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Depression Identification in the Long-Term Care Setting: The GDS vs. the MDS

Deborah Heiser, PhD

ABSTRACT. This study compared depression identification rates and validity of the currently mandated Minimum Data Set (MDS) and the Geriatric Depression Scale Short Form-15 item (GDS) in a sample of nursing home residents. Results indicate the GDS is a better tool for identifying depression than the MDS. The GDS, MDS Section E1, QI, and OSCAR screened 35%, 23%, 3%, and 4% positive for depression, respectively. Mean sensitivity and specificity for SADS-RDC (gold standard) vs. GDS, MDS Section E1, OSCAR, and QI were .91, .79, .83, and .88, respectively. Chi-square analyses indicated the GDS was the only test, in relation to the SADS-RDC to identify depressed residents p = .001. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com>*

KEYWORDS. Depression, aging, GDS, MDS, long-term care

INTRODUCTION

Although depression is not an inevitable part of aging (Lebowitz, 2000; Lichtenberg, Kimbarow, Wall, Roth, & MacNeill, 1998; Thomas,

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2000), the percentage of older adults suffering from depression is greater than the estimated 5% among children and adolescents or the estimated 5.3% among non-elderly adults (U.S. Department of Health and Human Services, 1999). The incidence of depression may be even greater among nursing home residents than among community dwelling older adults (Parmelee, Katz, & Lawton, 1989). This is important, because the nursing home population in the United States is sizeable. As of 1997, approximately 1,465,000 older adults resided in nursing homes (Pandya, 2001). (This excludes individuals who received personal care in the home.) The reported prevalence of major depression among nursing home residents has varied between 15% and 19%, with as many as 50% suffering from minor depression (Hyer & Blazer, 1982; Sayhoun, Pratt, Lentzner, Dey, & Robinson, 2001). Parmelee et al. (1989) asserted that these varying results might be due to problems assessing depression among the elderly. Further, depression rates among nursing home residents may be higher than some studies report because residents are not appropriately evaluated. This study attempted to address this assessment problem so as to accurately determine the prevalence of depression among nursing home residents.

Depression has often gone unrecognized among older medically ill patients (Lichtenberg, 1997; Lebowitz, 2000). Lichtenberg et al. (1998) stated that as few as 9% to 18% of depressed cases are correctly identified by physicians. Sturm and Wells (1995) and Thomas (2000) reported that nearly half of depressed patients seeking care from a primary care physician are not correctly diagnosed. There are many reasons for this. Older depressed adults may not seek treatment or may try to hide their depression for fear of stigma or because of feelings of hopelessness. Financial barriers and a lack of appreciation of treatment benefits also inhibits individuals from seeking treatment (U.S. Department of Health and Human Services, 1999). Clinicians may not identify depression because certain somatic symptoms of depression may be attributed to other illnesses (Gallo & Coyne, 2000; Lichtenberg et al., 1998; Sturm & Wells, 1995; Thomas, 2000) or even to normal aging. Older adults may also think aches and pains are normal (Gastel, 1994).

A standard procedure for identifying depression does not currently exist within nursing homes. In Medicaid- and Medicare-certified nursing facilities, the Minimum Data Set (MDS) assesses residents' physical and psychosocial well-being as well as their quality of life (Long-Term Care Facility Resident Assessment [RAI] User's Manual, 1999). The psychosocial component of the MDS was not designed to screen for depression. Therefore, a better screening tool may be needed.

The consequences for nonidentification of depression in older adults are notable. Depression is associated with medical illness, diminished functioning, slower recovery from illness and injury, and increased mortality (Alexopoulos et al., 1996; Gallo & Coyne, 2000; Lamberg, 1996; Lebowitz, 2000; Lichtenberg et al., 1998; Parmelee, Katz, & Lawton, 1992; Penninx, Geerlings, & Deeg, 1999; Steffens, Hays, & Krishnan, 1999; Thomas, 2000; Voelker, 1996). This is especially true for vulnerable populations such as those residing in long-term care facilities or receiving short-term rehabilitation services (Lebowitz, 2000; Lichtenberg et al., 1998).

