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Screening for depressive symptoms in patients with chronic spinal pain using the SF-36 Health Survey

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Abstract

BACKGROUND DATA: Depression is a common co-morbidity for patients with complaints of spinal pain, yet often goes undiagnosed in clinical practice. Depressed patients who are not identified do not receive a referral or recommendation for treatments that may help ease their total illness burden. Relative to the total outcomes of spine care this may increase costs, decrease overall functional outcomes, and limit patient satisfaction. Some spine care settings track functional outcomes using a general health status survey. Although a specific and reliable survey to detect depression could be employed, an additional survey would unnecessarily increase responder and analyst burdens if the general health status survey could be used instead.

OBJECTIVE: To identify the Mental Component Summary (MCS) cutoff score from the Short Form 36-item Health Survey (SF-36) that best predicts a positive depression score as measured by the Center for Epidemiological Study–Depression Survey (CES-D).

STUDY DESIGN: An analysis of the diagnostic properties of the SF-36 MCS Scale as a predictor of depressive symptoms as measured by the CES-D.

OUTCOME MEASURES: The SF-36 is a general health survey that contains a MCS score that represents the psychological well-being and general health perception of the respondent. This composite score is norm-based (mean=50, SD=10) with lower scores representing poorer health. The CES-D has been well-studied in patients with chronic pain complaints and was used as the gold standard for determining the MCS cutoff score. A CES-D score of 19 or greater was considered positive for depressive symptoms.

PATIENT SAMPLE: All patients entering our facility routinely complete the SF-36. Between February 2002 and October 2002, all patients scoring 30 or less on the MCS (MCS≤30) also completed the CES-D. Patients who scored 2 standard deviations below the mean (MCS=30 or less) were considered most at risk for depression. Patients scoring above 30 on their MCS (MCS>30) were considered less likely to have depressive symptoms and were randomly chosen to complete the CES-D. There were 420 patients who completed both surveys of which there were 99 MCS≤30 patients and 321 MCS>30 patients.

METHODS: Receiver operating characteristic (ROC) curves were used to assess the sensitivity and specificity of the SF-36 as a screening tool for detecting depressive symptoms.

RESULTS: An MCS score of 35 has a sensitivity of 80% (76–83; 95% confidence interval), a specificity of 90% (87–93), an ROC area of 0.8517 (0.81–0.89), and correctly identified 87% of the sample.

FDA device/drug status: not applicable.

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CONCLUSION: The SF-36 provides the benefits of a general functional health status measure and additionally appears to provide a screening tool for depressive symptoms. A cutoff score of 35 or less on the MCS scale has a high degree of sensitivity and specificity and is able to identify depressive symptoms in patients with back pain, which can help identify patients who will benefit from mental health treatments.

Keywords: National Spine Network; SF-36; CES-D; Depression; Back pain; Mental health

Introduction

Low back pain/sciatica and depression are prevalent in Western culture, and both conditions can commonly coexist in a patient. Previous authors have reported that 49% of patients with low back pain/sciatica report depression as a co-morbidity whereas 46% of patients with depression reported co-morbid low back pain/sciatica [1]. However, depressive symptoms are difficult to detect and often missed, even in patients well known to their health-care providers [2].

Utilization of depression-specific surveys has been recommended in primary care medical settings to help identify a possible depressed individual. Several surveys are available and effective, but their use in spine specialty clinics where general health surveys and spine-specific surveys are already administered would further increase the burden of taking, scoring, and analyzing an additional survey. In a practice considering the use of surveys, the use of a general health survey, with its ability to measure outcomes in multiple domains, is considered a necessity. The use of additional condition-specific surveys for each condition of interest can be redundant and tedious for patients, administrators, analysts, and clinicians. Therefore, it is desirous to use measures already obtained from patients as effectively and efficiently as possible.

Insufficient detection and lack of appropriate treatment for the psychosocial manifestations of chronic illnesses may lead to worse patient outcomes, clinician frustration, as well as increased health-care utilization and costs [3–16]. This is unfortunate and unacceptable when there is considerable evidence that psychological treatments, particularly behavioral oriented interventions, can aid the recovery of patients with symptoms of depression and chronic pain [5,8,9,11–13,15,17–30].

Our objective is to identify a cutoff score from the Mental Component Summary (MCS) scale of the Short Form 36-item general health survey (SF-36) that adequately predicts a positive depression score as measured by the Center for Epidemiological Study–Depression (CES-D) scale.

Methods

The Spine Center at Dartmouth-Hitchcock Medical Center

The Spine Center is a multidisciplinary ambulatory center specializing in the treatment of patients with complex spinal complaints. The center provides surgical and nonsurgical treatment for patients with acute, subacute, and chronic pain of spinal origin and was designed to integrate outcome data collection into daily clinical practice.

The Spine Center utilizes an outcomes survey specifically for spine patients—the National Spine Network Health Status Survey—which contains both a general health survey, the SF-36, and a disease-specific patient survey, the Oswestry Disability Index as part of the registration process. A summary report is available for the provider–patient interaction.

Study cohort

All patients entering our facility routinely complete the SF-36. Between February 2002 and October 2002, all patients scoring ≤30 on the MCS also completed the CES-D. Patients scoring above MCS 30 were randomly chosen to complete the CES-D. A total of 420 patients completed both surveys—99 patients with MCS scores ≤30 and 321 patients with MCS score >30. Thus, the sample of patients scoring MCS>30 was larger to ensure enough statistical power to detect the best cutoff score if that score was greater than 30.

The SF-36

The ''Short Form 36'' Health Survey is a 36-item general health instrument that measures eight domains of health [1]. Multi-item scales have been developed to represent aspects of the following eight physical and mental health domains: Physical Functioning (PF), Role-Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role-Emotional (RE), and Mental Health (MH). Each scale is a weighted combination of between 2 and 10 items, and is scored as a 0 to 100 percentage score with 0 representing severe pain or disability and 100 representing no pain or disability. Scoring of the eight scales only occurs if the patient has responded to at least half of the relevant items [1].

In addition to the eight scales, the SF-36 authors developed two summary scales that provide a more concise measure of overall physical and mental health [1]. The Physical Component Summary (PCS) and Mental Component Summary (MCS) are linear combinations of all eight of the original scales, with the PCS heavily weighting physical measures and the MCS heavily weighting mental health measures. The PCS and MCS summary scales are based on an orthogonal weighting of the eight scales and are therefore not correlated with each other. The summary