Original Article

A Single Set of Numerical Cutpoints to Define Moderate and Severe Symptoms for the Edmonton Symptom Assessment System

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Abstract

Symptom intensity in cancer and palliative care patients is frequently assessed using a 0–10 ranking score. Results are then often grouped into verbal categories (mild, moderate, or severe) to guide therapy. Numerical cutpoints separating these categories are often variable, with previous work suggesting different cutpoints across different symptoms, which is unwieldy for clinical use. The Edmonton Symptom Assessment Symptom (ESAS) assesses nine common symptoms using this 0–10 scale. The primary aim of this study was to examine the relationship between the numerical and verbal scores using the ESAS and to identify a single cutpoint to separate severe from nonsevere symptomatology. A second goal was to similarly identify a cutpoint to separate moderate or severe from none or mild symptom intensity. Consenting patients (n = *400) completed both a standard ESAS and an identical form that replaced 0–10 with none, mild, moderate, and severe. Receiver operating characteristic curves were generated to identify the best fit between sensitivity and specificity. For the "severe" ranking, six symptoms had a best fit of 7, with sensitivity for the remaining three symptoms still greater than 80%. For the combined grouping of moderate or severe, results were less uniform. A cutpoint of either 4 or 5 would be supported by our data, with a greater sensitivity using 4 and improved specificity using 5 as the cutpoint. Across all ESAS symptoms, then, 7 or higher represents a severe symptom by patient definition, whereas a cutpoint of either 4 or 5 could reasonably define combined moderate and severe symptoms.* J Pain Symptom Manage 2010;39:241–249.

Key Words

ESAS, symptom intensity, palliative care, cutpoints

Introduction

Palliative care and cancer patients experience a wide array of disease- and treatment-related symptoms throughout the course of their illness, resulting in an ongoing need to improve both identification of these

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Accepted for publication: July 13, 2009.

0885-3924/10/$–see front matter
doi:10.1016/j.jpainsymman.2009.06.010

symptoms and communication about them. Symptom assessment tools have been developed to help identify burdensome symptoms and to assess the success of their management. These tools vary in clinical focus from comprehensive symptom and functional assessments to in-depth analyses of single symptoms.[1] One tool devised and validated for rapid symptom identification and monitoring with minimal patient burden is the Edmonton Symptom Assessment System (ESAS).[2,3]

The ESAS is a patient-rated numerical scale consisting of 10 symptoms (pain, fatigue, nausea, depression, anxiety, drowsiness, appetite, sense of well-being, shortness of breath, and "other" symptom) evaluated on an 11-point scale (0 = no symptom and 10 = worst possible symptom). It has been used predominately in cancer and palliative care, although it also has been validated in dialysis patients and in intensive care settings.[4–7] Patients rate the severity of each symptom at the time of assessment by circling the appropriate number. Interpretation of the number circled can be challenging though, as little is known about what meaning patients attach to any particular numerical rating. Previous published studies have looked at establishing numerical cutpoints to divide the 11-point scale into groupings of mild, moderate, and severe symptoms, both to guide the urgency of therapy and to simplify communication about symptoms.[8] Specifically, cutpoints have been proposed for pain, fatigue, depression, anxiety, and anorexia,[9–15] but there is little uniformity in these recommendations, with definitions of moderate or clinically important symptom intensity, for example, ranging from 2[11] to 7.[15]

From a clinical perspective, having a series of different critical cutpoints for different symptoms is unwieldy and unlikely to be of clinical utility. To our knowledge, there are no published studies examining cutpoints across all ESAS symptoms, and the current study was designed in an effort to find a single set of patient-defined cutpoints that would reliably identify first, severe level symptoms, and second, the combined grouping of moderate or severe intensity symptoms.

Methods

Sample and Settings

This prospective longitudinal design recruited 400 patients from the Palliative Care Clinic and the Rapid Response Radiotherapy Program in the Odette Cancer Centre and inpatient referrals to the Palliative Care Consult Team at Sunnybrook Health Sciences Centre between September 2006 and June 2008. Participants were older than 18 years, were able to speak English, and provided informed consent. This study was approved by the Research Ethics Board at Sunnybrook Health Sciences Centre.

Instruments and Procedures

After providing informed written consent, participants were asked to rate their symptom distress using the ESAS by circling the appropriate number for each symptom. They then scored each ESAS item again on a new page, using a verbal scale with options of none, mild, moderate, or severe. Physicians or research assistants rated participants' functional status using the second version of the Palliative Performance Scale (PPS) (Appendix) and collected demographic information.

Data Analysis

Patients' demographic and disease data were assessed using descriptive statistics and frequency distributions. Sensitivity and specificity were calculated for symptoms ranked severe and for the combined group of symptoms ranked moderate or severe for each ESAS symptom. Receiver operating characteristic (ROC) curves were used to identify optimum cutpoints.

Results

Demographics

A total of 770 patients were screened, with 166 deemed ineligible because of impaired cognition or decreased level of consciousness and 137 ineligible because of language barriers. Of the 467 patients approached about participation, 67 declined, leaving 400 who completed the study. The median age of participants was 60 years (range 22–95), and 58.5% were female. The median PPS was 70