Effective treatments for depression exist (Lichtenberg, 1997; U.S. Department of Health and Human Services, 1999). The effectiveness of both medication therapy and psychotherapy have been well documented (Clarkin, Pilonis, & Magurder, 1996). Treatment not only leads to improved mood; depressed patients also improve physically when they receive treatment (Lebowitz, 2000; Lichtenberg et al., 1998). Furthermore, treatment for depression may promote greater compliance with medical care, thereby lowering the cost of care, improving the life of the individual, and even preventing suicide. Without appropriate identification however, the future physical health, mental health, and length of life of under-identified depressives may be in jeopardy. Early recognition and treatment of depression in older adults offers opportunities to improve their quality of life, prevent suffering and premature death, help maintain their levels of functioning and independence, and lower overall medical costs.

In order to effectively treat depressed individuals, they first must be identified as depressed. Simply identifying symptoms, as does the MDS, may not lead to appropriate identification in nursing homes. Therefore, the use of an objective measure to assess for the probability of depression, the GDS, may be better than the currently used subjective measure, the MDS.

The purpose of this study was to compare the GDS with the MDS in order to determine whether the GDS better identifies depression among nursing home residents. I hypothesized that the currently used MDS does not adequately identify depression whereas the GDS effectively and efficiently accomplishes this task. The GDS and MDS were compared with the Schedule for Affective Disorders and Schizophrenia and Research Diagnostic Criteria (SADS-RDC) in order to test these hypotheses.

METHOD

Participants

Participants were 348 residents from a large urban nursing home in New York City. Thirty-seven percent of them were male; 63% were female. Forty-five percent were Black, 22% were White, 32% were Hispanic, and the remaining 1% were classified as Other. Sixty-six percent of the participants spoke English, 30% Spanish, and 4% other languages. Of the participants, 37% reached the 8th grade or less, 11% 9th to 11th grade, 30% high school, 14% technical, trade school, or some college, 6% bachelor's degree, and 2% graduate degree. Participants ranged in age from 49 to 101 with a mean of 80 years of age (*SD* = 11.30). Ninety-four percent of the participants were 65 years of age and older; only 6% were between 49 and 64 years of age. Ninety-one percent of the participants reported no prior history of mental illness.

INSTRUMENTS

Minimum Data Set (MDS)

The MDS, a mandatory assessment of residents in Medicaid- and Medicare-certified nursing facilities, is administered by a nurse and/or other staff member upon admission, quarterly thereafter, and if a change in resident status occurs. The MDS was not designed as a screening measure for depression. It simply identifies depressive symptoms noticed by the nurse or staff members or reported by the resident. The MDS was used to assess for the presence of depression based on scoring used for the OSCAR, for the QI, and by the presence of one symptom from section E1 (that is, any symptom present from section E1).

Casten et al. (1998) studied the psychometric characteristics of the MDS and found that reliability estimates were generally acceptable (Kappas were between .63 and .84) but were poorer in field conditions than when the administration was performed under ideal research-trained conditions. Lawton et al. (1998) studied the validity of the MDS and found validity coefficients ranged from .43 to .70 for cognition, .58 and .79 for ADL, and .15 to .44 for depression. Clearly, depression was the poorest. Stineman and Maislin (2000) argued that overly optimistic assessments of the MDS's reliability and validity obtained with highly trained assessors may not be accurate predictors of those obtained under

actual field implementation. For example, some nursing homes hire specialists to complete the MDS, whereas other nursing home facilities do not. Thus, the reliability of the data collected in the average nursing home is unknown.

Geriatric Depression Scale Short Form (GDS)

The Geriatric Depression Scale (GDS) focuses on depressive symptoms common among the elderly but does not focus on physical complaints associated with depression that may be attributed to other illnesses. This measure was the first depression screening measure developed for and validated on the elderly (Brink et al., 1982), and has been found to be reliable and valid as a measure of depression in the elderly (Lesher, 1986; Lichtenberg et al., 1998; Lyness, 1997; Parmelee et al., 1989).

The GDS has a standard and a short form, both of which are presented in a series of yes/no questions. The short form contains 15 questions and takes approximately 10 to 15 minutes to administer. Both the standard and short form versions of the GDS have shown good sensitivity and specificity (Lyness, 1997). Specifically, Lyness (1997) indicated the short GDS has a sensitivity of 92% and a specificity of 81%, and the standard 30-item GDS has a sensitivity of 100% and a specificity of 84%.

Any individual with a GDS short-form score of 6 or greater should be evaluated for depressive disorders. In this study, therefore, scores of 6 or greater were categorized as a positive screen for depression. An asset of the GDS is that it is available in 22 languages (Yesavage, 2000). Based on the preferred language of the resident, the English or Spanish GDS forms were administered by a trained volunteer or social work/psychology intern to all cognitively intact residents in the nursing home.

