Validation of the Edmonton Symptom Assessment Scale

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BACKGROUND. The Edmonton Symptom Assessment Scale (ESAS) is a nine-item patient-rated symptom visual analogue scale developed for use in assessing the symptoms of patients receiving palliative care. The purpose of this study was to validate the ESAS in a different population of patients.

METHODS. In this prospective study, 240 patients with a diagnosis of cancer completed the ESAS, the Memorial Symptom Assessment Scale (MSAS), and the Functional Assessment Cancer Therapy (FACT) survey, and also had their Karnofsky performance status (KPS) assessed. An additional 42 patients participated in a test-retest study.

RESULTS. The ESAS “distress” score correlated most closely with physical symptom subscales in the FACT and the MSAS and with KPS. The ESAS individual item and summary scores showed good internal consistency and correlated appropriately with corresponding measures from the FACT and MSAS instruments. Individual items between the instruments correlated well. Pain ratings in the ESAS, MSAS, and FACT correlated best with the “worst-pain” item of the Brief Pain Inventory (BPI). Test-retest evaluation showed very good correlation at 2 days and a somewhat smaller but significant correlation at 1 week. A 30-mm visual analogue scale cutoff point did not uniformly distinguish severity of symptoms for different symptoms.

CONCLUSIONS. For this population, the ESAS was a valid instrument; test-retest validity was better at 2 days than at 1 week. The ESAS “distress” score tends to reflect physical well-being. The use of a 30-mm cutoff point on visual analogue scales to identify severe symptoms may not always apply to symptoms other than pain. Cancer 2000;88:2164–71. © 2000 American Cancer Society.

KEYWORDS: quality of life, veterans, pain, dyspnea, anxiety, symptoms, neoplasm, Edmonton Symptom Assessment Scale, visual analogue score, distress.
PATIENTS AND MATERIALS

Starting on May 9, 1994, 100 consecutive outpatients examined at the Medical Oncology clinic and 140 consecutive patients admitted to our inpatient service were asked to complete the ESAS. Patients also completed a multidimensional symptom assessment instrument, the MSAS, a multidimensional quality of life instrument, the FACT-General (FACT-G), version 3, and if they had pain, the Brief Pain Inventory Short Form (BPI). Patients who were enrolled as outpatients were excluded from participation as inpatients and vice versa. Outpatient accrual of 100 patients was reached on July 12, 1994; inpatient accrual of 140 patients was completed in December 1995. Thirteen new inpatient admissions did not participate because of fatigue (3), schizophrenia/dementia (4), inability to answer questions (3), or refusal to participate (3). This study was approved by the Veterans Administration (VA) New Jersey Health Care System Institutional Review Board, and all patients gave informed consent before participating.

Test-retest data were collected separately in early 1997. This study also was approved by the VA Institutional Review Board, and patients provided signed informed consent before participating. Patients completed the ESAS, a single-item visual analogue scale (VAS) quality of life (QOL), and had a Karnofsky performance status (KPS) rating. In the spring of 1997, a convenience sample of 23 patients participated in a 1-day test-retest, and 19 patients participated in a 1-week test-retest of the ESAS during a 1-month period. An additional six patients who completed the initial evaluation were unable to complete the retest for various reasons (discharged from the hospital, did not want to do the retest).

In the ESAS, patients rate the severity of the following nine symptoms: pain, activity, nausea, depression, anxiety, drowsiness, lack of appetite, well-being, and shortness of breath on a 10-cm line. There is an optional tenth symptom, which can be added by the patient. The sum of patient responses to these nine symptoms, in millimeters, is the ESAS distress score.

