Screening for Symptoms of Depression by Physical Therapists Managing Low Back Pain

Background and Purpose. Depression is a condition that worsens the prognosis of low back pain (LBP) and is under-recognized and undertreated in primary care. The purpose of this study was to evaluate the accuracy with which physical therapists screen for depressive symptoms among their patients with LBP. Subjects. Sixty-eight physical therapists and 232 patients with nonspecific LBP from 40 physical therapy clinics participated. Methods. Patients completed the reference standard (Depression Anxiety Stress Scales [DASS]) and a 2-item screening test for depression taken from the Primary Care Evaluation of Mental Disorders Procedure (PRIME-MD). Treating physical therapists used a 0 to 10 scale to judge whether each patient was depressed. Based on the short-form Depression Anxiety Stress Scales (DASS-21) depression scale score, each patient was categorized as exhibiting normal, mild, moderate, severe, or extremely severe depression symptoms, and receiver operating characteristic (ROC) curves were generated to describe test accuracy. Results. The 2-item screening test was more accurate in screening for depressive symptoms than the physical therapists’ ratings were; for example, in detecting moderate depressive symptoms in the 2 areas under the ROC curve, values were 0.66 versus 0.79. Discussion and Conclusion. Because the therapists did not accurately identify symptoms of depression, even symptoms of severe depression, despite the common presentation in their clinics, we recommend that physical therapists managing patients with LBP use the 2-item depression screening test. Administration of this screening test would improve physical therapists’ ability to screen for symptoms of depression and would enable referral for appropriate management. [Haggman S, Maher CG, Refshauge KM. Screening for symptoms of depression by physical therapists managing low back pain. Phys Ther. 2004;84:1157–1166.]

Key Words: Depression, Low back pain, Physical therapy, Sensitivity and specificity.

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Depression is a common and costly health problem. The term “depression” can refer to a mood state or an illness diagnosed according to various criteria (eg, the Diagnostic and Statistical Manual of Mental Disorders [DSM-IV]¹). The point prevalence of major depression in patients seen by primary care providers has been estimated (in 1990) to be as high as 17.1%,² and the total cost of the condition has been estimated to be $43 billion annually in the United States.²

The DSM-IV¹ classifies depression into 4 main categories: major depressive disorder, dysthymic disorder, adjustment disorders, and depressive disorder not otherwise specified (NOS). Major depressive disorder is characterized by at least 4 of the following symptoms: depressed mood, loss of interest or pleasure in most activities, change in weight or appetite, increased or decreased sleep, increased or decreased psychomotor activity, fatigue or anergia, feelings of worthlessness or guilt, decreased ability to think, and recurrent thoughts of death or suicide. For the diagnosis of depression to be made, the essential symptoms include either a depressed mood or loss of interest or pleasure that must have been present during a 2-week interval.

Dysthymic disorder is a chronic and fluctuating form of depression characterized by a depressed mood or loss of pleasure in activities, as well as additional symptoms of depression, for at least a 2-year duration. The symptoms for dysthymia are insufficient in number and severity to warrant a diagnosis of major depression. Adjustment disorders are brief periods of depression in response to stressors. The criteria for dysthymia are insufficient in number and severity to warrant a diagnosis of major depression. Adjustment disorders are brief periods of depression in response to stressors. The symptoms for dysthymia are insufficient in number and severity to warrant a diagnosis of major depression.

The presence of depressive symptoms in patients seen by primary care providers is often identified by questionnaires such as the Beck Depression Inventory (BDI)³ or the Depression Anxiety Stress Scales (DASS), rather than through formal or structured clinical interviews.⁴ Although questionnaires such as the BDI, DASS, and others are not a substitute for a formal clinical interview, they do provide a simple, low-cost, and standardized method of identifying people with depressive problems. In patients with persistent pain problems, the diagnosis of depression presents particular difficulties due to shared symptomatology.⁵ In practice, depression in people with back pain has mostly been defined by scores on questionnaires. Clyde and Williams,⁶ for example, noted that a high proportion of such patients have been identified as depressed on this basis.