Schedule for Affective Disorders and Schizophrenia (SADS) and the Research and Diagnostic Criteria (RDC)

The SADS is a comprehensive diagnostic tool for affective disorders, including depression, which gives a diagnosis based on the Research Diagnostic Criteria (RDC). The RDC is used to give a diagnosis based on inclusion and exclusion criteria for affective disorders and schizophrenia from SADS items. Diagnostic reliability is reported to be high (Endicott & Spitzer, 1979). In reliability testing, Kappas for the RDC were generally above .70 and .80, indicating high agreement and the co-

efficients for depressive mood and ideation and depressive-associated features were .87 and .79, respectively.

PROCEDURES

Myself and other trained volunteers administered the GDS and SADS-RDC to all participants as part of the standard nursing home procedure. Residents were approached based on the current nursing home list of residents due for an MDS assessment. Upon admission, the resident name was placed on a nursing home list, which was kept in the Social Services department. Residents were appropriate for GDS assessment 3 weeks post-admission to the facility. The 3-week waiting period was put in place to limit the number of false positive screenings for depression on the GDS from individuals suffering from an adjustment disorder when first entering the nursing home. Three weeks post-admission, a trained volunteer approached the residents. If he or she agreed and was cognitively intact, the GDS was administered. If the resident scored 6 or greater, a copy of the GDS was given to the psychology supervisor. The SADS (Part One) was administered to a smaller group of individuals. A power analysis (Kraemer & Thiemann, 1987) revealed that, to have a 90% chance at $p < .05$ (two-tailed test) of finding a difference of .50 standard deviation units between the SADS-RDC and the GDS distributions, I needed an N of 36. As a result, I collected 38 SADS-RDCs. The SADS-RDC was implemented and scored in conjunction with the GDS. That is, those individuals due for a GDS assessment also received additional assessments, which included the SADS-RDC. These instruments were administered and scored by myself and one other trained graduate psychology student. These were administered separately, and each of the trained testers was unaware of the responses obtained by the other tester. Administration of both instruments were completed within 1 week of one another. Following current nursing home GDS protocol, GDS and SADS-RDC data were kept strictly confidential, in a locked cabinet managed by the Social Services department. In addition, the psychology supervisor in the nursing home was given a list of the names of all individuals who rated as depressed on the GDS and/or the SADS-RDC in order to follow up for clinical treatment purposes.

The following hypotheses were tested:

1. The GDS would identify more depressed residents than the MDS:
   a. The GDS would identify more depressed residents than if only one MDS item from section E1 was rated;
   b. The GDS would identify more depressed residents than if the MDS was scored according to the Online Survey Certification and Reporting System (OSCAR) rating for depression (HCFA 672 Report v99.5, 1999); and
   c. The GDS would identify more depressed residents than if the MDS was scored according to the Quality Indicators for Implementation (QI) rating for depression (MDS Quality Indicator Report, 2000).
2. The SADS would validate the GDS as an adequate identification tool for depression in the following ways:
   a. Using the SADS as the standard, the GDS would have higher sensitivity than the MDS; and
   b. Using the SADS as the standard, the GDS would have higher Kappas than the MDS.

RESULTS

Descriptive Statistics

Of the 348 participants, 348 GDS, 348 QI, 346 MDS Section E1, and 321 OSCAR ratings were collected. For purposes of comparison, 38 SADS-RDC were collected. Table 1 summarizes the depression ratings for the GDS, QI, MDS Section E1, and Oscar.

Three hundred forty-eight participants were screened for depression with the GDS. Overall, 35% of the sample was depressed, according to the GDS Short Form cutoff of 6+. The depression rate did not differ significantly across gender. Among the males, the rate was 13%, while among females it was 22% ($p > .90$). The depression rate did not differ significantly with age ($p > .25$). Five percent were 70 years of age and younger, 11% between 71 and 80 years of age, 11% between 81 and 90 years of age, and 8% were 91 years of age and older. Depression rates for race/ethnicity were: 12% Black, 12% Hispanic, 10% White, and less than 1% Other.

Data were collected with regard to education for 257 of the 348 participants. Thirty-six percent screened positive for depression. Two percent received no schooling, 11% received 8th grade or less, 4% received 9th to 11th grade, 9% high school, 2% technical or trade school, 5%

TABLE 1. Sample Descriptives for Depression

Scale	N	% Depressed	% Not Depressed
GDS	348	35	65
MDS Section E1	346	23	77
QI	348	3	97
OSCAR	321	4	96
SADS (Gold Standard)	38	24	76

some college, 2% a bachelor's degree, and 1% received a graduate degree. Data were collected with regard to spoken language for 258 of the 348 participants. Thirty-six percent screened positive for depression. Twenty-two percent spoke English, 12% spoke Spanish, and 2% spoke other languages.

