

A BRIEF POMS MEASURE OF DISTRESS FOR CANCER PATIENTS

DAVID F. CELLA, PAUL B. JACOBSEN, E. JOHN ORAV,
JIMMIE C. HOLLAND, PETER M. SILBERFARB and SAMEER RAFLA (FOR CANCER
AND LEUKEMIA GROUP B, BROOKLINE, MASSACHUSETTS)

Department of Psychiatry, Memorial Sloan-Kettering Cancer Center, New York, NY 10021,
U.S.A.

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Abstract—The authors describe an 11-item short form of the Profile of Mood States' 58-item Total Mood Disturbance Score (TMDS). The Brief TMDS was derived from a sample of 619 adults with mixed cancer diagnoses, and replicated on a second sample of 295 lung cancer patients. Internal consistency of the Brief TMDS and the correlations of the Brief TMDS with the full TMDS were highly satisfactory for both samples. Given the difficulty many medically ill people have with lengthy self-report scales, and the increasing importance of measuring distress as an adjunct to patient care, this measure shows promise as a rapid, reliable tool.

INTRODUCTION

Advances in cancer therapy have resulted in increasing numbers of patients who enter extended remission. However, treatment for cancer is often associated with significant physical and psychological distress [1]. This has created an unprecedented situation in which quality of life concerns become a key issue in determining appropriate treatment [2].

One important factor affecting quality of life is mood disturbance or distress. Researchers attempting to measure quality of life in cancer patients have emphasized physical, social and occupational problems more than distress [3, 4]. Supplementing quality of life measurement with an existing mood scale is laudable but often unrealistic because of patient illness or physician resistance due to test length. For example, the 65-item Profile of Mood States (POMS) [5] takes approximately 5–7 minutes for healthy individuals to complete, but physically ill patients can require up to 20 minutes [6]. Furthermore, it is commonly experienced as repetitive and unnecessarily burdensome to patients who are often receiving debilitating medical treatments.

Since the POMS provides a summary measure of distress, the Total Mood Disturbance Score

(TMDS), it was considered a useful starting point from which to construct a brief, reliable measure of general mood disturbance or distress. The measurement of general distress, rather than some specific dimension (e.g. anxiety or depression) was decided upon because of accumulating evidence that psychological distress is hierarchical, with the most information coming from one powerful underlying factor [7, 8]. Furthermore, the psychometric separation of constructs such as anxiety and depression is difficult if not impossible in psychologically healthy samples [9, 10]. While the POMS contains six factorially derived subscales (Tension, Depression, Anger, Fatigue, Confusion and Vigor), the discriminative validities of these separate subscales are questionable. Along these lines, the POMS manual itself reports very high Anxiety ("Tension") to Depression intercorrelations, ranging from 0.56 to 0.77 [5]. Of the 26 intercorrelations between the five distress subscales reported in the manual (p. 9), the mean and median coefficient is 0.60.

Given these considerations, the decision was made to minimize the number of items by specifying that only one factor, which would presumably reflect general distress, be derived from the 58-item TMDS. This can be accom-

plished by a principal components factor analysis in which a one-factor solution is specified. The items comprising this factor could then be examined for their closeness to the overall mood disturbance score.

METHOD

Participants were 914 adult cancer patients, 90% of whom were over 45 at the time of assessment (mean = 59.3 years, SD = 10.0). The majority of patients (60%) were males, and 71% were married. Two-thirds had at least a high school education, and median reported annual income was under \$15,000. Approximately 15% of the participants elected not to disclose their income. Furthermore, the educational level and employment history of the respondents suggested many of those who did report income underestimated it. Nevertheless, reported education and income were not associated with any differences in either the 58-item TMDS or the Brief TMDS to be reported here.

All patients had recently been enrolled in randomized clinical trials conducted by a National Cancer Institute-funded multi-hospital study group during the late 1970's and early 1980's. The full 65-item POMS was administered shortly after patients were diagnosed with cancer but before medical treatment had begun. To develop the Brief TMDS, the entire sample was divided into a scale construction sample and a replication sample. The construction sample included 619 patients with disease sites other than lung (myeloma, breast, gastric, pancreatic), and the replication sample was 295 patients with limited small cell lung carcinoma.

RESULTS

Data from the scale construction sample ($N = 619$) for the 58 items comprising the TMDS were subjected to a principal components factor analysis in which only one factor was specified. The Brief TMDS was created by establishing a cut-off score of 0.65 for factor loadings on the single factor, since this value coincided with a natural break in the data. Eleven items met this criterion, and their means, standard deviations, and factor loadings are presented in Table 1. The 11-item short form accounted for 36.1% of the total variance of the construction sample's responses to the 58-item TMDS.

