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Research report

A psychometric evaluation of the French Canadian version of the Hospital Anxiety and Depression Scale in a large primary care population

Pasquale Roberge [a,*], Isabelle Doré [b,c,d], Matthew Menear [b,c,d], Élise Chartrand [c], Antonio Ciampi [e], Arnaud Duhoux [b,c,d,f], Louise Fournier [b,c,d]

[a] Department of Family Medicine, Faculty of Medicine and Health Sciences, University of Sherbrooke, 3001, 12e ave Nord, Sherbrooke, QC, Canada J1H 5N4
[b] School of Public Health, University of Montreal, QC, Canada
[c] Institut national de santé publique du Québec, QC, Canada
[d] CRCHUM, University of Montreal, QC, Canada
[e] Department of Epidemiology and Biostatistics, McGill University, QC, Canada
[f] Faculty of Nursing, University of Montreal, QC, Canada

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ABSTRACT

Background: The aims of this study were to: (1) evaluate the psychometric properties of a French Canadian version of the Hospital Anxiety and Depression Scale (HADS-FC) in a large population of primary care patients in Quebec, Canada; (2) conduct a transcultural validation of the original HADS in a subsample of English-speaking patients; (3) explore HADS properties in subgroups with or without multimorbidity.

Methods: A sample of 14,833 adults recruited in 64 primary care clinics completed the HADS, including 3,382 patients at elevated risk of mental disorders that also completed the Composite International Diagnostic Interview-Simplified (CIDIS). The HADS' internal consistency and discriminant validity were assessed, its factor structure was evaluated, and receiver operating characteristic (ROC) analyses were undertaken to evaluate its case finding abilities.

Results: The HADS-FC had good reliability (Cronbach's alphas ranging from 0.79 to 0.89 depending on language version and subscales) and discriminant validity, and a two-factor structure reflecting anxiety and depression factors. Results were similar in patient subgroups with or without multimorbidity. Optimal cut-off values were calculated: HADS: ≥ 16 (sensitivity 62%, specificity 77%), HADS-A: ≥ 10 (sensitivity 66%, specificity 73%) and HADS-D: ≥ 7 (sensitivity 65%, specificity 75%).

Limitations: Our cohort selection process and use of the CIDIS as a gold standard may have contributed to the limited case-finding performance of the HADS-FC.

Conclusions: The HADS-FC and English HADS presented good psychometric properties in primary care patients, including patients with and without multimorbidity. However, its performance as a screening instrument in these settings with patients of varying clinical profiles requires more scrutiny.

1. Background

Anxiety and depressive disorders are the most prevalent mental disorders in the general population and are also highly prevalent in primary care settings (World Health Organization and World Organization of Family Doctors, 2008). Unmet needs for treatment among individuals with anxiety and depressive disorders have been documented in many countries and, among those initiating treatment, minimal standards of treatment adequacy range from low to moderate in most studies (Wang et al., 2007, 2005; Roberge et al., 2011; Duhoux et al., 2009, 2012). Self-report rating scales can be useful tools for identifying potential cases of anxiety and depression in primary care settings.

The Hospital Anxiety and Depression Scale (HADS) is among the most widely used brief screening instruments available for these disorders (Bjelland et al., 2002). The instrument discriminates between anxiety and depressive disorders with two distinct 7-item subscales (HADS-A and HADS-D). One of the HADS' distinguishing features is that it purposely excludes items related to the somatic symptoms of anxiety or depression that could be related to physical illness (e.g., insomnia, fatigue, etc.). The scale was designed this way to be useful in general hospital or outpatient

* Corresponding author Tel.: +1 819 820 6868 × 13814; fax: +1 819 564 5386.
E-mail address: pasquale.roberge@usherbrooke.ca (P. Roberge).

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clinical settings where patients often present with multiple physical complaints or conditions that may co-exist with emotional disorders (Zigmond and Snaith, 1983; Snaith, 2003). The HADS can be completed by patients in approximately five minutes and does not require specific training for scoring or interpretation (Snaith, 2003). These latter characteristics make the HADS a practical option for providers wishing to quickly screen for anxiety or depression in primary care settings.

Numerous studies have demonstrated the good psychometric properties of the HADS in various settings and populations, including primary care patients and patients with chronic conditions (Bjelland et al., 2002). The scale presents good acceptability, reliability, and convergent and discriminant validity (Hermann, 1997; Bjelland et al., 2002), though considerable debate has surrounded the underlying factor structure of the HADS, with different authors proposing one, two, three and even four-factor structures (Bjelland et al., 2002; Cosco et al., 2012; Hermann, 1997). The scale has also been touted by some authors as a useful case-finding instrument (Bjelland et al., 2002; Brennan et al., 2010), with the cut-off point of ≥ 8 offered as the optimal value for caseness for both subscales (Bjelland et al., 2002). In primary care settings, these same cut-off points were confirmed by some authors (Wilkinson and Barczak, 1988; Olsson et al., 2005, Lowe et al., 2004) but not by others (Lam et al., 1995; El-Rufaie and Absood, 1995; Bunevicius et al., 2007; Terluin et al., 2009). Recently, it has been suggested that the diagnostic accuracy and other properties of the HADS be explored in larger samples of primary care patient with various profiles, including high-risk groups such as individuals with chronic diseases (Terluin et al., 2009; Hansson et al., 2009).