The MSAS asks patients to rate the frequency, severity, and distress associated with 32 highly prevalent symptoms for cancer patients during the previous 7 days. The scoring of the MSAS yields several validated subscale scores. A 10-item MSAS Global Distress Index (MSAS-GDI) is intended to be a measure of overall symptom distress. The GDI is the average of the frequency of four prevalent psychologic symptoms (feeling sad, worrying, feeling irritable, and feeling nervous) and the distress associated with six prevalent physical symptoms (lack of appetite, lack of energy, pain, feeling drowsy, constipation, dry mouth). The Physical Symptom Subscale score (MSAS-PHYS) is the average of the frequency, severity, and distress associated with 12 prevalent physical symptoms: lack of appetite, lack of energy, pain, feeling drowsy, constipation, dry mouth, nausea, vomiting, change in taste, weight loss, feeling bloated, and dizziness. MSAS-PSYCH is the average of the frequency, severity, and distress associated with six prevalent psychologic symptoms: worrying, feeling sad, feeling nervous, difficulty sleeping, feeling irritable, and difficulty concentrating. The Total MSAS score (TMSAS) is the average of the symptom scores of all 32 symptoms in the MSAS instrument. Each symptom score is an average of the symptom scores of all 32 symptoms in the MSAS instrument. Each symptom score is an average of its dimensions.

The FACT-G (version 3) is a validated 28-item general patient-rated measure of QOL for cancer patients with any tumor type. Each item is scored from 0 to 4 anchored from “not at all” to “very much”.

The KPS is an 11-point rating scale ranging from 0 to 100 (0 = dead, 100 = normal function) widely used to assess patients’ functional level.

STATISTICAL ANALYSIS

Summary statistics were obtained for each of the symptoms and for distress. Cronbach alpha correlation coefficients were calculated with the STATA program. Spearman or Kendall correlation coefficients were calculated between corresponding items on different instruments. The Wilcoxon rank sum test was used to compare median values for ESAS variables for outpatients and inpatients, and the chi-square test was used to compare prevalence of symptoms for inpatients and outpatients. Test-retest correlation coefficients and P values were assessed with Spearman correlation test.

For four of the most prevalent symptoms in the ESAS (pain, shortness of breath, anxiety, and drowsiness), the ESAS VAS ratings were cross-classified against
categoric patient ratings in the MSAS for symptom severity and distress by using box plots. The ESAS items for pain, shortness of breath, and drowsiness were compared with ratings for identical items in the MSAS. For the ESAS item “anxious,” the MSAS item “feeling nervous” was selected as a substitute variable.

RESULTS

Two hundred forty patients participated in the first study. Of these, 233 patients completed the ESAS. Demographics are presented in Table 1. Of the seven patients who did not complete the ESAS, one was blind, one had a broken arm, and two patients had poor performance status, and no data are available on the other three. Two hundred thirty-one patients completed both the MSAS and ESAS, and 232 patients completed both the FACT and the ESAS. Demographics for the test-retest patients also are presented in Table 1. Twenty-three patients (12 outpatients with a median KPS of 80%, and 11 inpatients with a median KPS of 60%) participated in a 1-day test-retest. Nineteen other patients (10 outpatients with a median KPS of 85%, and 9 inpatients with a median KPS of 70%) participated in a 1-week test-retest of the ESAS. Of the latter 19 patients, 4 patients were retested at 6 days and 6 patients were retested at 8 days depending upon circumstances.

Symptom prevalence by inpatient and outpatient status for ESAS items is presented in Table 2A, and summary scores for the ESAS items are summarized in Table 2B. Symptom prevalence is presented in Table 3 for symptoms common to the MSAS, ESAS, and the FACT-G. Symptom prevalence tends to be higher for the ESAS instrument than reported for the MSAS and FACT-G. Edmonton Symptom Assessment Scale summary scores for inpatients and outpatients were compared with the Wilcoxon rank sum test. The overall Cronbach alpha for the ESAS instrument in our population was 0.79.

Edmonton Symptom Assessment Scale distress scores were related to inpatient–outpatient status, and to the KPS. Differences in prevalence were examined with the chi-square test. Specific differences were noted.

