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The geriatric depression scale in palliative care

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ABSTRACT

Objective: This research examined the psychometric properties of previously published short forms of the Geriatric Depression Scale (GDS) in patients receiving palliative care. It also uses the full form of the GDS to examine the prevalence of nonsomatic symptoms of depression in palliative patients.

Method: Participants were 84 patients with advanced cancer attending palliative care outpatient clinics. Scores for short forms of the GDS were derived from administering the original 30-item scale. Patients also completed the single item numerical analogue scale for depression from the Edmonton Symptom Assessment System and parallel numerical analogue scales for will-to-live and hope. A subset of the sample completed the measures twice. Short forms were judged on the extent to which they captured information gained from the full scale and their internal consistency, test–retest reliability, convergent and concurrent validity, and their distribution of scores.

Results: Overall, five short forms showed good psychometric properties at both visits. Two of these forms were very brief. Some nonsomatic symptoms assessed on the full GDS were reported with high frequency. However, few individuals reported a large number of symptoms. At both visits, patients identified as likely to have severe depression gave different responses from other patients on most items on the GDS-30.

Significance of results: Several short forms of the GDS may be appropriate for use in palliative care. Patients identified as likely to have severe depression showed many of the same symptoms that characterise depression in other geriatric populations.

KEYWORDS: Depression, Palliative care, Cancer, Screening

INTRODUCTION

This research used the original form of the Geriatric Depression Scale (GDS-30; Yesavage et al., 1982–1983) for two distinct purposes: as the point of comparison in an examination of the psychometric properties of short forms of the GDS and as a means of determining the prevalence of a broad range of nonsomatic symptoms of depression among patients receiving palliative care.

It is important for palliative care clinicians to be able to identify depression in their patients. Depression affects patients' physical health (Andersen et al., 2004, 2007), quality of life (Lin et al., 2003; Smith et al., 2003), and mortality (Faller & Bulzebruck, 2002; Meyer et al., 2003b). It restricts clinicians' ability to manage patients' care by its effect on patient compliance (DiMatteo et al., 2000; Lin et al., 2003), the efficacy of treatments for symptoms (Spiegel, 1996; Passik et al., 2002), and patients' desire for death (Kelly et al., 2003; Akechi et al., 2004). Patient depression also adds to carer burden (Cassileth et al., 1985), affects outcomes for health services by precipitating inpatient admissions (Christakis, 1994; Hinton, 1994) and increases treatment costs beyond

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those due to illness severity (Unutzer et al., 1997; Sullivan & Dworkin, 2003). Depression is a particularly pressing problem in palliative care, where it is both prevalent (Chochinov et al., 1994; Hotopf et al., 2002; Durkin et al., 2003) and long-lasting (Lloyd-Williams & Riddleston, 2002; Meyer et al., 2003b).

Assessment of depression in palliative patients has taken two forms, which reflect two different aims. First, brief screening instruments (Chochinov et al., 1997; Robinson & Crawford, 2005), often consisting of only one or two items, have been developed to quickly identify patients who warrant further assessment or intervention. Second, longer, multi-item instruments and interviews, originally developed for other populations, have been applied in palliative care (Beck et al., 1961; Razavi et al., 1990; Maher et al., 1996; Kramer, 1999; Le Fevre et al., 1999) or adapted for use in palliative care (Cox et al., 1987; Lloyd-Williams et al., 2000). Their aim is to provide insight into the patient's experience and range of symptoms in addition to identifying patients who warrant further assessment or intervention.

The Geriatric Depression Scale (Yesavage et al., 1982–1983) is a multi-item scale that has many characteristics that are desirable in palliative care. It has excellent sensitivity and specificity in aged community (Olin et al., 1992; Sharp & Lipsky, 2002) and primary-care samples (Lyness et al., 1997), was specifically designed for use with aged populations, uses simple and consistent response alternatives, focuses on nonsomatic symptoms in order to minimize overdiagnosis in medically ill populations, is available in a wide range of Asian (Liu et al., 1998) and European languages (Bach et al., 1996; Baker & Espino, 1997; Clement et al., 1997), identifies patients with suicide ideation without direct questioning (Heisel et al., 2005), and uses both positively and negatively worded questions to avoid “yea-” or “nay-saying” and establishing expectations. Most other multi-item scales used in palliative care do not share these advantages (Endicott, 1984; Chochinov et al., 1997; Lloyd-Williams et al., 2001, 2004; Lloyd-Williams & Payne, 2003).

The GDS is also of interest because one of its forms has been recommended for routine use by the Royal College of Physicians and the British Geriatrics Society (Dall & Hopkins, 1992), and in many countries (Akamatsu et al., 2005; Wada et al., 2005; Riccio et al., 2007) it is the tool of choice for assessing depression during a Comprehensive Geriatric Assessment (CGA; Osterweil, 2003). One form of the GDS is also a component in the Abbreviated Comprehensive Geriatric Assessment (Mann et al., 2004; Overcash et al., 2005). CGA has been advocated (Balducci, 2003; Wieland & Hirth, 2003) and widely adopted in oncology and hematology (Repetto et al.,

2002; Extermann, 2003; Deschler et al., 2006). Forms of the GDS are also widely used in cancer research (Duffy et al., 2002; Chen et al., 2003).

