high objective distress is suggested to be composed of both anxious and depressed affect; feelings of inferiority and rejection; a sense of dissatisfaction with things and difficulty paying attention and making decisions (Watson et al., 1995). In addition the ability to assess suicidal ideation was included in the current study as an appropriate measure of extreme mental health difficulties, particularly extreme affective distress. Thus, these elements of depression, anxiety, worthlessness, not coping, and suicidal ideation comprise a dimension of negative affect that may comprise a companion measure with the WHO-5 wellbeing scale in a primarily depressed/anxious patient population.

Considering the mode of assessment, as the DI-5 was intended for use as a monitoring measure, it was necessary that the instrument was suitable for repeated administration. Administrative considerations involved client needs of brevity, ease of interpretation, and appropriateness for completion within a session (Brown et al., 1999). The desire for brevity and for breadth of assessment are often in conflict we decided that the most appropriate area of affective psychological distress for assessment was distress resulting from affective and neurotic as this represented the majority of primary psychiatric diagnoses of treatment seeking individuals in industrialised and developing countries (Sartorius and Harding, 1983). Finally, the requirement of ease of interpretation meant that the psychometric properties of the measure needed to reflect high validity and reliability, and demonstrate a clear factor structure.

These administrative considerations meant that a number of existing brief outcome measures despite their strengths were inappropriate. Commonly used affective psychological distress measures that failed to meet the previously highlighted considerations included the Outcome Rating Scale (Miller and Duncan, 2000), Brief Symptom Inventory (Derogatis and Melisaratos, 1983), Medical Outcomes Survey Short Form (Ware et al., 1993), Kessler Psychological Distress Scale (Kessler et al., 2002), Major Depression Inventory (Olsen et al., 2003), and the Patient Health Questionnaire 9 (Kroenke et al., 2001).

Adaptation of an existing measure to the treatment context should be the first consideration due to the number of existing outcome measures. As no existing outcome measure met all of the requirements for an affective psychological distress monitoring measure it was decided to generate a new measure that addressed the aforementioned requirements. Specifically (i) the length of the existing questionnaires; most need to be shortened to reduce administration time, (ii) some failed to assess suicidal thinking, and (iii) assessment context; most measures were designed with a weekly measurement time frame which is inappropriate for a day-hospital setting. All four commonly used brief measures assessing affective psychological distress were deemed inappropriate as they failed to meet these administrative and/or treatment setting requirements.

The primary objective of the current study was to construct a measure of affective psychological distress appropriate for use in daily monitoring of depressed and anxious psychiatric patients. To establish a new measure it was necessary to assess the psychometric properties and clinical utility of the DI-5 as an instrument for monitoring individual patient progress and outcome assessment within an acute predominantly depressed psychiatric sample. This objective will be achieved by establishing the reliability and internal consistency of the DI-5. The criterion and discriminant validity of the DI-5 will be established by demonstrating strong positive correlations between the DI-5 and measures of depression, anxiety, stress (Depression Anxiety Stress Scale DASS-21; Lovibond and Lovibond, 1995b) and general mental health (Medical Outcomes Questionnaire short form SF-36; Ware et al., 1993) with weaker positive correlations with the functioning subscales of the SF-36. In addition the DI-5 is expected to show a medium–large negative correlation with existing measures of wellbeing (Massé et al., 1998). The uni-dimensional nature of the DI-5 will be established using confirmatory factor analysis. Finally a set of criteria for defining recovery and an example implementation of using the DI-5 and the Jacobson and Truax (1991) clinical significance criteria for monitoring will be provided.

2. Method

2.1. Participants

Participants were 894 patients (66% female), with ages ranging from 17 to 82 years ($M=39.51$, $SD=13.44$) drawn from an Australian private psychiatric facility in an urban setting. The clinical sample was composed of both day-patients (70.5%) and inpatients (29.5%). Each patient was diagnosed by their treating psychiatrist according to the ICD-10-AM criteria (National Centre for Classification in Health Publications, 2002) and the majority of patients received primary diagnoses of affective disorders (63.5%) and neurotic disorders (28.5%), though a minority were diagnosed with substance abuse disorders (3.6%), and other including personality disorders (4.4%). Initial severity measured using DASS-21 norms (Ronk et al., 2013, June 3) placed the clinical sample in the upper range of outpatient norms for depression and stress (21.76 and 22.49, respectively, outpatient range 9.03–22.53 and 12.27–22.55) and in the lower range of inpatient scores for anxiety (15.74, inpatient cutoff 15.26). Data were collected as part of an ongoing program of evaluation at the clinic and written informed consent was obtained upon admission to the hospital. The study was conducted in accordance with the Declaration of Helsinki.

2.2. Materials

2.2.1. DI-5 daily index

A team of practicing mental health experts whose professions included Occupational Therapy, Clinical and Counseling Psychologist, Psychiatry and Mental Health Nursing generated the initial item pool for the DI-5. These experts were asked to generate items that best assessed patients' affective psychological distress (described as items likely reflect commonalities between depression and anxiety) and were likely to detect change over a short time period resulting in the generation of an item pool assessing depression (depression, hopelessness, worthlessness, suicidal ideation; though potentially invasive the phrasing of the suicidal ideation item (see Appendix A) was chosen as the questionnaire