TABLE 1
Demographics of Study Population

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Inpatient</th>
<th>Outpatient</th>
<th>Test-retest (1 day)</th>
<th>Test-retest (1 week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of patients</td>
<td>233</td>
<td>133</td>
<td>100</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>225</td>
<td>127</td>
<td>98</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Median age (yrs) (range)</td>
<td>69 (59–73)</td>
<td>65 (58–72)</td>
<td>69 (62–74)</td>
<td>64 (52–73)</td>
<td>66 (54–78)</td>
</tr>
<tr>
<td>Tumor type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head and neck</td>
<td>11</td>
<td>10</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Lung</td>
<td>51</td>
<td>41</td>
<td>10</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>GI</td>
<td>31</td>
<td>26</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>GU</td>
<td>88</td>
<td>33</td>
<td>55</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Hematologic</td>
<td>39</td>
<td>13</td>
<td>26</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>13</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Median KPS (range)</td>
<td>80 (70–90)</td>
<td>80 (60–80)</td>
<td>80 (80–90)</td>
<td>80 (60–90)</td>
<td>80 (60–90)</td>
</tr>
</tbody>
</table>

KPS: Karnofsky performance status; PNET: primitive neuroectodermal tumor.

*For age and KPS, median value followed by the interquartile range is reported.

A number of patients had more than one primary cancer site. Miscellaneous for inpatients: carcinoid: 1; cervix: 1; meningioma: 1; PNET: 1, sarcoma: 2; unknown primary: 2; germ cell: 1; thyroid: 1. Miscellaneous for outpatients: breast: 1; neuroendocrine: 1; sarcoma: 1. Miscellaneous for 2-day retest patients: unknown primary: 2. Miscellaneous for 7-day retest patients: sarcoma: 1; unknown primary: 2; patients with multiple primary sites: 2.

TABLE 2A
Symptom Prevalence (% (ESAS))

<table>
<thead>
<tr>
<th></th>
<th>All patients (% (n = 233))</th>
<th>Inpatient (% (n = 133))</th>
<th>Outpatient (% (n = 100))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>57 ± 3.2</td>
<td>69 ± 4.0</td>
<td>41 ± 4.9</td>
</tr>
<tr>
<td>Activity</td>
<td>78 ± 2.7</td>
<td>83 ± 3.3</td>
<td>71 ± 4.5</td>
</tr>
<tr>
<td>Nausea</td>
<td>29 ± 2.9</td>
<td>33 ± 4.1</td>
<td>24 ± 4.3</td>
</tr>
<tr>
<td>Depression</td>
<td>40 ± 3.2</td>
<td>41 ± 4.3</td>
<td>39 ± 4.9</td>
</tr>
<tr>
<td>Anxious</td>
<td>63 ± 3.1</td>
<td>68 ± 4.0</td>
<td>57 ± 4.9</td>
</tr>
<tr>
<td>Drowsy</td>
<td>47 ± 3.3</td>
<td>48 ± 4.0</td>
<td>46 ± 4.8</td>
</tr>
<tr>
<td>Appetite</td>
<td>50 ± 3.3</td>
<td>59 ± 4.3</td>
<td>38 ± 4.8</td>
</tr>
<tr>
<td>Well-being</td>
<td>63 ± 3.1</td>
<td>69 ± 4.0</td>
<td>55 ± 4.9</td>
</tr>
<tr>
<td>Short of breath</td>
<td>52 ± 3.3</td>
<td>48 ± 4.0</td>
<td>58 ± 4.9</td>
</tr>
<tr>
<td>Distress</td>
<td>95 ± 1.4</td>
<td>98 ± 1.0</td>
<td>91 ± 2.9</td>
</tr>
</tbody>
</table>

ESAS: Edmonton Symptom Assessment Scale; NS: not significant.