Because the length of the original form of the GDS (GDS-30; Yesavage et al., 1982–1983) precludes its use in many clinical settings, a variety of “short” forms of the scale have been developed. As a result, palliative clinicians interested in using the GDS are faced with a bewildering array of forms from which to choose. These include three different four-item forms (D'Ath et al., 1994; van Marwijk et al., 1995; Galaria et al., 2000), two different forms containing one item (D'Ath et al., 1994; Galaria et al., 2000) and five items (Hoyl et al., 1999; Molloy et al., 2006), forms containing 10 (van Marwijk et al., 1995), 12 (Sutcliffe et al., 2000), and 15 items (Sheik & Yesavage, 1986), and an algorithm based on two of these short forms (Weeks et al., 2003). This study informs choices between these alternatives by comparing the psychometric properties of previously published short forms with those of the original GDS in the same palliative population. There are few previous reports of short forms of the GDS being used in patients with advanced disease (Greenberg et al., 2004; Jerant et al., 2004; Murtagh et al., 2007), and these reveal little about their psychometric properties.

One innovation in the present study is the examination of the psychometric properties of short forms at two points in the trajectory of illness. Patients receiving palliative care often show more marked changes in physical and cognitive function than other medical patients. Thus, the utility of particular symptoms (e.g., fatigue, changes in sleep) in the diagnosis of depression in palliative care patients may change over time. However, few studies have examined the properties of either single- or multi-item screening tools at more than one visit.

The original form of the GDS will also be used to examine the prevalence of nonsomatic symptoms of depression among patients receiving palliative care. Thus far, research on depression in palliative care has given greater attention to identifying effective screening tools (Chochinov et al., 1997; Urch et al., 1998; Lloyd-Williams et al., 2000; Meyer et al., 2003a; Robinson & Crawford, 2005) and determining the prevalence of depression (Spitzer et al., 1978; Lynch, 1995; Chochinov et al., 1997) than to understanding how symptoms associated with depression are expressed in palliative populations. This shortcoming may have important implications for assessment. There is debate about the role that somatic symptoms should play in the diagnosis of depression in palliative patients. Suggestions that diagnosis should focus on items concerning nonsomatic symptoms (Endicott, 1984; Massie & Holland, 1990) assume that these do not show elevated endorsement

due to disease processes or treatment. Although little empirical evidence relevant to this assumption is available, this shows that some nonsomatic items are endorsed by most patients receiving palliative care (Sela, 2007). This is not surprising because it is well documented that some nonsomatic symptoms (e.g., impaired cognition) may result from disease processes or be side effects of treatment commonly used in palliative care (Bruera et al., 1992; Kamboj et al., 2005). This research uses the broad coverage of nonsomatic symptoms provided by the GDS-30 to provide descriptive data about the way in which these symptoms are expressed in a palliative population. Although many previous studies have used multi-item scales with patients receiving palliative care, very few (Sela, 2007) have reported the frequency of specific symptoms of depression.

In summary, this research had two aims:

1. To compare, at two points in time, the psychometric properties of 10 previously published multi-item short forms of the GDS to those of the GDS-30 in ambulatory patients receiving palliative care.
2. To document the prevalence with which ambulatory patients receiving palliative care report a range of nonsomatic symptoms of depression at two points in time.

METHOD

Participants

One hundred and three patients attending outpatient oncology and palliative care clinics at two teaching hospitals in Adelaide were approached to participate. All patients were fluent in English, over 18 years of age, and judged by their primary medical specialist to be in the palliative phase of their illness, to be sufficiently robust to tolerate a 40-min research interview, and to be free from severe cognitive impairments. Eighty-four patients were recruited (81.6%). Four patients declined to participate (3.9%), and 15 were unable to complete data collection due to physical decline (14.6%).

Usable data were collected on a second clinic visit from 34 of these patients. The mean interval between the first and second data collection points was 35 days and was primarily determined by the patient's clinical needs. In every case, failure to complete the second data collection was due to physical decline or death.

Measures

Data were collected immediately after the patients' scheduled clinic visit by a research nurse who was

not associated with the patients' care. Three measures were used:

1. *Geriatric Depression Scale*. The original 30-item form of the GDS (Yesavage et al., 1982–1983) was administered. From this, the 1- (D'Ath et al., 1994; Almeida & Almeida, 1999), 4- (D'Ath et al., 1994; van Marwijk et al., 1995; Galaria et al., 2000), 5- (Hoyle et al., 1999; Molloy et al., 2006), 10- (van Marwijk et al., 1995), 12- (Sutcliffe et al., 2000), and 15-item (Sheik & Yesavage, 1986) short form scores were calculated (Table 1).
2. The single item relating to depression from the *Edmonton Symptom Assessment System* (ESAS; Bruera et al., 1991). This self-report item uses an 11-point numerical analogue format.
3. Custom-designed, single items for self-reported rating of will to live and hope using an 11-point numerical analogue format.

RESULTS

Psychometric Properties of Short Forms

Six conventional psychometric properties were assessed using the following criteria: a correlation above .75 with the GDS-30 (Table 2); internal consistency above .75 for scales with 10 or more items, above .65 for scales with 5 items, and above .60 for scales with 4 items (Table 3); test–retest reliability similar to that for the GDS-30 (Table 4); convergent validity similar to that shown by the GDS-30 for two related but distinct constructs, will to live and hope (Table 5); and concurrent validity similar to that shown by the GDS-30 for patient ratings of depression on the ESAS (Table 6). Short forms of the GDS containing 10 or more items showed good psychometric properties according to most criteria. In general, scales containing 1, 4, and 5 items showed different patterns of results for different criteria. However, the 4-item scale by D'Ath et al. (1994) and the 5-item scale by Molloy et al. (2006) met as many criteria as the longer forms.

In addition, the distribution was examined for the short forms with fewer than 10 items because these necessarily yield a restricted range of scores. Ideally, the distribution of scores on brief screening instruments follow a reversed J-curve (i.e., bottom-heavy with a long positive tail) that allows a range of different cut scores to be used in different clinical contexts. Such distributions were produced by the GDS-4 by D'Ath et al. (1994) and the GDS-5 by Molloy et al. (2006) (Table 7).