An important role of the physical therapist examination is to exclude any diseases or conditions that would contraindicate physical therapist management or reduce the effectiveness of intervention. The optimal approach is to use a simple instrument, ideally a sensitive test, to initially screen for the condition and to supplement this with more complex testing of those who test positive. A positive result to the screening instrument alerts the clinician that there is an increased likelihood of the condition being present; however, definitive diagnosis typically requires further testing. This may include additional tests performed by the physical therapist, referral for radiographic or laboratory tests, or review by another health care practitioner. An example of this approach would be administration of the Ottawa Ankle Rules in patients with an acute sprained ankle. Because this test has a sensitivity of nearly 100%,⁷ a negative test effectively rules out a fracture and physical therapy intervention can safely commence. Where the test is positive, referral for an ankle radiograph or medical review is indicated. Supplementary testing is required because the Ottawa Ankle Rules have low specificity: a positive test result could be a false positive.

Depression is common in patients with low back pain (LBP)⁸ and is associated with increased pain intensity,
increased physical and psychosocial disability, increased medication use, and increased likelihood of unemployment.\textsuperscript{9} Although it is not yet clear whether the depression is the cause or result of the LBP,\textsuperscript{10} it is clear that the presence of depression is associated with poor outcomes.\textsuperscript{11,12} Accordingly, current intervention guidelines encourage early detection and appropriate management based on the premise that this may lead to better outcomes, minimize the financial cost to the individual and society, and prevent the recurrence of both depression and LBP.\textsuperscript{13} Although the focus of cost primarily encompasses intervention, the costs of not managing depression are usually ignored.\textsuperscript{14} Unmanaged depression is expensive, costing billions of dollars in terms of lost productivity in the workplace and resulting in increased use of medical resources.\textsuperscript{15,16}

Although the coexistence of depression and LBP is well recognized, many care providers do not routinely screen their patients with LBP for depression.\textsuperscript{17} The study by Grevitt et al,\textsuperscript{17} for example, showed that few spinal surgeons use formal depression tests but instead rely on their clinical impressions to identify depression, but this strategy was extremely insensitive: the surgeons identified only 26\% of patients with depression. This finding is not isolated. Pignone et al\textsuperscript{2} reported that primary care physicians failed to recognize 35\% to 50\% of patients with depression, a result that is concordant with the finding of Spitzer and colleagues\textsuperscript{18} that primary care physicians fail to recognize 50\% to 75\% of patients with common psychological disorders, including depression. Data from a study by Cohen and colleagues\textsuperscript{19} suggest that even when depression in patients with spinal pain is identified by medical practitioners, a large proportion do not receive any particular intervention or help for their depression.

When managing LBP, physical therapists need to be able to identify patients who have an increased likelihood of depression and to facilitate appropriate management by referring the patients to a medical practitioner or clinical psychologist for definitive diagnosis and intervention. Although there is some recognition of screening for depression in the physical therapy literature,\textsuperscript{20,21} some major textbooks\textsuperscript{22–24} completely ignore the topic. When we reviewed surveys of physical therapist management of LBP in North America\textsuperscript{25,26} and Europe,\textsuperscript{27,28} there was no mention of screening for depressive symptoms as a part of current practice.

Because we found no studies that evaluated the ability of physical therapists to screen for symptoms of depression, we undertook the current study. The aim of our study was to determine how accurately physical therapists identified symptoms of depression in patients being seen for management of LBP and to compare this accuracy with that of a brief 2-item screening test for symptoms of depression. The study also aimed to describe the prevalence of depressive symptoms in this group.