*Prevalence ± standard error. Comparison of prevalence was done with the Pearson chi-square test.
shortness of breath correlated significantly with the KPS with items on the ESAS, as well as the summary distress score, appetite greater for inpatients than for outpatients (Table 2A). The ESAS distress score was significantly correlated with the KPS, with coefficients of 0.72 for the TMSAS scale, 0.73 for the GDI, 0.74 for the physical symptom subscale, and 0.56 for the psychologic symptom subscale. The ESAS distress score correlated most with the FACT physical well-being subscale (−0.75), next with the sum quality of life (−0.69), then with functional well-being (−0.63), emotional well-being (−0.52), and social/family well-being (−0.25). Comparisons of specific items between the ESAS, MSAS, and FACT again demonstrated significant correlation coefficients. Correlation coefficients of ESAS shortness of breath with MSAS shortness of breath was 0.83 (P < 0.0001), ESAS appetite with MSAS lack of appetite was 0.75 (P < 0.0001), ESAS nausea with MSAS nausea was 0.62 (P < 0.0001), and ESAS depression with MSAS “feeling sad” was 0.44 (P < 0.0001), and ESAS anxiety with MSAS feeling nervous was 0.45 (P < 0.0001). Similar coefficients were obtained between FACT and ESAS items. Edmonton Symptom Assessment Scale activity correlated with FACT “forced to spend time in bed;” there was no obvious counterpart for ESAS well-being.

Test-retest coefficients were determined with Spearman correlation coefficients. For the summary ESAS distress measure, correlations were 0.86 (P < 0.0001) at 2 days and 0.45 (P < 0.05) at 1 week. Karnofsky performance status correlation was 0.97 (P < 0.0001) for 1 day and 0.94 (P < 0.0001) for the

<table>
<thead>
<tr>
<th>TABLE 2B</th>
<th>ESAS Median Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inpatient (n = 133)</td>
</tr>
<tr>
<td></td>
<td>(range)</td>
</tr>
<tr>
<td>Pain</td>
<td>26 (0–62)</td>
</tr>
<tr>
<td>Activity</td>
<td>50 (23–66)</td>
</tr>
<tr>
<td>Nausea</td>
<td>0 (0–18)</td>
</tr>
<tr>
<td>Depression</td>
<td>0 (0–38)</td>
</tr>
<tr>
<td>Anxious</td>
<td>26 (0–55)</td>
</tr>
<tr>
<td>Drowsy</td>
<td>0 (0–32)</td>
</tr>
<tr>
<td>Appetite</td>
<td>25 (0–67)</td>
</tr>
<tr>
<td>Well-being</td>
<td>42 (0–55)</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>0 (0–60)</td>
</tr>
<tr>
<td>Distress</td>
<td>249 (133–396)</td>
</tr>
</tbody>
</table>

ESAS: Edmonton Symptom Assessment Scale; NS: not significant. Range was 0–100 for all symptoms, and 0–670 for distress; interquartile range is reported between parentheses. Medians were compared with the Wilcoxon rank sum test.

<table>
<thead>
<tr>
<th>TABLE 3</th>
<th>Symptom Prevalence ± Standard Error by Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESAS (n = 233)</td>
<td>MSAS (n = 232)</td>
</tr>
<tr>
<td>Pain</td>
<td>57 ± 3.2</td>
</tr>
<tr>
<td>Activity</td>
<td>78 ± 2.7</td>
</tr>
<tr>
<td>Nausea</td>
<td>40 ± 3.2</td>
</tr>
<tr>
<td>Depression</td>
<td>63 ± 3.1</td>
</tr>
<tr>
<td>Feeling sad</td>
<td>37 ± 3.2</td>
</tr>
<tr>
<td>Feeling nervous</td>
<td>47 ± 3.3</td>
</tr>
<tr>
<td>Appetite</td>
<td>50 ± 3.3</td>
</tr>
<tr>
<td>Well-being</td>
<td>63 ± 3.1</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>52 ± 3.3</td>
</tr>
</tbody>
</table>

ESAS: Edmonton Symptom Assessment Scale; MSAS: Memorial Symptom Assessment Scale; FACT-G: Functional Assessment of Cancer Therapy.