Hypothesis 1: Chi Square, Correlation, and Fisher's Z Analyses of GDS, SADS-RDC, and MDS Section E1

To determine if the SADS-RDC and the GDS and the GDS and the MDS Section E1 were independent of one another, chi-square analyses were performed. The chi square between the SADS-RDC and the GDS was significant $\chi 2(N = 31) = 10.82$, $p = .001$. The chi square between the MDS Section E1 and the GDS was also significant $\chi 2$ ($N = 346$) = 3.9, $p = .05$. This means there was a significant relationship between the GDS and the SADS-RDC, and between the GDS and the MDS Section E1.

To determine if the MDS Section E1 and the SADS-RDC were independent of one another, a chi-square analysis was performed. The chi square between the SADS-RDC and the MDS Section E1 was not significant $\chi 2$ ($N = 32$) = .19, $p = .66$. This means there was no relationship between the MDS Section E1 and the SADS-RDC. To measure the correlational relationship between the SADS-RDC and MDS Section E1, a phi coefficient was calculated. The correlation between the SADS-RDC and the MDS Section E1 was also not significant r ($N = 38$) = $-.071$, $p = .66$. This indicates that the SADS-RDC and the MDS Section E1 were unrelated. Thus, as with the chi-square analyses, the phi coefficient indicated that the SADS-RDC and the MDS Section E1 were not measuring a similar construct.

In order to determine whether these correlations significantly differ from one another, we compared them via Fisher's z transformation. The

Z for the comparison between the GDS and SADS-RDC vs. the MDS Section E1 and the SADS-RDC was Z = 2.50 ($p < .02$). The two correlations are, therefore, significantly different from one another, with the GDS more highly correlated with the SADS-RDC than was the MDS Section E1.

Hypothesis 1: Chi Square and Correlational Analyses of GDS, SADS-RDC, and OSCAR

To determine if the GDS and the OSCAR and the SADS-RDC and the OSCAR were independent of one another, chi-square analyses were performed. The chi square between the OSCAR and the GDS was not significant χ^2 (N = 206) = .64, p = .43. The chi square between the SADS-RDC and the OSCAR was also not significant, χ^2 (N = 33) = .19, p = .09.

A phi coefficient was employed for correlational analysis. The phi correlation between the SADS-RDC and the OSCAR was not significant r (N = 34) = .29, p = .09. As with the chi-square analysis, the phi coefficient also indicated the SADS-RDC and the OSCAR were not measuring a similar construct. In order to determine whether these correlations significantly differed from one another, we compared them via Fisher's z transformation. The Z for the comparison between the GDS and SADS-RDC vs. the MDS OSCAR and SADS-RDC was Z = 1.20 ($p >$ .05). The two correlations are, therefore, not significantly different from one another.

Hypothesis 1: Chi Square, Correlational, and Fisher's Z Analyses of GDS and MDS Indices vs. SADS-RDC

For the correlational analysis, the point biserial correlation was employed. The correlation between the SADS-RDC and the GDS was significant, r (N = 38) = .53, p = .001. To determine if the GDS and the MDS Quality Indicators (QI), and the SADS-RDC and the QI were independent of one another, a chi-square analysis was performed. The chi square between the QI and the GDS was not significant χ^2 (N = 226) = .01, p = .91. The chi square between the SADS-RDC and QI could not be computed because QI was constant (all of the QI items were not depressed). For the same reason (no variation in Q1), we could perform no Fisher's z transformations or phi correlations.

Table 2 summarizes the findings involving the GDS and the MDS. Table 3 summarizes the findings involving the SADS-RDC, the MDS and the GDS.

The chi-square comparisons shown above indicate the GDS is the only test, in relation to the SADS-RDC, to identify depressed residents. As predicted, there was a strong relationship between the SADS-RDC and the GDS, but none between the SADS-RDC and the various indices of the MDS.

Hypothesis 2: Sensitivity and Specificity

The sensitivity and specificity of the MDS using the SADS-RDC as the "gold standard" was determined. The sensitivity and specificity of the SADS-RDC and the MDS Section E1 were .75 and .83, respectively. The mean of sensitivity and specificity was .79. When compared with the SADS-RDC, the MDS Section E1's sensitivity (ability to correctly identify depression, or true positives) was 75%, and the specificity (ability to correctly identify those who did not have depression, or true negatives) was 83%. The MDS Section E1 correctly identified true positives and true negatives 79% of the time.