Table 1. *Items included in full and short forms of the Geriatric Depression Scale*

Item	GDS-30	GDS-15	GDS-12R	GDS-10	GDS-5 (Hoyl)	GDS-5 (Molloy)	GDS-4 (Galaria)	GDS-4 (D'Ath)	GDS-4 (van Marwijk)	GDS-1 (D'Ath)	GDS-1 (Almeida)
1 Basically satisfied with life? (No)	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
2 Dropped many activities and interests? (Yes)	✓	✓	✓	✓			✓		✓		
3 Feel that life is empty? (Yes)	✓	✓	✓	✓		✓		✓		✓	
4 Often get bored? (Yes)	✓	✓	✓		✓						
5 Hopeful about the future? (No)	✓										
6 Bothered by thoughts that can't get out of head? (Yes)	✓										
7 In good spirits most of the time? (No)	✓	✓	✓								
8 Afraid that something bad is going to happen? (Yes)	✓	✓	✓	✓				✓			
9 Feel happy most of the time? (No)	✓	✓	✓	✓		✓		✓	✓		
10 Often feel helpless? (Yes)	✓	✓	✓	✓	✓	✓	✓				
11 Often get restless and fidgety? (Yes)	✓										
12 Prefer to stay at home rather than going out and doing new things? (Yes)	✓	✓			✓				✓		
13 Frequently worry about the future? (Yes)	✓										
14 Feel that have more problems with memory than most? (Yes)	✓	✓		✓			✓				

15	Think it is wonderful to be alive now? (No)	✓	✓	✓		
16	Often feel downhearted and blue? (Yes)	✓				✓
17	Feel pretty worthless the way you are now? (Yes)	✓	✓	✓	✓	
18	Worry a lot about the past? (Yes)	✓				
19	Find life very exciting? (No)	✓				
20	Hard to get started on new projects? (Yes)	✓				
21	Feel full of energy? (No)	✓	✓	✓		✓
22	Feel that situation is hopeless? (Yes)	✓	✓	✓		✓
23	Think that most people are better off? (Yes)	✓	✓			✓
24	Frequently get upset over little things? (Yes)	✓				
25	Frequently feel like crying? (Yes)	✓				
26	Have trouble concentrating? (Yes)	✓				
27	Enjoy getting up in the morning? (No)	✓				
28	Prefer to avoid social gatherings? (Yes)	✓				
29	Easy to make decisions? (No)	✓				
30	Mind as clear as it used to be? (No)	✓				

Table 2. Correlations between the full and short forms of the Geriatric Depression Scale at Visits 1 and 2

Short form	Visit 1 <i>r</i> (62)	Visit 2 <i>r</i> (23)
GDS-1	.40	.44
Almeida (Qu1)		
D'Ath (Qu3)	.55	.55
GDS-4		
Galaria	.63	.77 ^a
van Marwijk	.65	.74 ^a
D'Ath	.77	.86 ^a
GDS-5		
Hoyl	.81	.81 ^a
Molloy	.78	.95 ^a
GDS-10	.88	.94 ^a
GDS-12R	.86	.93 ^a
GDS-15	.94	.92

^a*r*(22).**Table 3.** Internal consistency (Cronbach α) for multi-item forms of the Geriatric Depression at Visits 1 and 2

GDS	Visit 1	Visit 2
GDS-4		
Galaria	0	.28
van Marwijk	.20	.39
D'Ath	.61	.68
GDS-5		
Hoyl	.41	.67
Molloy	.68	.79
GDS-10	.66	.79
GDS-12R	.76	.81
GDS-15	.75	.84
GDS-30	.87	.92

Table 4. Test–retest reliability of forms of the Geriatric Depression Scale

GDS	<i>r</i> (27)
GDS-1	
Almeida (Qu1)	.76
D'Ath (Qu3)	.31
GDS-4	
Galaria	.83 ^a
van Marwijk	.89 ^a
D'Ath	.65
GDS-5	
Hoyl	.60
Molloy	.70
GDS-10	.84 ^a
GDS-12R	.73 ^a
GDS-15	.82 ^b
GDS-30	.85 ^c

^a*r*(26). ^b*r*(24). ^c*r*(22).

Prevalence of Nonsomatic Symptoms of Depression

Patients did not equally endorse all symptoms of depression included in the GDS-30. The only somatic symptom included in the GDS-30, fatigue (not “full of energy”), was reported by more than half the patients at both visits. However, this was also true for nonsomatic symptoms related to anhedonia (“Dropped many activities and interests”; “Hard to get started on new projects”; “Prefer to stay at home rather than going out and doing new things”) at both visits, and for psychomotor agitation (“Often get restless and fidgety”) at Visit 1. Patients also commonly reported helplessness, hopelessness, that their lives were not exciting, and that their thinking was not clear. In contrast, none of the items relating to depressed affect (“Often feel downhearted and blue”; “Frequently get upset over little things”; “Frequently feel like crying”) were endorsed by more than one third of patients at either visit. Indeed, at both visits more than 80% of patients endorsed items that reflected positive affect (“Basically satisfied with life”; “In good spirits most of the time”; “Feel happy most of the time”; “Think it is wonderful to be alive now”). Worrying about the past was also uncommon.

The results also show the importance of the wording of questions about nonsomatic symptoms. Although the majority of patients endorsed anhedonia items relating to behaviors (e.g., “Dropped many activities and interests”), only a minority endorsed anhedonia items relating to perceptions. That is, only about one third indicated that they were often bored and less than one quarter felt that their lives were empty. Similarly, patients did not respond in the same way to the four items assessing impaired cognition. In particular, more patients rejected the idea that their mind was “as clear as it used to be” than the idea that it was “easy to make decisions.”