by comparison of the ESAS items and distress score with corresponding items from the MSAS and with FACT. Significant (P < 0.0001) correlation coefficients were obtained when correlating the ESAS summary distress measure against summary scores from the MSAS, with coefficients of 0.72 for the TMSAS scale, 0.73 for the GDI, 0.74 for the physical symptom subscale, and 0.56 for the psychologic symptom subscale. The ESAS distress score correlated most with the FACT physical well-being subscale (−0.75), next with the sum quality of life (−0.69), then with functional well-being (−0.63), emotional well-being (−0.52), and social/family well-being (−0.25). Comparisons of specific items between the ESAS, MSAS, and FACT again demonstrated significant correlation coefficients. Correlation coefficients of ESAS shortness of breath with MSAS shortness of breath was 0.83 (P < 0.0001), ESAS appetite with MSAS lack of appetite was 0.75 (P < 0.0001), ESAS nausea with MSAS nausea was 0.62 (P < 0.0001), ESAS depression with MSAS “feeling sad” was 0.44 (P < 0.0001), and ESAS anxiety with MSAS feeling nervous was 0.45 (P < 0.0001). Similar coefficients were obtained between FACT and ESAS items.
1-week test-retest. All ESAS items were significantly correlated at 2 days, but at 1 week, this was only true for pain, activity, depression, shortness of breath, and ESAS distress. Single-item VAS scores were significantly correlated at 1 day (0.43, \( P < 0.04 \)) but not at 1 week. These data are summarized in Table 4.

Correlations for pain ratings were studied with the different measures used in the FACT, MSAS, and ESAS instruments. Edmonton Symptom Assessment Scale pain correlated with FACT pain ratings with a coefficient of 0.85 (\( P < 0.0001 \)), and with MSAS pain 0.83. The ESAS VAS pain rating correlated similarly with pain severity (0.77), frequency (0.82), and distress (0.81) on the MSAS. For the categories of pain rated in the BPI, the ESAS pain rating correlated most closely with the BPI worst-pain rating (0.56), followed by the average pain (0.38), pain right now (0.33), and least pain (0.29). Kendall correlations for pain ratings in the FACT-G similarly correlated with BPI worst pain (0.49), then average pain (0.42), pain right now (0.36), and least pain (0.24). For the three dimensions in the MSAS, Kendall correlations showed severity was most closely correlated with worst pain (0.48), as was distress (0.36); frequency correlated best with pain right now (0.32). All correlations were significant (\( P < 0.0001 \)).

Calibration studies show a clear difference in median values for the ESAS scores in pain, shortness of breath, drowsiness, and anxiety across MSAS categories of severity and distress although there is a significant overlap (Figs. 1 and 2). Measurements for severity of physical symptoms, such as drowsiness, pain, and shortness of breath, were much better separated than psychologic symptoms such as anxiety. Measurements of symptom distress are less well demarcated by category. A dashed line has been placed for an ESAS score of 30 mm as a potential cutoff value.

**DISCUSSION**

Symptom assessment is a key priority of palliative care. The ESAS was first described as far as we know in a group of palliative care patients in a hospice setting.\(^1\) Because of its brevity and ease of administration, the ESAS has received much interest as a bedside clinical instrument. In a review of QOL tools for patients with cancer, proposed criteria for an ideal instrument included one that would be simple to read and follow and quick and easy to complete and analyze and be based on a categoric or visual analogue scale.\(^7\) The ESAS has many of these features and measures many important symptoms of interest.