Internal consistency of the 11-item scale was

Table 1. Brief POMS TMDS* item scores and factor loadings: scale construction sample ($N = 619$)

POMS Item	Mean (range = 0-4)	Standard deviation	Factor loading
18. Blue	1.00	1.10	0.73
32. Discouraged	0.94	1.12	0.72
14. Sad	1.14	1.21	0.70
50. Bewildered	0.72	1.01	0.70
36. Miserable	0.76	1.10	0.69
44. Gloomy	0.73	1.01	0.69
49. Weary	1.17	1.18	0.69
16. On Edge	1.10	1.18	0.68
37. Muddled	0.58	0.90	0.67
26. Uneasy	1.25	1.15	0.66
5. Unhappy	1.04	1.15	0.66
Total	10.43	8.87	—

*TMDS = Total Mood Disturbance Score; POMS = Profile of Mood States.

analyzed using the SPSS-X Reliability program [11]. Cronbach's alpha was 0.91 for the Brief TMDS; whereas it was 0.93 for the 58-item TMDS. Internal consistency of the Brief TMDS would not have increased with the deletion of any item. In addition, the Brief TMDS correlated significantly with the TMDS, r ($df = 618$) = 0.93, $p < 0.001$.

Patients with small cell lung cancer ($N = 295$) constituted the replication sample. Results indicated a continued high internal consistency of the Brief TMDS (alpha = 0.92). The Brief TMDS and TMDS were again highly correlated, r ($df = 294$) = 0.92, $p < 0.001$. The mean individual item scores of this replication sample were strikingly similar to those of the scale construction sample. The mean Brief TMDS was 10.18 (SD = 8.72); nearly identical to that of the scale construction sample (cf. Table 1; mean = 10.43). The overall 58-item TMDS scores were also quite comparable between the two groups: 30.8 for the scale construction sample and 29.4 for the replication sample.

A preliminary effort at validating the Brief TMDS was undertaken. Based upon an earlier report on a subset of these data, it is known that POMS TMDS scores of pancreatic cancer patients are significantly higher than POMS TMDS scores of gastric cancer patients, presumably due to a tumor-mediated paraneoplastic syndrome in pancreatic cancer [12]. Therefore, an initial validity check on the Brief TMDS is possible by comparing Brief TMDS scores of the pancreatic subgroup from this sample ($N = 119$) to the Brief TMDS scores of the gastric subgroup ($N = 128$). Just as TMDS scores between groups differed in the initial

report [12], so too do the pancreatic cancer patients show higher *Brief* TMDS scores (mean = 12.5, SD = 9.3) than the gastric patients (mean = 9.6, SD = 8.6), $t(245) = 2.48$, $p = 0.014$.

DISCUSSION

These results provide supporting evidence for using a brief 11-item measure of mood disturbance as a reliable index of one aspect of quality of life in cancer patients. The 11-item measure is 1/5 as long as the POMS TMDS which has been found to be moderately correlated with degree of physical impairment [13], extent of disease [13], and pain [14] in cancer patients.

The high correlations between the Brief TMDS and the 58-item TMDS in both samples provide supporting justification for using the brief form when the measurement of general distress alone is the goal. Given that items from five of the six original POMS subscales have emerged as part of the brief form, it is unlikely that this Brief TMDS is measuring only a single component of distress. The one subscale which is not represented (Vigor) tends to measure physical, rather than emotional or psychological well-being. Its omission from the Brief TMDS suggests that this shortened scale may be a more pure measure of psychological distress than the 58-item TMDS. Studies which have correlated extent of disease or prognostic factors such as performance status with POMS subtest scores have shown the strongest association with the more "physical" POMS subtests (Vigor, Fatigue), and very little association between disease severity or level of physical impairment and emotional distress [13, 14]. For this reason alone it is important to assess mood distress in cancer patients as a separate entity whenever possible. The assumption that physically sicker or more impaired patients are necessarily more emotionally distressed is questionable [3, 13, 15, 16]. Further research is needed to arrive at a conclusion as to how strongly extent of disease or physical limitation affect level of distress.

The fact that Cronbach's alpha exceeded 0.90 in both samples runs counter to the notion that different components of distress (Depression, Tension, Fatigue, Confusion, Anger) must be measured separately in order to obtain meaningful information. Often, the realism of applied research requires that measuring quality of life

must be as streamlined as possible. Reducing 58 items to 11 makes more possible the inclusion of psychological distress as a component of quality of life measurement in investigations with cancer patients and other medically ill groups. This short form can now be validated against other concurrently given tests of the same content domain. The authors are currently in the process of conducting validation studies, and encourage others to do likewise.

Other future studies should be directed toward extending the use of this measure to cancer patients at various points in treatment (e.g. during radiotherapy, chemotherapy, or remission), and toward validating it against other objective indices of distress, such as social adjustment, referral for mental health consultation, or non-compliance with treatment. Studies are also needed to determine if the Brief TMDS may be easily generalizable to chronically ill individuals with diseases other than cancer.

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