Despite the high frequency with which many items were endorsed, few individuals endorsed a large number of symptoms, and therefore most patients did not meet the standard cut scores for the GDS-30 (Yesavage et al., 1982–1983). At Visit 1, 42.3% and 5.1% of patients were identified as likely to be experiencing mild and severe depression, respectively. At Visit 2, 25.9% and 14.8% of patients were identified as likely to be experiencing mild and severe depression, respectively.

Most items on the GDS-30 were endorsed by at least one third of patients at Visit 1 and/or Visit 2. Despite this, 23 of the 30 items discriminated between patients identified as likely to have severe depression and other patients at Visit 1 and/or Visit 2. Ten of

Table 5. Correlation between forms of the Geriatric Depression Scale and ratings of will to live, hope, and depression

	Will to live			Hope		Depression	
	Visit 1 (n = 77)	Visit 2 (n = 29)	Visit 1 (n = 77)	Visit 1 (n = 77)	Visit 2 (n = 29)	Visit 1 (n = 77)	Visit 2 (n = 29)
		r(75) = -.01 r(75) = -.39** r(75) = -.14 r(74) = -.23* r(74) = -.19 r(74) = -.23 r(75) = -.29** r(70) = .27 r(70) = .28 r(70) = -.31 r(61) = -.33	r(27) = -.38* r(27) = -.47** r(26) = -.30 r(26) = -.35 r(27) = -.61 r(25) = .40 r(27) = -.63*** r(26) = -.52 r(26) = -.58 r(24) = -.57 r(22) = -.62	r(73) = -.03 r(73) = -.17 r(73) = -.01 r(72) = 0 r(72) = -.21 r(72) = -.16 r(72) = -.18 r(68) = -.30 r(68) = -.30 r(68) = -.30 r(59) = -.29	r(27) = -.14 r(27) = -.31 r(26) = -.26 r(26) = -.21 r(29) = -.35 r(27) = -.28 r(27) = -.41* r(26) = -.42 r(26) = -.37 r(26) = -.44 r(24) = -.46	r(75) = .13 r(75) = .37** r(75) = .27* r(74) = .14 r(74) = .41 r(74) = .30 r(75) = .33** r(70) = .42 r(70) = .45 r(70) = .40 r(61) = .33	r(27) = .28 r(27) = .48** r(26) = .25 r(26) = .27 r(27) = .62 r(25) = .28 r(27) = .56** r(26) = .48 r(26) = .50 r(24) = .52 r(22) = .55

*p ≤ 0.5. **p ≤ 0.01. ***p ≤ 0.001.

these items were the same at Visits 1 and 2 (Table 6). Included among these 10 are the GDS-1 by D’Ath et al. (1994), 3 items from the GDS-4 by D’Ath et al. (1994), and 4 items from the GDS-5 by Molloy et al. (2006). The larger number of items included in the GDS-10, GDS-12, and GDS-15 did not significantly improve their overlap with these 10 items.

DISCUSSION

Patient-centered care requires that clinicians have insight into patients’ experience of psychological distress. For this purpose, multi-item scales are superior to single-item and algorithm-based screening tools. A subset of five previously published short forms of the GDS showed good psychometric properties in the current sample (Sheik & Yesavage, 1986; D’Ath et al., 1994; van Marwijk et al., 1995; Sutcliffe et al., 2000; Molloy et al., 2006). Overall, these captured most of the information gained from asking patients the full 30 items, had good internal consistency and adequate test–retest reliability, showed concurrent and convergent validity similar to that of the full scale, and produced distributions of scores that may be of use in clinical contexts. In general, the psychometric properties of the 4-item short form by D’Ath et al. (1994) and the 5-item short-form by Molloy et al. (2006) were similar to those of the three short forms containing 10 or more items (Sheik & Yesavage, 1986; van Marwijk et al., 1995; Sutcliffe et al., 2000). The 5-item tool may be of particular interest in palliative contexts. In other settings, it shows good psychometric properties in patients with cognitive impairment (Molloy et al., 2006).

In summary, five short forms of the GDS (D’Ath et al., 1994; van Marwijk et al., 1995; Shah et al., 1996; Sutcliffe et al., 2000; Molloy et al., 2006) hold promise as clinically useful tools in palliative care because they have many psychometric strengths and use simpler and more consistent response alternatives than most other multi-item scales (Zigmond & Snaith, 1983; Cox et al., 1987). Preferences between these short forms will be influenced by the relative importance assigned to minimizing burden versus understanding patients’ experience, the relevance of their content to the clinical situation, and the results of subsequent investigations examining their validity against a gold standard.

This study also used the GDS-30 to gain insight into the ways in which nonsomatic symptoms associated with depression are expressed in palliative populations. Some nonsomatic symptoms of depression were endorsed by more than half the sample. These primarily related to behavioral indices of anhedonia that were also likely to be influenced by disease progression (e.g., “Dropped many activities

Table 6. Relative frequency of items from the Geriatric Depression Scale differentially endorsed by patients likely to have severe depression and other patients