**Method**

**Participants**

We recruited physical therapists from clinics in 5 metropolitan regions of Sydney, New South Wales, Australia. Physical therapists in Australia are primary care practitioners (defined as permitted to completely manage an episode of physical therapy care for a patient without medical referral) and have acted as such for more than 2 decades. We selected the physical therapy clinics from the 1999 Sydney telephone directory and the directory of members of the Manipulative Physiotherapists Association of Australia (1999/2000). Clinics were contacted by telephone, and information was mailed or faxed to the practice. Of the 64 clinics originally invited, 40 clinics agreed to participate and 24 clinics declined. The reasons for declining to participate in the study were: time constraints (n=10), the physical therapists at that practice already administered questionnaires to their new patients and did not want to overload them with another (n=3), not interested (n=6), the physical therapists felt that the questionnaire and topic of depression was too invasive and could potentially upset or deter new patients (n=3), and the physical therapists felt the patient base at their practice was not appropriate (n=2). The participating practices were located in all areas of Sydney: northern (54\%), southeastern (15\%), southwestern (3\%), central (10\%), and western (18\%). The clinics varied in the number of physical therapists employed in either full-time or part-time positions. Written informed consent was obtained from all participating subjects.

The physical therapists were asked to recruit a consecutive series of patients for the study. Patients were eligible for the study if they were: more than 17 years of age, seeking physical therapy intervention for LBP as the primary problem, experiencing LBP symptoms with or without radiation to the lower extremity, and a new patient to the treating physical therapist. Patients with suspected or confirmed serious spinal pathology (eg, cancer, infection, fracture) and those who had limited written or oral comprehension of English were excluded from the study. The number of ineligible subjects and the reasons for ineligibility were not collected by participating physical therapists.

A total of 269 patients with LBP were asked to participate in the study. Of these patients, 30 declined to participate and 7 gave incomplete responses. Therefore, 232 completed questionnaires were available for final analysis. Demographic and clinical information on the patients is provided in Table 1.
A total of 68 physical therapists from the 40 private physical therapy clinics participated in the study. The mean age of the therapists was 35.7 years (median=36, minimum=22, maximum=52, SD=7.5), and 47 (72%) were women. The amount of experience varied among the physical therapists, with the mean years of practice being 13.6 years (median=14, minimum=2, maximum=30, SD=7.1). The highest qualification of 10 physical therapists (14.7%) was a master’s degree. More than half of the physical therapists had obtained at least a postgraduate diploma (54.4%, n=37), and 21 therapists (30.9%) had a bachelor’s degree. The 40 participating practices included full-time physical therapists (65%, n=78) and part-time physical therapists (36%, n=44), and each practice treated an average of 141 patients per week.

Procedure
Before physical therapist examination, each patient was asked to complete a composite questionnaire made up of 3 parts. The first part included questions to collect basic demographic information and the Core Outcome Measure29 (Core). The Core questionnaire contains 7 items that assess pain, function, well-being, and satisfaction with care and was used to describe the patient sample (Tab. 1).

The second measure in the composite questionnaire was the short-form Depression Anxiety Stress Scales (DASS-21), which served as the reference standard. The DASS-21 is a 21-item instrument designed to measure the 3 negative affective states of depression, anxiety, and stress. The depression scale assessed dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest or involvement, anhedonia, and inertia. The anxiety scale assessed autonomic arousal, situational anxiety, and subjective experience of anxious affect. The stress scale assessed difficulty relaxing, nervous arousal, and being easily upset or agitated, irritable, or over-reactive and impatient.30 Using the cutoff scores suggested by Lovibond and Lovibond,31,32 subjects were categorized as exhibiting normal (DASS score=0–9), mild (DASS score=10–12), moderate (DASS score=13–20), severe (DASS score=21–27), or extremely severe (DASS score=28–42) depressive symptoms. The psychometric properties of the DASS have been extensively evaluated, and there is evidence for the convergent and discriminative validity of data obtained with the instrument.30–36 Brown et al34 reported that patients meeting the criteria for major depression, based on the DSM-III-R and using a structured interview, had a mean score of 25.3 (SD=10.24) on the DASS depression scale.