In the present study, we aimed to validate a French Canadian adaptation of the HADS (HADS-FC) in a large sample of primary care patients in the majority French-speaking province of Quebec, Canada. French versions of the HADS have been assessed in a range of patient populations and settings (Lepine et al., 1985; Razavi et al., 1989; Savard et al., 1998; Friedman et al., 2001; Untas et al., 2009), though most of these studies have been carried out in France. To our knowledge, a single study (Savard et al., 1998) has assessed the psychometric properties of a French Canadian version of the HADS with HIV-infected patients consulting primarily a specialized medical clinic. A second aim of our study was to explore the transcultural validation of the original scale with a minority group of English-speaking primary care patients. Finally, given that many primary care patients present with multiple chronic diseases (Fortin et al., 2012), we also sought to explore the psychometric properties of the HADS in patient subgroups with and without multimorbidity, i.e., patients with two or more chronic conditions (van den Akker et al., 1998).

2. Methods

2.1. Study population

The data were collected from a sample of adults consulting in primary care clinics participating in the project "Dialogue". Dialogue was a four-year research program (2006–2010) that examined the contextual and organizational factors influencing the quality of mental health services delivered in primary care settings across the province of Quebec (Duhoux et al., 2012). The project included a cohort of individuals with anxiety and depressive symptoms recruited in the waiting rooms of 64 medical clinics (T0) between March and August 2008 and subsequently followed for 12 months. The tracking process involved three telephone/web interviews conducted at six-month intervals (T1, T2 and T3). Data for the current study were drawn only from the waiting room screening questionnaire (T0) and the first telephone/web interview (T1).

Patients were recruited in various types of primary care clinics. Of the 64 participating clinics, 18 were local community service centers, 13 were family medicine groups, 9 were large general practice clinics (6 or more general practitioners—GPs), 14 were small general practice clinics (2 to 5 GPs) and 10 were "solo" medical clinics (one GP). Participants were invited to complete a screening questionnaire by an interviewer in the waiting room if they met the following inclusion criteria: (1) age 18 years or older; (2) consulting a GP for themselves; (3) able to complete a questionnaire in French or English. From the 33,528 patients approached in the medical clinics, 14,833 patients (44.2%) met the inclusion criteria and completed a questionnaire while waiting for their appointment with their GP. Participants were invited to take part in the cohort study if they met the following inclusion criteria: (1) usual care source was a clinic participating in the study AND (2) elevated anxiety and/or depressive symptoms (HADS-A and/or HADS-D ≥ 8); OR (3) anxiety and/or depression medication; OR (4) depressive and/or anxiety disorders diagnosis made by a healthcare professional; OR (5) consultation for mental health problems in the past 12 months. Among the 4,506 participants eligible for the follow up, 3,382 (70.8%) participants completed the T1 interview. The recruitment flowchart is presented in Fig. 1.

2.2. Study instruments

The HADS was a key component of the waiting room screening questionnaire (T0). The HADS comprises 14 items; seven items measure symptoms of anxiety (HADS-A) and seven items measure symptoms of depression (HADS-D). Each item is scored on a four-point scale (0 to 3), with the total score ranging from 0 to 21 for each subscale. A higher score indicates greater distress and a higher probability of presenting an anxiety or depressive disorder. The scale uses the previous seven days as a reference period. The French version adopted for this study was the version adapted by Savard et al. (1998). The total scores for the HADS and both subscales were calculated according to the original authors' instructions.

The T0 screening questionnaire also included general questions about overall health and medical consultations, the *World Health Organization Disability Assessment Schedule II* (WHODAS-II) (World Health Organization, 2006), a list of 17 common chronic physical health conditions, questions on healthcare visits for emotional problems, mental health or use of alcohol or drugs, questions on anxiety and depression medication, and socio-demographic variables.

The cohort telephone/web interview (T1) was composed of 6 sections: (1) a brief, structured psychiatric interview for lay interviewers that indicated the extent to which symptoms met the DSM-IV diagnostic criteria, i.e., the *Composite International Diagnostic Interview—Simplified* (CIDIS) (Kovess et al., 2001) for major depression, generalized anxiety disorder, social phobia, panic disorder and agoraphobia; (2) experience of care; (3) mental health services utilization; (4) the *Perceived Needs for Care Questionnaire* (Meadows et al., 2000); (5) medication use for anxiety or depressive symptoms; (6) socio-demographic data.

2.3. Study procedure

Potential respondents visiting the clinic for a consultation with a GP were approached by a lay-interviewer who quickly explained the study aims and verified whether the patient met eligibility criteria. Eligible, consenting patients completed the self-administered screening questionnaire (T0) in the language