Item	Patients (%)		Differential endorsement (χ^2)	
	Visit 1 (n = 84)	Visit 2 (n = 34)	Visit 1 (n = 84)	Visit 2 (n = 34)
1 Basically satisfied with life? (No)	13	17	0	3.1
2 Dropped many activities and interests? (Yes)	75	72	1.5	0
3 Feel that life is empty? (Yes)	14	24	12.9***	5.9*
4 Often get bored? (Yes)	36	36	7.5**	0.5
5 Hopeful about the future? (No)	28	21	1.0	7.6**
6 Bothered by thoughts that can't get out of head? (Yes)	34	24	8.2**	5.9*
7 In good spirits most of the time? (No)	6	14	33.1***	27.0***
8 Afraid that something bad is going to happen? (Yes)	31	38	9.3**	6.8**
9 Feel happy most of the time? (No)	12	10	16.6***	19.4***
10 Often feel helpless? (Yes)	42	45	5.7*	8.9**
11 Often get restless and fidgety? (Yes)	51	36	4.1*	5.9*
12 Prefer to stay at home rather than going out and doing new things? (Yes)	52	64	3.9*	3.0
13 Frequently worry about the future? (Yes)	31	28	9.5**	11.2***
14 Feel that have more problems with memory than most? (Yes)	35	36	0	8.9**
15 Think it is wonderful to be alive now? (No)	5	7	17.5***	2.1
16 Often feel downhearted and blue? (Yes)	27	24	5.0*	13.4***
17 Feel pretty worthless the way you are now? (Yes)	35	31	3.0	9.4**
18 Worry a lot about the past? (Yes)	6	7	33.1***	2.1
19 Find life very exciting? (No)	45	75	1.5	1.4
20 Hard to get started on new projects? (Yes)	62	62	2.5	2.8
21 Feel full of energy? (No)	87	79	0.6	1.1
22 Feel that situation is hopeless? (Yes)	40	24	0.2	5.9*
23 Think that most people are better off? (Yes)	23	31	14.1***	3.7
24 Frequently get upset over little things? (Yes)	31	31	3.9*	0.6
25 Frequently feel like crying? (Yes)	32	17	9.1**	3.1
26 Have trouble concentrating? (Yes)	30	21	0.9	16.4***
27 Enjoy getting up in the morning? (No)	39	35	2.3	0.4
28 Prefer to avoid social gatherings? (Yes)	39	52	2.4	1.4
29 Easy to make decisions? (No)	21	28	7.5**	11.2***
30 Mind as clear as it used to be? (No)	39	48	2.4	5.9*

* $p \leq .5$; ** $p \leq .01$; *** $p \leq .001$.

and interests"). A similar pattern was reported by Sela (2007), who used a different screening instrument. The high frequency with which patients at both visits endorsed items relating to positive affect and satisfaction with life is noteworthy, given these patients' prognosis and their symptom burden, and helps to balance the high frequency with which these patients endorsed items relating to loss of activities and interests and lack of energy.

Despite the high level of endorsement of many nonsomatic symptoms, there was little evidence that advanced illness and side effects of treatment led to overdiagnosis of severe depression by the GDS-30. Moreover, most of the items on the GDS-30 helped to discriminate between patients likely to have severe depression and other patients at Visit 1 and/or Visit 2. Thus, those ambulatory palliative patients identified by the GDS-30 as likely to have severe depression report most of the nonsomatic symp-

toms that are seen in the other geriatric populations on which the GDS was based.

The current research had several strengths, including assessment of the psychometric properties of the scales at more than one point during the trajectory of illness. However, the findings should be interpreted with caution because the sample size was limited, especially at Visit 2, and included only patients well enough to attend an ambulatory outpatient clinic. For obvious practical reasons, scores for the nine short forms of the GDS were derived from the GDS-30 rather than from the independent administration of these scales. The psychometric properties reported here therefore need to be verified when the scales are administered independently. In addition, the effectiveness that these short forms of the GDS (van Marwijk et al., 1993; D'Ath et al., 1994; Lyness et al., 1997; Arthur et al., 1999; Molloy et al., 2006) have shown in screening for depression

Table 7. Distribution of scores on GDS short forms with fewer than 10 items

	Patients receiving score(%)					
	0	1	2	3	4	5
GDS-1						
Almedia						
Visit 1	87.2	12.8				
Visit 2	82.8	17.2				
D'Ath						
Visit 1	85.9	14.1				
Visit 2	75.9	24.1				
GDS-4						
D'Ath						
Visit 1	58.4	23.4	11.7	3.9	2.6	
Visit 2	51.7	20.7	20.7	—	6.9	
Galaria						
Visit 1	15.4	29.5	33.3	19.2	2.6	
Visit 2	21.4	17.9	32.1	21.4	7.1	
van Marwijk						
Visit 1	11.7	36.4	42.9	6.5	2.6	
Visit 2	10.7	32.1	39.3	14.3	3.6	
GDS-5						
Hoyl						
Visit 1	13.0	36.4	23.4	15.6	9.1	2.6
Visit 2	22.2	18.5	18.6	18.5	18.5	3.7
Molloy						
Visit 1	47.4	21.8	14.1	11.5	2.6	2.6
Visit 2	41.4	31.0	6.9	13.8	—	6.9

in other populations needs to be verified in palliative contexts by validating them against a gold standard diagnostic test. It will also be important to verify that the high acceptability of these short forms in other populations is also observed among patients receiving palliative care (D'Ath et al., 1994).

The current study yielded two outcomes. It identified five existing short forms of the GDS (Sheik & Yesavage, 1986; D'Ath et al., 1994; van Marwijk et al., 1995; Sutcliffe et al., 2000; Molloy et al., 2006) that hold the promise of providing insight into patients' experience of depression while limiting burden on patients and staff. Two of these are sufficiently brief to be included in routine screening. It also showed that items concerning some nonsomatic symptoms of depression are endorsed by many patients receiving palliative care. Despite this, most of the nonsomatic symptoms assessed in this study were helpful in identifying patients with severe depression.

