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Research report

Rating scales in general practice depression: Psychometric analyses of the Clinical Interview for Depression and the Hamilton Rating Scale

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ABSTRACT

Background: Our objective was to investigate to what extent the Clinical Interview for Depression (CID) used in the general practice setting covers clinically valid subscales (depression, anxiety, and apathy) which can measure outcome of antidepressant therapy as well as identifying subsyndromes within major depressive disorder. The CID was compared to the Hamilton Depression Rating Scale (HAM-D₁₇). *Methods:* 146 patients from a previous study in general practice with the CID were investigated. The item

Methods: 146 patients from a previous study in general practice with the CID were investigated. The item response theory model established by Rasch was used to investigate the scalability (a scale's psychometric adequacy) of the subscales, and principal component analysis was used to identify subsyndromes with the symptoms of major depression according to DSM-5 or ICD-10.

Results: Whereas the HAM-D₁₇ was found not to have an acceptable scalability, the three brief CID subscales for depression (six items), anxiety (five items), and apathy (five items) all had an acceptable scalability. Within the major depressive symptoms, principal component analysis identified the CID items of hypersomnia, increased appetite or weight gain as defining the subsyndrome of atypical depression. In total 29 patients (approximately 20%) had an atypical depression.

Limitations: The samples were derived from a single study and were all rated by a single rater.

Conclusion: The CID contains subscales of depression, anxiety, and apathy with an acceptable scalability for use in general practice. A subsyndrome of atypical depression is also a useful identifier in the treatment of depressed patients in general practice.

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1. Introduction

When antidepressants became available 50 years ago, an increased diagnostic awareness of clinical depression emerged in the general practice setting in which most depressed patients were presented. In the UK, clinical research on the use of depression rating scales in general practice setting was carried out in the 1980s (Freeling et al., 1985; Paykel et al., 1988). In Denmark Lunn (1960), the most experienced Danish psychiatrist in this field, had expressed his concern in a talk held for general practitioners at the Copenhagen Medical Association about the difficulties in identifying patients with milder forms of depression and then evaluating whether antidepressant therapy should be prescribed. However no clinical research was initiated in Denmark.

The work by Sireling et al. (1985a, 1985b) is still the most comprehensive study of clinical depression in the general practice

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http://dx.doi.org/10.1016/j.jad.2014.09.013 0165-0327/© 2014 Elsevier B.V. All rights reserved. setting. Here the Hamilton Depression Scale (Hamilton, 1960) was combined with the Clinical Interview for Depression (CID), (Paykel, 1985). The full CID contains 36 items. Each item is defined. Items are rated on 7-point scales with specification of each anchor point based on severity, frequency, and/or quality. Although each point is specified for each item there is across all the scales a similar 7point continuum with the exception of one item, depressive delusions, which is rated on a 4-point scale of severity. The CID is set out as a semi-structured interview, with items to be rated in a specified order, and specified initial questions for each item which may be modified if circumstances necessitate. Further probing is required where a symptom is present. A few specified questions need not be asked if preceding information indicates that they are irrelevant. The order of the items is chosen to permit comfortable interviewing and items depending purely on observed behaviour are rated at the end. Examples of items from the scale are included in the Appendix. The scale has been used extensively in the USA, UK, and in Italy (Paykel, 1985; Guidi et al., 2011).

The CID has a wide range of items covering depression, anxiety and related symptoms. The 7 point scales include a range extending







from very mild to very severe. The use of the seven point scales with several milder rating points, and the more extensive item pool are an advantage over the Hamilton scale which makes the CID particularly suitable to the relatively milder and mixed pictures which may be seen in general practice, in contrast to psychiatric patients. Although psychometric analyses have been carried out in various samples (Paykel, 1985; Guidi et al., 2011) they have not so far been reported in general practice subjects.

The study by Sireling et al. (1985a, 1985b) also included the Research Diagnostic Criteria for Depression (RDC, Spitzer et al., 1978) and the Present State Examination (PSE, Wing et al., 1974). These include the very few depression items not contained in the CID and together capture all depressive symptoms used in the diagnosis of major depression according to DSM-5 or ICD-10 (Table 1).