TABLE 2. Chi-Square Analysis Comparison of GDS vs. MDS, OSCAR, and QI

	GDS vs. MDS Section E1	GDS vs. OSCAR	GDS vs. QI
Chi-Square Analysis	3.9 p = .05	.64 p = .43	.01 p = .91

TABLE 3. Chi-Square Comparison for SADS-RDC vs. MDS, OSCAR, QI, and GDS

	MDS Section E1	OSCAR	QI	GDS
Chi-Square Analysis	.19 p = .66	.19 p = .09	could not be computed because QI was constant	10.82 p = .001

The sensitivity and specificity of the OSCAR using the SADS-RDC as the "gold standard" were: .66 and 1.00, respectively. The mean of sensitivity and specificity was .83.

The sensitivity and specificity of the QI using the SADS-RDC as the "gold standard" was determined. The sensitivity and specificity of the QI were .76 and 1.00, respectively. The mean of sensitivity and specificity was .88.

The sensitivity and specificity of the GDS using the SADS-RDC as the "gold standard" was determined. When compared with the SADS-RDC, the sensitivity of the GDS with a total score of 0 (ability to correctly identify depression, or true positives) was 78% and the specificity (ability to correctly identify those who do not have depression, or true negatives) was 100%. The sensitivity of the GDS with a total score of 6 was 85% and the specificity was 97%. The sensitivity for the GDS with a total score of 10 in relation to the SADS-RDC was 80% and the specificity was 14%.

Table 4 presents the above results pertaining to the sensitivity and specificity of the MDS Section E1, OSCAR, QI, and GDS total scores in relation to the SADS-RDC.

Hypothesis 2: Kappa Analyses

Kappa was used to compute agreement, beyond that due to chance, among multiple instruments. The proportion of agreements after chance for SADS-RDC and MDS Section E1 had been excluded was − 7%, (N = 38) = −.07, p = .66. The proportion of agreements after chance for SADS-RDC and OSCAR had been excluded was 16% (N = 34) = .15, p = .09. The proportion of agreements after chance for SADS-RDC and QI were not computed because QI was a constant. The proportion of agree-

TABLE 4. Sensitivity and Specificity for SADS-RDC vs. GDS, MDS Section E1, OSCAR, and QI

	MDS Section E1	OSCAR	QI	GDS Total Score = 0	GDS Total Score = 6	GDS Total Score = 10
Sensitivity	.75	.66	.76	.78	.85	.80
Specificity	.83	1.00	1.00	1.00	.97	.14
Mean	.79	.83	.88	.89	.91	.47

ments after chance for SADS-RDC and GDS had been excluded was 53% (N = 38) = .53, $p = .001$.

Table 5 summarizes the aforementioned Kappa results.

DISCUSSION

This study examined whether the GDS accurately identified more depressed residents than did the MDS. More specifically, it examined whether the GDS more accurately identified depressed residents than

a. if only one item from section E1 was rated,
b. according to the OSCAR rating for depression, and
c. according to the QI rating for depression.

This study also compared the SADS-RDC with the GDS in order to validate the GDS as an identification tool for depression. This was done by using the SADS-RDC as the standard in order to determine if the GDS has higher sensitivity and higher Kappas than the MDS.

FINDINGS

The GDS identified more depressed individuals than the MDS Section E1, QI, or the OSCAR. As expected, the GDS identified more depressed individuals than all other indices of the MDS. The frequencies clearly show the GDS may be a better tool for screening for depression than the other measures currently used to measure depression in long-term care facilities. The MDS Section E1 is not used by nursing home facilities to identify depression, but was developed for the purpose of this study to see if even one item from a whole mood section would trigger depression. Not only did this variable (used only for this study) not identify depression as often as the GDS, the two variables that are used regularly by nursing homes (QI and OSCAR) identified only a dismal 3% and 4%, respectively.