The third and final measure was a brief 2-item screening test for symptoms of depression. Two brief questions regarding depressed mood and anhedonia were taken from the Primary Care Evaluation of Mental Disorders Procedure (PRIME-MD).37 The questions were: (1) “During the past month, have you often been bothered by feeling down, depressed, or hopeless?” and (2) “During the past month, have you often been bothered by little interest or pleasure in doing things?” The screening test is scored by counting the number of “yes” responses (range=0–2).

Each physical therapist was required to complete a patient evaluation form with a 0-to-10 visual analog scale to rate whether the patient had or she had just treated for LBP for the first time exhibited symptoms of depression. Ratings were allocated as 0=”not at all depressed,” 5=”depressed,” and 10=”extremely depressed.” In the study, we did not provide training in screening for depression or provide criteria by which to identify symptoms of depression because we were interested in the ability of the typical physical therapist to recognize depression. Physical therapists were instructed to conduct the initial assessment as usual without asking questions additional to their normal routine.

Following completion of the questionnaires, patients were required to enclose the questionnaires in coded
envelopes. Similarly, the physical therapists were required, immediately following the initial consultation, to complete a patient evaluation form—with spaces for the patient’s and physical therapist’s names to be recorded and the question “How many years have you been a practicing physical therapist?”—and then to seal it in the matching coded envelope provided. To ensure confidentiality, the patient questionnaires, the patient evaluation forms, and the matching envelopes were each coded. The paired envelopes from the patient and the physical therapist were attached together.

To minimize bias, the physical therapists were unaware of the results of the patients’ questionnaires. The specific purpose of the study was not explained to the patients, but they were informed that the aim of the study was to investigate the effect of LBP on their mood, attitude, and behavior. Due to the stigma that may be associated with psychological conditions such as depression, the term “depression” was not used in the explanation.

The researcher (SH) telephoned the physical therapy practices every 1 to 2 weeks to answer any questions and to arrange collection of questionnaires. Data were collected during the period March to June 2000.

**Data Analysis**

Based on the DASS-21 depression scale score, each patient was categorized as having normal, mild, moderate, severe, or extremely severe depressive symptoms, and receiver operating characteristic (ROC) curves were generated to evaluate the ability of the physical therapists’ ratings and the 2-item screening test to identify depressive symptoms. The 2 tests that were evaluated, the 2-item screening test and the physical therapists’ 0-to-10 depression rating scale, have a range of possible scores. In the case of the physical therapists’ ratings, there are 11 possible scores: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. The ROC curves plot the sensitivity (hit rate) of a test versus 1 minus specificity (false alarm rate) for each possible test cutoff that could be used to classify the patient as depressed. For example, the most strict decision cutoff is “the patient is classified as depressed if he or she scores 10,” the next strict decision cutoff is “the patient is classified as depressed if he or she scores 9 or greater,” and so on. The 11 possible pairs of sensitivity and 1 minus specificity are then plotted to form the ROC curve. This process was done 4 times so that we could describe the ability of the 0 to 10 scale to detect: (1) mild or greater depression, (2) moderate or greater depression, (3) severe or greater depression, and (4) extreme depression. We then repeated the process for the 2-item screening test.

The proportion of the total area under the ROC curve (AUC) provides a measure of the physical therapists’ ability to distinguish between patients with and without depressive symptoms. The AUC can be thought of as the probability of correctly classifying a patient as having depressive symptoms from randomly selected pairs of patients who do and do not have depressive symptoms. An AUC of 1.0 is perfect discrimination, and an AUC of 0.5 is discrimination no better than chance.

The principal ROC curve analysis estimated how well the physical therapists’ depression ratings (and the 2-item screening test) discriminated among patients with moderate or worse DASS depression scale scores from patients with mild or normal scores. The ROC analysis was repeated with a less strict DASS depression scale cutoff value (mild or worse) and also for 2 stricter DASS depression scale cutoff values (for severe or worse and for extremely severe). We chose to analyze all 4 DASS cutoffs because one test may be better than another for detecting mild disease but not for more severe disease. Our analysis showed that this was not the case. To compare the test accuracy of the physical therapists and the 2-item screening test, we compared the AUC values using Delong’s method for comparing 2 AUC values obtained from correlated samples. This analysis was performed using Prediction Program, version 3.0.