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REFERENCES

- Akamatsu, K., Saito, A., Wada, T., et al. (2005). Analysis of comprehensive geriatric assessment of elderly residents in a social welfare home for the aged compared with those in a residential care home in an urban area in Japan. *Geriatrics and Gerontology International*, 5, 53–58.
- Akechi, T., Okamura, T., Sugawara, Y., et al. (2004). Suicidality in terminally ill Japanese patients with cancer. *Cancer*, 100, 183–191.
- Almeida, O.P. & Almeida, S.A. (1999). Short versions of the Geriatric Depression Scale: A study of their validity for the diagnosis of a major depressive episode according to ICD-10 and DSM-IV. *International Journal of Geriatric Psychiatry*, 14, 858–865.
- Andersen, B.L., Farrar, W.B., Golden-Kreutz, D.M., et al. (2004). Psychological, behavioral, and immune changes after a psychological intervention: A clinical trial. *Journal of Clinical Oncology*, 22, 3570–3580.
- Andersen, B.L., Farrar, W.B., Golden-Kreutz, D., et al. (2007). Distress reduction from a psychological intervention contributes to improved health for cancer patients. *Brain, Behavior, and Immunity*, 21, 953–961.
- Arthur, A., Jagger, C., Lindesay, J., et al. (1999). Using an annual over-75 health check to screen for depression: Validation of the short Geriatric Depression Scale (GDS15) within general practice. *International Journal of Geriatric Psychiatry*, 14, 431–439.
- Bach, M., Nikolaus, T., Oster, P., et al. (1996). Depression in the elderly: The Geriatric Depression Scale (German). *Zeitschrift für Gerontologie und Geriatrie*, 28, 42–46.
- Baker, F.M. & Espino, D.V. (1997). A Spanish version of the Geriatric Depression Scale in Mexican-American elders. *International Journal of Geriatric Psychiatry*, 12, 21–25.
- Balducci, L. (2003). New paradigms for treating elderly patients with cancer: The comprehensive geriatric assessment and guidelines for supportive care. *The Journal of Supportive Oncology*, 1, 30–37.
- Beck, A.T., Ward, C.H., Mendelson, M., et al. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 53–63.
- Bruera, E., Kuehn, N., Miller, M.J., et al. (1991). The Edmonton Symptom Assessment System (ESAS): A simple method for the assessment of palliative care patients. *Journal of Palliative Care*, 7(2), 6–9.
- Bruera, E., Miller, L., McCallion, J., et al. (1992). Cognitive failure in patients with terminal cancer: A prospective study. *Journal of Pain and Symptom Management*, 7, 192–195.
- Cassileth, B., Lusk, E., Strouse, T., et al. (1985). A psychological analysis of cancer patients and their next-of-kin. *Cancer*, 55, 72–76.
- Chen, H., Cantor, A., Meyer, J., et al. (2003). Can older cancer patients tolerate chemotherapy? A prospective pilot study. *Cancer*, 97, 1107–1114.