In this study, we have evaluated the ESASS validation for nonhospice patients with a diagnosis of cancer examined by a medical oncology service. The ESAS satisfied criteria for internal consistency, criterion, and concurrent validity. We found that responses to the MSAS showed internal validity by Cronbach coefficients, and criterion validity by comparison with KPS and with validated subscales from the FACT and MSAS. Test-retest evaluation showed very good correlation at 1 day and somewhat smaller but significant correlation at 1 week. One possibility is that the instrument is sensitive to fluctuations of the patient’s symptom status, or that patients’ perceptions of symptoms may change as well, or that weekly repetition may miss significant changes. Whether this is an advantage or disadvantage depends upon the purpose of the user. There may be a trade-off between stability and sensitivity because the requirements for discrimination and evaluation functions of an instrument may differ.\(^8\) Little is known about the ideal interval for reassessment. Intervals have included 4 days for the FACT and the European Organization for Research and Treatment of Cancer QLQ-C30,\(^9\) and 1 week for the FACT brain subscale.\(^10\) Our sample is very small, and more research with longitudinal follow-up is required to better define the ideal frequency of assessment.

Further insight into the meaning of the ESAS scores is provided by the correlation coefficients of ESAS scores with summary scores of other instruments. The ESAS distress score correlates most closely with the physical well-being subscale of the FACT scale and the PHYS subscale on the MSAS. The ESAS distress score has a smaller, but still significant correlation with both the FACT emotional well-being and the MSAS PSYCH subscale. One reason may be that the ESAS instrument has six items related to physical well-being, and three related...
FIGURE 2. (A) Box plot for Edmonton Symptom Assessment Scale visual analogue scores for pain and shortness of breath compared with MSAS categoric ratings by severity and distress are shown. The vertical axis represents VAS scores; the horizontal axis represents the MSAS categories. These include no symptom, followed by ratings of severity or distress when the symptom is present. The hatched line represents 30 mm on the VAS. (B) Box plot for Edmonton Symptom Assessment Scale visual analogue scores for anxiety and drowsiness compared with MSAS categoric ratings by severity and distress are shown. The vertical axis represents VAS scores; the horizontal axis represents the MSAS categories. Memorial Symptom Assessment Scale categories include no symptom, followed by ratings of severity or distress when the symptom is present. The hatched line represents 30 mm on the VAS. ESAS: Edmonton Symptom Assessment Scale; MSAS: Memorial Symptom Assessment Scale.
to psychologic symptoms (depression, anxiety, and well-being). A second possibility is that VAS instruments may show greater variance in the assessment of psychologic symptoms. Correlation coefficients for VAS measurements of mood have been on the order of 0.50, similar to those reported here.\textsuperscript{11}

The meaning of specific symptom assessments also can be approached by such analyses. One particular symptom of interest is pain. In this study, pain was rated by different tools—VAS, numeric rating scale, a Likert scale, and a multidimensional scale. Significant and high correlation coefficients have been reported in multiple studies between VAS pain and other pain scales, and we extend this conclusion now to include the multidimensional pain scale in the MSAS.\textsuperscript{12} These results also confirm the correspondence of pain ratings with the worst pain severity.\textsuperscript{13} This tendency may be part of a larger phenomenon whereby patients may remember extremes rather than average aspects of an experience.\textsuperscript{14}

A related issue is assessment of pain severity. A recent development of interest is the observation that 30 mm may be a helpful demarcation between mild and severe pain.\textsuperscript{15} Our results suggest that for pain, in our population, use of a 30-mm cutoff would disregard perhaps one-third of patients with moderate pain severity but would capture most patients with “quite a bit” or “very much” distress. We have explored this idea further in three other prevalent symptoms in the categories of severity and distress. Such a cutoff would be very useful for the physical symptom shortness of breath for both severity and distress dimensions, and for severity alone in ESAS psychologic items anxious and drowsiness. One cutoff value may not be appropriate for all symptoms, and further work is needed. Difficulty with comparison of VAS anxiety with standardized scales, but not for VAS pain or VAS depression, was noted by Ahles et al. in a study of patients with cancer-related pain.\textsuperscript{16}

A related observation is that very few patients gave a score of zero. The meaning of this finding is unclear.