TABLE 5. Kappa Comparison for MDS, OSCAR, QI, and GDS

	MDS Section E1	OSCAR	QI	GDS
Kappa	−70%	16%	n/a	53%

To further determine the accuracy of the GDS, chi square and correlational analyses were conducted to determine if the GDS more accurately identified depressed residents than if rated by the MDS Section E1, QI, and OSCAR. As expected, the results indicated that two of the MDS indices, the QI and OSCAR, did not identify depressed residents as accurately as the GDS. Interestingly, the MDS Section E1 significantly identified depressed residents as accurately as the GDS. This finding, most likely occurred because only one item needed to be rated on the MDS Section E1 in order to qualify as depressed. However, as indicated previously in the descriptives, the GDS still identified a higher percentage of depressed individuals than even a rating of only one item on the mood section of the MDS (Section E1). This is important to note, because the goal is to find as many undetected depressed residents in a nursing facility as possible so they can be treated. Therefore, to rely on the MDS Section E1 variable (which isn't even used in nursing facilities, and did not correlate well with the SADS-RDC) would still miss individuals the GDS would identify.

Chi-square and correlational analyses were conducted to determine if the SADS-RDC more accurately identified depressed residents than the GDS, MDS Section E1, QI, and OSCAR. As expected, the results indicated the MDS Section E1, QI, and OSCAR did not identify depressed residents as accurately as the SADS-RDC, whereas the GDS significantly identified depressed residents as accurately as the SADS-RDC. This is an important finding because the SADS-RDC was administered in order to validate the GDS as an adequate tool for identifying depression. This finding shows that the GDS is both a good measure and is better than the various indices of the MDS. This finding is important because the MDS Section E1 variable appears to identify many more individuals than the QI and OSCAR variables (according to frequencies), but as indicated by the aforementioned chi-square analyses, this may be due to chance rather than to accurate identification.

Kappa statistics were used to compute agreement after chance had been excluded for the SADS-RDC and the MDS Section E1, OSCAR, QI, and GDS. As expected, the results indicated that the GDS and SADS-RDC had the highest proportion of agreement. The MDS Section E1 negatively agreed with the GDS. This finding is not altogether unexpected because the MDS Section E1 is a variable developed for the purposes of this study. This variable is simply the result of a positive rating of any item in the MDS Section E1. To simply base depression identification on a positive rating on one item from the mood section does not work. The aforementioned results show this.

The OSCAR and QI were significantly lower than the GDS in agreement when compared with the SADS-RDC. This means that the GDS agrees more with the SADS-RDC than it does with the currently used MDS indices. Therefore, the GDS is a better tool for identifying depression in Medicaid- and Medicare-certified nursing facilities because it has higher agreement with a standard diagnostic tool for depression than the indices of the MDS that are currently used to identify depression.

Sensitivity and specificity were analyzed for SADS-RDC and GDS, MDS Section E1, OSCAR, and QI. As expected, the findings indicated the GDS to be the most sensitive and specific tool for depression identification when compared with the various indices of the MDS. This is important, because not only should a measure have the ability to positively identify depression, it should be able to do so with limited false positives and false negatives. The GDS not only identifies depression more often than the various indices of the MDS, it does so more accurately.

Limitations and Future Directions

This study was conducted in one nursing home in New York City. The findings may not be generalized to other facilities, because the study did not include diverse facilities in various settings. Second, this study was conducted with trained volunteers, so this study may not generalize to a facility in which the GDS is administered without training or administered as a self-report questionnaire to be completed by the individual without having it read to them.

Based on the findings from this study, it is clear that the MDS is neither the most accurate nor the most efficient way to identify depression in this nursing home. The GDS is better. Future research should include the study of depression using the MDS and the GDS in many nursing homes (urban, rural, and suburban) to determine if the findings from this study hold across other facilities in various settings. Future research should also include the study of other affective disorders prevalent among nursing home residents (e.g., anxiety). Although the GDS worked well in this study, the study was limited to depression. The development of a new tool designed specifically for nursing home residents that would include other affective disorders prevalent among nursing home residents would be of great benefit. Another direction for research would be to study the rates of depression across age, race, education, and religion. By studying the relationships between depression and the aforementioned variables, we may gain a better understanding of those

individuals who suffer from depression. This information may be useful for treatment of the disorder and for developing instruments to better identify depression. Finally, another direction for future research is to study how to better identify and treat depressed older adults who suffer from dementia. We are currently addressing this issue, and hope to report the findings in the near future.

In summary, the findings from this study show that current measures used to identify depression in long-term care settings may need to be revised. One method of revision is to add a screening tool such as the GDS to a nursing home protocol. Another method may be to revise the MDS to reflect more objective questions to better identify depressives. Still, another method may be to do both. The aforementioned findings suggest that the addition of the GDS is effective and efficient for identifying depression among cognitively intact long-term care residents.

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