- Chochinov, H.M., Wilson, K.G., Enns, M., et al. (1994). Prevalence of depression in the terminally ill: Effects of diagnostic criteria and symptom threshold judgments. *American Journal of Psychiatry*, *151*, 537–540.
- Chochinov, H.M., Wilson, K.G., Enns, M., et al. (1997). "Are you depressed?" Screening for depression in the terminally ill. *American Journal of Psychiatry*, *154*, 674–676.
- Christakis, N.A. (1994). Timing of referral of terminally ill patients to an outpatient hospice. *Journal of General Internal Medicine*, *9*, 314–320.
- Clement, J.P., Nassif, R.F., Leger, J.M., et al. (1997). Development and contribution to the validation of a short French version of the Geriatric Depression Scale (French). *Encephale*, *23*, 91–99.
- Cox, J.L., Holden, J.M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Depression Scale. *British Journal of Psychiatry*, *150*, 782–786.
- Dall, J. & Hopkins, A. (1992). *Standardised assessment scale for elderly people*. London: The Royal College of Physicians of London and the British Geriatrics Society.
- D'Ath, P., Katona, P., Mullan, E., et al. (1994). Screening, detection and management of depression in elderly primary care attenders. I: The acceptability and performance of the 15 item Geriatric Depression Scale (GDS 15) and the development of short versions. *Family Practice*, *11*, 260–266.
- Deschler, B., de Witte, T., Mertelsmann, R., et al. (2006). Treatment decision-making for older patients with high-risk myelodysplastic syndrome or acute myeloid leukemia: Problems and approaches. *Haematologica*, *91*, 1513–1522.
- DiMatteo, M., Lepper, H., & Croghan, T. (2000). Depression is a risk factor for noncompliance with medical treatment: Meta-analysis of the effects of anxiety and depression on patient adherence. *Archives of Internal Medicine*, *160*, 2101–2107.
- Duffy, S.A., Terrell, J.E., Valenstein, M., et al. (2002). Effect of smoking, alcohol, and depression on the quality of life of head and neck cancer patients. *General Hospital Psychiatry*, *24*, 140–147.
- Durkin, I., Kearney, M., & O'Siorain, L. (2003). Psychiatric disorder in a palliative care unit. *Palliative Medicine*, *17*, 212–218.
- Endicott, J. (1984). Measurement of depression in patients with cancer. *Cancer*, *53*, 2243–2249.
- Extermann, M. (2003). Studies of comprehensive geriatric assessment in patients with cancer. *Cancer Control*, *10*, 463–468.
- Faller, H. & Bulzebruck, H. (2002). Coping and survival in lung cancer: A 10-year follow-up. *American Journal of Psychiatry*, *159*, 2105–2107.
- Galaria, I.I., Casten, R.J., & Rovner, B.W. (2000). Development of a shorter version of the Geriatric Depression Scale for visually impaired older patients. *International Psychogeriatrics*, *12*, 435–443.
- Greenberg, L., Lantz, M.S., Likourezos, A., et al. (2004). Screening for depression in nursing home palliative care patients. *Journal of Geriatric Psychiatry and Neurology*, *17*, 212–218.
- Heisel, M.J., Flett, G.L., Duberstein, P.R., et al. (2005). Does the Geriatric Depression Scale (GDS) distinguish between older adults with high versus low levels of suicidal ideation? *American Journal of Geriatric Psychiatry*, *13*, 876–883.
- Hinton, J. (1994). Which patients with terminal cancer are admitted from home care? *Palliative Medicine*, *8*, 197–210.
- Hotopf, M., Chidgey, J., Addington-Hall, J., et al. (2002). Depression in advanced disease: A systematic review Part 1. Prevalence and case finding. *Palliative Medicine*, *16*, 81–97.
- Hoyl, M.T., Alessi, C.A., Harker, J.O., et al. (1999). Development and testing of a five-item version of the Geriatric Depression Scale. *Journal of the American Geriatrics Society*, *47*, 873–878.
- Jerant, A.F., Azari, R.S., Nesbitt, T.S., et al. (2004). The TLC model of palliative care in the elderly: Preliminary application in the assisted living setting. (Timely and team oriented, longitudinal, and collaborative and comprehensive). *Annals of Family Medicine*, *2*, 54–60.
- Kamboj, S.K., Tookman, A., Jones, L., et al. (2005). The effects of immediate-release morphine on cognitive functioning in patients receiving chronic opioid therapy in palliative care. *Pain*, *117*, 388–395.
- Kelly, B., Burnett, K., Pelusi, D., et al. (2003). Factors associated with the wish to hasten death: A study of patients with terminal illness. *Psychological Medicine*, *33*, 75–81.
- Kramer, J.A. (1999). Use of the Hospital Anxiety and Depression Scale (HADS) in the assessment of depression in patients with inoperable lung cancer. *Palliative Medicine*, *13*, 353–354.
- Le Fevre, P., Devereux, J., Smith, S., et al. (1999). Screening for psychiatric illness in the palliative care inpatient setting: A comparison between the Hospital Anxiety and Depression Scale and the General Health Questionnaire-12. *Palliative Medicine*, *13*, 399–407.
- Lin, E.H.B., Katon, W., Von Korff, M., et al. (2003). Effect of improving depression care on pain and functional outcomes among older adults with arthritis: A randomized controlled trial. *JAMA*, *290*, 2428–2434.
- Liu, C.Y., Lu, C.H., Yu, S., et al. (1998). Correlations between scores on Chinese versions of long and short forms of the Geriatric Depression Scale among elderly Chinese. *Psychological Reports*, *82*, 211–214.
- Lloyd-Williams, M., Dennis, M., & Taylor, F. (2004). A prospective study to compare three depression screening tools in patients who are terminally ill. *General Hospital Psychiatry*, *26*, 384–389.
- Lloyd-Williams, M., Friedman, T., & Rudd, N. (2000). Criterion validation of the Edinburgh Postnatal Depression Scale as a screening tool for depression in patients with advanced metastatic cancer. *Journal of Pain and Symptom Management*, *20*, 259–265.
- Lloyd-Williams, M., Friedman, T., & Rudd, N. (2001). An analysis of the validity of the Hospital Anxiety and Depression Scale as a screening tool in patients with advanced metastatic cancer. *Journal of Pain and Symptom Management*, *22*, 990–996.
- Lloyd-Williams, M. & Payne, S. (2003). A qualitative study of clinical nurse specialists' views on depression in palliative care patients. *Palliative Medicine*, *17*, 334–338.
- Lloyd-Williams, M. & Riddleston, H. (2002). The stability of depression scores in patients who are receiving palliative care. *Journal of Pain and Symptom Management*, *24*, 593–597.
- Lynch, M.E. (1995). The assessment and prevalence of affective disorders in advanced cancer. *Journal of Palliative Care*, *11*, 10–18.
- Lyness, J.M., Noel, T.K., Cox, C., et al. (1997). Screening for depression in elderly primary care patients: A comparison of the centre for epidemiologic studies-depression scale and the Geriatric Depression Scale. *Archives of Internal Medicine*, *157*, 449–454.