Likelihood ratios with 95% confidence intervals also were calculated for the screening test. A *positive* likelihood ratio describes how many times more likely a positive test result is to be found in people with depressive symptoms than in those without depressive symptoms. A *negative* likelihood ratio describes how many times more likely a negative test result is to be found in people with depressive symptoms than in those without depressive symptoms. Likelihood ratios can be used to convert the pretest odds of the presence of a disease to the posttest odds of the presence of a disease. Two examples illustrating this procedure are contained in the “Discussion” section.

**Results**

**Test Accuracy**

The Figure shows the ROC curves comparing the ability of the physical therapists’ depression ratings (dashed line) and the 2-item screening test (solid line) to screen for mild or worse DASS depression scale scores, moderate or worse DASS depression scale scores, severe or worse DASS depression scale scores, and extreme DASS depression scale scores. With the ROC analysis, higher AUC values represent greater test accur-
As shown in Table 2, the screening test was more accurate in screening for depressive symptoms than the physical therapists' ratings across the 4 cutoff points on the DASS depression scale. For example, the AUC values for detecting moderate DASS depression scale scores were 0.66 for the physical therapists' ratings versus 0.79 for the screening test. The Delong et al method of comparing paired ROC curves revealed that, in each case, the differences between the physical therapists' ratings and the screening test were statistically significant (all \( P < 0.05 \)).

Likelihood ratios with 95% confidence intervals for the 2-item screening test across the 4 cutoffs on the DASS depression scale are shown in Table 3. The positive likelihood ratios reached as high as 5.40 and the negative likelihood ratios as low as 0.18.

**Table 2.** Comparison of the Accuracy of Physical Therapists’ Ratings and the 2-Item Depression Screening Test in Detecting Depressive Symptoms: Receiver Operating Characteristic Curve Analysis

<table>
<thead>
<tr>
<th>DASS Depression Scale Cutoff</th>
<th>Physical Therapists’ Ratings</th>
<th>2-Item Screening Test</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>0.68</td>
<td>0.77</td>
<td>.013</td>
</tr>
<tr>
<td>Moderate</td>
<td>0.66</td>
<td>0.79</td>
<td>.002</td>
</tr>
<tr>
<td>Severe</td>
<td>0.69</td>
<td>0.81</td>
<td>.012</td>
</tr>
<tr>
<td>Extreme</td>
<td>0.67</td>
<td>0.81</td>
<td>.029</td>
</tr>
</tbody>
</table>

*Values shown are the areas under the curve with analysis repeated for 4 cutoffs on the depression subscale of the Depression Anxiety Stress Scales (DASS).*
Prevalence of Depression

Of the 232 patients recruited, 93 (40.1%) were classified by the DASS-21 depression scale as having symptoms of depression. Of the 93 patients with symptoms of depression, 36 (15.6%) had symptoms of mild depression, 26 (11.2%) had symptoms of moderate depression, 17 (7.3%) had symptoms of severe depression, and 14 (6.0%) had symptoms of extremely severe depression (Tab. 4).

Discussion

The main finding of our study was that physical therapists are relatively poor at screening for symptoms of depression in their patients with LBP. A more accurate screening method was the brief screening test containing 2 simple, direct questions: “During the past month, have you often been bothered by feeling down, depressed, or hopeless?” and “During the past month, have you often been bothered by little interest or pleasure in doing things?”

The point prevalence of depressive symptoms in our sample of patients with LBP was found to be 40.1%. Although the majority of patients invited to participate in the study agreed to participate, we cannot exclude the possibility that the 30 patients (11%) who refused to participate did not have symptoms of depression. A sensitivity analysis, therefore, was conducted. Presuming all patients who refused to participate had symptoms of depression, the true rate would be 47%. These upper and lower limits of the sensitivity analysis are close to the reported rate of 40.1%; therefore, the reported rate of depressive symptoms can be considered fairly robust.