In this article, we have compared VAS ratings with ratings from a second instrument to help interpret the significance of a VAS score, applying an approach first demonstrated as far as we know by Collins.\textsuperscript{15} This approach could help identify how cutoff points can be defined, assist interpretation of the meaning of a particular score, and be applied to other symptoms. Our preliminary findings suggest that similar cutoff points can be made for symptoms other than pain as measured by visual analogue scales, but that a different cutoff may be required for other symptoms. The answer to how to determine an appropriate threshold cutoff level requires further investigation for other symptoms. Possible approaches include selecting a point in which the relation of severity to symptom distress becomes marked or a combination of two or more assessments at different time points by the patient. These conclusions may be relevant to analyzing data from many other widely used symptom and quality of life instruments that are based upon VAS assessments. They also may be relevant for assessing the quality of data from different trials in meta-analyses, and for developing criteria for admission into clinical trials of symptom intervention.

Of interest is the observation that symptom prevalence as measured by the ESAS is higher than in MSAS. One reason for discrepancy in answers to the ESAS and MSAS may be the specification of a time window of 7 days in the MSAS and FACT instruments. This raises the issue of how surveys with different instruments can affect prevalence and suggests a potential variation of up to 10%. Wordings of psychologic symptoms may affect measures of prevalence, as illustrated by differing responses to “feeling sad” or “depression” and “feeling nervous” or “anxiety.” Another possibility is that some symptoms may be so distressing that patients recall them on the ESAS even though they may not have experienced them within the 7 day window period specified by the MSAS and FACT.

Each instrument required approximately 5 minutes to complete. More explanation was required for the ESAS than for the MSAS or FACT instruments. Patients were able to adapt to the different formats in these instruments. It was our impression that patients found a categoric reply format easier to grasp and answer than the continuous VAS format. Questions about sexual activity often were considered irrelevant by our patients. Items about functional status in the FACT were sometimes difficult for hospitalized or retired patients to answer.

There are a number of limitations of the current study. The population studied was mostly elderly male patients with advanced disease. Other populations, such as patients with early disease and female patients, still need to be studied further. In this study, 233 of 240 patients were able to complete these instruments. Severely ill and older patients with shaky hands and poor eyesight experienced difficulty in understanding and completing the ESAS. For these patients, a numeric rating version may be helpful as results from numeric rating scales have been shown to be similar to visual analogue scales for pain\textsuperscript{17,18} and for quality of life.\textsuperscript{19} The incomplete response rate is similar to that reported in other studies with VAS instruments.\textsuperscript{20} This study was not designed to compare ways of presenting information from the ESAS (a graphic display) with information from the FACT or the MSAS. The relative value of graphic
versus numeric reporting should be addressed in future
studies.

It is important to do validation studies to assess
instruments and thereby strengthen the methodology
underlying symptom assessment in cancer patients. The
ESAS has been studied in hospice patients. Bruera and
MacDonald compared the ESAS with the Support Team
Assessment Schedule21 and found good correlation.22
Philip et al. modified the ESAS by substituting weakness
for activity, and by adding a VAS scale for pain relief. In
a sample of 40 Australian hospice patients, he found
kappa ratings ranging from 0.46 to 0.61 between ESAS
items and corresponding items on the Rotterdam Symptom
Checklist23 and the Brief Pain Inventory.24 Rees et al.
assessed 71 patients admitted to a British hospice and
found practical difficulties with patients being able to
complete the VAS forms and understand the questions.
Patients with very low KPS may require alternative as-
essment tools.25 In this study, we have extended the
ESAS to a general cancer population and compared it
with scores from the FACT and the MSAS. We conclude
that the ESAS is a valid instrument for symptom assess-
ment in the VA cancer population. However, it may not
reflect psychologic symptoms very well and may have
limited test-retest applicability. This is important be-
cause no time window is stipulated on the form. The
results of this study suggest that the ESAS may be a valid
instrument for use in a medical oncology population,
and that the ESAS distress score may predominantly
reflect physical well-being. This instrument may be use-
ful in future QOL and symptom assessment studies in
this population.

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