- Maher, E.J., Mackenzie, C., Young, T., et al. (1996). The use of the Hospital Anxiety and Depression Scale (HADS) and the EORTC QLQ-C30 questionnaires to screen for treatable unmet needs in patients attending routinely for radiotherapy. *Cancer Treatment Reviews*, 22(Suppl. A), 123–129.
- Mann, E., Koller, M., Mann, C., van der Cammen, T. & Steurer, J. (2004). Comprehensive geriatric assessment (CGA) in general practice: Results from a pilot study in Voralberg, Austria. *BioMed Central Geriatrics*, 4.
- Massie, M.J. & Holland, J.C. (1990). Depression and the cancer patient. *Journal of Clinical Psychiatry*, 51(7 Suppl), 12–17.
- Meyer, H.A.M., Sinnott, C., & Seed, P.T. (2003a). Depressive symptoms in advanced cancer. Part 1. Assessing depression: The Mood Evaluation Questionnaire. *Palliative Medicine*, 17, 596–603.
- Meyer, H.A.M., Sinnott, C., & Seed, P.T. (2003b). Depressive symptoms in advanced cancer. Part 2. Depression over time; the role of the palliative care professional. *Palliative Medicine*, 17, 604–607.
- Molloy, D.W., Standish, T.I., Dubois, S., et al. (2006). A short screen for depression: The ABCD Screen (ABCDS). *International Psychogeriatrics*, 18, 481–492.
- Murtagh, F.E.M., Addington-Hall, J.M., & Higginson, I.J. (2007). The value of cognitive interviewing techniques in palliative care research. *Palliative Medicine*, 21, 87–93.
- Olin, J.T., Schneider, L.S., Eaton, E.M., et al. (1992). The Geriatric Depression Scale and the Beck Depression Inventory as screening instruments in an older adult outpatient population. *Psychological Assessment*, 4, 190–192.
- Osterweil, D. (2003). Comprehensive geriatric assessment: Lessons in progress. *Israeli Medical Association Journal*, 5, 371–374.
- Overcash, J.A., Beckstead, J., Extermann, M., et al. (2005). The abbreviated comprehensive geriatric assessment (CGA): A retrospective analysis. *Critical Reviews in Oncology Haematology*, 54, 129–136.
- Passik, S.D., Kirsh, K.L., Theobald, D., et al. (2002). Use of a depression screening tool and a Fluoxetine-based algorithm to improve the recognition and treatment of depression in cancer patients: A demonstration project. *Journal of Pain and Symptom Management*, 24, 318–327.
- Razavi, D., Delvaux, N., Farvacques, C., et al. (1990). Screening for adjustment disorders and major depressive disorders in cancer in-patients. *British Journal of Psychiatry*, 156, 79–83.
- Repetto, L., Fratino, L., Audisio, R.A., et al. (2002). Comprehensive geriatric assessment adds information to Eastern Cooperative Oncology Group Performance Status in elderly cancer patients: An Italian group for geriatric oncology study. *Journal of Clinical Oncology*, 20, 494–502.
- Riccio, D., Solinas, A., Astará, G., et al. (2007). Comprehensive geriatric assessment in female elderly patients with Alzheimer's disease and other types of dementia. *Archives of Gerontology and Geriatrics - Supplement*, 1, 343–353.
- Robinson, J.A. & Crawford, G.B. (2005). Identifying palliative care patients with symptoms of depression: An algorithm. *Palliative Medicine*, 19, 278–287.
- Sela, R.A. (2007). Screening for depression in palliative cancer patients attending a pain and symptom control clinic. *Palliative and Supportive Care*, 5, 207–217.
- Shah, A., Phongsathorn, V., Bielawska, C., et al. (1996). Screening for depression among geriatric inpatients with short versions of the geriatric depression scale. *International Journal of Geriatric Psychiatry*, 11, 915–918.
- Sharp, L.K. & Lipsky, M.S. (2002). Screening for depression across the lifespan: A review of measures for use in primary care settings. (Problem-oriented diagnosis). *American Family Physician*, 66, 1001–1007.
- Sheik, J. & Yesavage, J. (1986). Geriatric Depression Scale. Recent evidence and development of a shorter version. In *Clinical Gerontology: A Guide to Assessment and Intervention*, Brink T. (ed.), pp. 165–173. New York: Haworth Press.
- Smith, E.M., Gomm, S.A., & Dickens, C.M. (2003). Assessing the independent contribution to quality of life from anxiety and depression in patients with advanced cancer. *Palliative Medicine*, 17, 509–513.
- Spiegel, D. (1996). Cancer and depression. *British Journal of Psychiatry*, 168(Suppl. 30), 109–116.
- Spitzer, R.L., Endicott, J., & Robins, E. (1978). Research Diagnostic Criteria. Rationale and reliability. *Archives of General Psychiatry*, 35, 773–782.
- Sullivan, P.S. & Dworkin, M.S. (2003). Prevalence and correlates of fatigue among persons with HIV infection. *Journal of Pain and Symptom Management*, 25, 329–333.
- Sutcliffe, C., Cordingley, L., Burns, A., et al. (2000). A new version of the Geriatric Depression Scale for nursing and residential home populations: The Geriatric Depression Scale (Residential) GDS-12R. *International Psychogeriatrics*, 12, 173–181.
- Unutzer, J., Patrick, D.L., Simon, G., et al. (1997). Depressive symptoms and the cost of health services in HMO patients aged 65 years and older: A 4-year prospective study. *JAMA*, 277, 1618–1623.
- Urch, C.E., Chamberlain, J., & Field, G. (1998). The drawbacks of the Hospital Anxiety and Depression Scale in the assessment of depression in hospice inpatients. *Palliative Medicine*, 12, 395–396.
- van Marwijk, H.W.J., Arnold, I., Bonnema, J., et al. (1993). Self-reporting depression scales for elderly patients in primary care: A preliminary study. *Family Practice*, 10, 63–65.
- van Marwijk, H.W.J., Wallace, P., De Bock, G.H., et al. (1995). Evaluation of the feasibility, reliability and diagnostic value of shortened versions of the Geriatric Depression Scale. *British Journal of General Practice*, 45, 195–199.
- Wada, T., Wada, C., Ishine, M., et al. (2005). Comprehensive geriatric assessment for community-dwelling elderly in Asia compared with those in Japan: V. West Java in Indonesia. *Geriatrics and Gerontology International*, 5, 168–175.
- Weeks, S.K., McGann, P.E., Michaels, T.K., et al. (2003). Comparing various short-form Geriatric Depression Scales leads to the GDS-5/15. *Journal of Nursing Scholarship*. Second Quarter, 133–137.
- Wieland, D. & Hirth, V. (2003). Comprehensive geriatric assessment. *Cancer Control*, 10, 454–462.
- Yesavage, J.A., Brink, T.L., Rose, T.L., et al. (1982–1983). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37–49.
- Zigmond, A.S. & Snaith, R.P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67, 361–370.