Our prevalence estimate is consistent with those of studies in which 90% of patients who attended pain management clinics were reported to have at least one mood disorder and 30% to 40% of those with a mood disorder were reported to have depression.39 Our estimate for the prevalence of depression, however, is higher than that reported by Hope and Forshaw,40 who found that 26% of patients with LBP seen in physical therapy clinics in the United Kingdom were depressed.

A major strength of our study, we believe, was the use of the DASS-21 as the reference standard. The benefit of administering the DASS-21 to patients with LBP is that none of the 7 items testing for depression relate to the somatic symptoms that are commonly interpreted as symptoms of depression but may actually be symptoms associated with the LBP. The DASS-21 does not categorize patients according to types of depression; rather, it reports on the severity of depressive symptoms as a continuum of normal. Subclinical depressive symptoms, therefore, are represented in the prevalence data.

This study was restricted to private physical therapy clinics throughout Sydney and did not include outpatient departments of public hospitals. Prevalence rates for depressive symptoms in patients with LBP attending public hospitals may differ from rates in patients seeking private physical therapy intervention. In our study, we attempted to minimize any selection bias in determining the prevalence of depression by including physical therapy clinics situated throughout the whole metropolitan area of Sydney and by enrolling consecutive patients.

Psychological referral of all patients with a positive screening test may not always be appropriate. The 2 screening questions were extracted from the mood disorder section of the original PRIME-MD instrument, which is only the first component of the psychological assessment procedure. Positive responses to questions in

### Table 3.

Likelihood Ratios (LR) [With 95% Confidence Intervals] for the 2-Item Depression Test

<table>
<thead>
<tr>
<th>Score</th>
<th>≥Mild</th>
<th>≥Moderate</th>
<th>≥Severe</th>
<th>≥Extreme</th>
</tr>
</thead>
</table>

*The analysis is repeated for the 2 cutoffs for a positive test result with the screening test and the 4 depression cutoffs on the Depression Anxiety Stress Scales (DASS).*

### Table 4.

Number (%) of Subjects in Each Category for the Depression, Anxiety, and Stress Scales of the Depression Anxiety Stress Scales (DASS)

<table>
<thead>
<tr>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>139 (59.9%)</td>
<td>175 (75.5%)</td>
</tr>
<tr>
<td>Mild</td>
<td>36 (15.6%)</td>
<td>11 (4.7%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>26 (11.2%)</td>
<td>27 (11.6%)</td>
</tr>
<tr>
<td>Severe</td>
<td>17 (7.3%)</td>
<td>5 (2.2%)</td>
</tr>
<tr>
<td>Extremely severe</td>
<td>14 (6.0%)</td>
<td>14 (6.0%)</td>
</tr>
</tbody>
</table>
the first component are followed up by a 12-page clinician evaluation guide, which is a structured interview form used by physicians. This follow-up would be inappropriate and time-consuming for use by untrained physical therapists. Rather, positive responses to the screening test could be augmented with the administration of additional psychological assessment tools such as the DASS-21 or the Distress and Risk Assessment Method (DRAM), which have clear cutoffs to assist in decision making. Positive scores for symptoms of depression following administration of the DASS-21, particularly scores in the severe and extremely severe categories, should direct the clinician to consider psychological referral. A negative response to the screening test might be followed by secondary assessment using the DASS-21 if the physical therapist notices the patient failing to respond to intervention or the presence of clinical features that suggest depression (eg, insomnia, fatigue, weight changes).