In the present study we have carried out psychometric analyses of the data set from the study by Sireling et al. (1985a, 1985b) with focus on the CID. We used two major psychometric models, namely (A) the item response theory model established by Rasch (Bech, 2012) to evaluate the scalability (i.e. to define a hierarchical pattern of items based on both patient and item characteristics) of short clinical scales for measures of the severity of depression, anxiety and apathy, and (B) the principal component analysis established by Hotelling (Bech, 2012) to identify syndromes within the diagnosis of major depression according to DSM-5 and ICD-10, using the item domains in Table 1. More precisely, we attempted to answer the following research questions:

A1. When measuring depression severity the six-item subscale from the Hamilton scale (found in several studies to have an acceptable scalability in a Rasch analysis (Bech et al., 2014a) but not previously examined in a general practice setting) was tested parallel to a similar six-item subscale from the CID. The question is then whether these two depression subscales have an acceptable scalability in the general practice setting.

Table 1

The relationship between CID items supplemented with a few RDC or PSE items and DSM-5/ICD-10 major depression.

Specific CID items of depression		Major depression items		HAM-D items
CID ₂₁	CID ₁₀	DSM-5	ICD-10	
1 Feelings of depressed mood	+	+	+	+
6 Guilt	+	+	+	+
7 Pessimism and hopelessness	+			
8 Suicidal tendencies	+	+	+	+
9 Depersonalisation				
11 Work and interests	+	+	+	+
12 Energy and fatigue		+	+	+
18 Anorexia		+	+	+
19 Increased appetite		+	+	
20 Weight loss	+	+	+	+
21 Weight gain		+	+	
23 Initial insomnia		+	+	+
24 Middle insomnia		+	+	+
25 Delayed insomnia	+	+	+	+
26 Increased sleep		+	+	
27 Paranoid ideas				
28 Depressive delusions				
32 Hypochondriasis				+
34 Retardation	+	+	+	+
35 Agitation	+	+	+	+
36 Depressed appearance	+			
RDC Loss of interest		+	+	
RDC Indecisiveness		+	+	
RDC Concentration		+	+	
PSE Self-confidence			+	

- A2. Does the full HAM-D₁₇ (Hamilton, 1967) have an acceptable scalability in the general practice setting and do the longer CID depression scales (Table 1) have an acceptable scalability?
- A3. Do the anxiety-related items in the CID measure a dimension of anxiety severity in depressed patients in general practice?
- A4. Do the apathy-related CID items (Table 1) measure a dimension of apathy severity in depressed patients in general practice?
 - B When focusing on all the 15 items in the CID supplemented by additional items, as shown in Table 1 (in total 19 items), will a principal component analysis identify a general depression factor as the first principal component by positive loadings or will some items have negative loadings with which to identify a subsyndrome?

2. Methods

2.1. Subjects

The sample and data for the analysis are from the patients originally included in a study of depressed patients presenting in a general practice setting in London in 1981. The design and methods of this study have been described in earlier publications (Freeling et al., 1985; Sireling et al., 1985b). A combined interview was devised, incorporating the CID, the full HAM-D₁₇ and some items from the PSE and the RDC. For each similar item, a single set of stem questions was used, followed by detailed questioning if the item appeared to be present, to establish presence and severity for each scale.

The aim of the study was to identify three contrasting samples of depressed patients attending a wide range of general practices in South London. Methods and findings are described fully in the original papers (Freeling et al., 1985; Sireling et al., 1985a, 1985b). Samples were obtained to be representative of each type of subsample, but were not fully balanced across the subsamples. These included patients who appeared to the general practitioner to have depression (a) requiring treatment with an antidepressant (N=95), or (b) requiring other treatment or follow-up surveillance (N=48); (c) a separate sample of missed depressions was also studied, identified by screening on the General Health Questionnaire and subsequent interview to satisfy RDC criteria for major depression, probable or definite (N=24, (Freeling et al., 1985)). Subjects were then interviewed in their own homes by a psychiatrist (LS) using a number of rating scales, including the CID, the Hamilton scale, and the PSE, in a combined interview, together with a detailed history. A 23 year follow up study was published by Yiend et al. (2009) to report the long term course. However, only 37 of the original 167 patients could be located for this follow up study; therefore in the analyses to be reported here we have only focussed on the baseline data from 1981.

Out of the original 167 patients (Table 2) only 146 had a complete data set for both CID and HAM-D₁₇. However, no difference between these two groups of patients (Table 2) was seen as regards gender, age, major depression, or HAM-D₁₇ mean total score.

Table 2	
Sample	characteristics.

	Sireling et al. (1985a, 1985b) N=167	Present analysis N=146
Gender % females Age, mean (sd) RDC major depression	83 36.7 (12.0) 36	83 35.7 (11.7) 32
MAM-D ₁₇ mean total score	14.4	14.7

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