Subsequent to the completion of this study, we became aware of the Patient Health Questionnaire-2 (PHQ-2), which is very similar to the 2-item screening test we evaluated. The PHQ-2 differs from the 2-item screening test in that the time frame is the past 2 weeks (not the past month) and the patient is allowed to describe the number of days that he or she has been bothered by depressed mood or loss of interest or pleasure in activities using a 0 to 3 scale (rather than a yes/no response option). Similar to the 2-item screening test, the PHQ-2 has good evidence for construct and criterion-related validity.

To date, however, there has been no head-to-head comparison of the 2 tests; thus, we are unable to recommend one test over the other.

The fact that the physical therapists were required to screen for symptoms of depression during the initial visit rather than over a course of treatment was identified by many of the physical therapists in our sample as influencing their ability to detect depression. Spitzer et al., however, found that 67% of 191 patients with a PRIME-MD diagnosis of mood disorder had not been recognized by their physician as having any psychological condition. Interestingly, those patients were known “somewhat” or “fairly well” by the physicians before the PRIME-MD evaluation. Busy physical therapy clinics are similar to physicians’ practices in that both are limited in the time available for each patient consultation. If Spitzer and colleagues’ data from their study of physicians also apply to physical therapists, this would suggest that physical therapists may be no more accurate in screening for symptoms of depression during a course of treatment than during the initial assessment.

Screening for symptoms of depression during the initial consultation is important because depression is an indicator of poor prognosis. In many parts of the world, physical therapists are primary care practitioners and, therefore, take responsibility for identification of comorbid conditions that may have an impact on the prescribed intervention. However, given that depressive symptoms are not well identified by other health care professionals, physical therapists need to take responsibility for identifying factors that delay recovery or direct intervention. Because depression has clearly been shown to influence the clinical course of LBP, screening for depressive symptoms is crucial for optimal physical therapist management. In addition, the longer the depression is left undetected, the greater the likelihood of prolonged physical therapy intervention and increased disability. This situation is costly to the patient and society in economic and social terms and perpetuates negative mood states and perhaps the cycle of recurrent episodes of LBP or depression.

Providing physical therapists with additional training on depression and its symptoms may improve their ability to screen for symptoms of depression in their patients. Kenny (D Kenny, unpublished research) demonstrated that 2 training sessions with a clinical psychologist significantly improved physical therapists’ accuracy in identifying patients with depressive symptoms and patients who would benefit from psychological intervention. According to Polatin et al., training programs on depression need to prepare physical therapists to utilize mental health care professionals to assist them in managing their patients with symptoms of depression. Another strategy would be to use the results of the screening test to guide the physical therapist in undertaking further tests for depressive symptoms and psychological referral. It is hoped that early screening for depressive symptoms would be an effective first step in identifying and managing depression in patients with LBP. There is some evidence that managing psychological problems along with the physical aspects of LBP increases the patient’s chance of a successful therapeutic outcome. Physical therapists can potentially contribute to this successful outcome by screening for symptoms of depression using brief, simple, and valid assessment instruments.

**Clinical Implications**

The results of this study suggest that physical therapists do not adequately screen for depressive symptoms in their patients with LBP, although depression is a common symptom among their patients. The 2-item screening test is a more accurate method of detecting depressive symptoms than independent assessment by physical therapists, and we would advocate its use in physical therapist practice.

As noted in the introduction, physical therapy texts devote little or no attention to the issue of screening for
depressive symptoms, but a great deal of time to discussing how to detect cancer (eg, by asking about unexplained weight loss in the history). This emphasis, however, ignores the relative difficulty of detecting the 2 conditions. To illustrate this point, we will use data from Deyo and Diehl’s widely cited study,\(^4\) presuming a pretest probability of cancer of 0.66% (Deyo and Diehl found 13 cases among 1,975 patients whom they screened) and a positive likelihood ratio of 2.5 and negative likelihood ratio of 0.9 (Deyo and Diehl reported a sensitivity of 0.15 and a specificity of 0.94). In the case where a patient has unexplained weight loss, the posttest probability is 1.6%, and if the patient has no weight loss, the posttest probability is 0.59%. No matter what the response to the question, the therapist is unlikely to be moved across a decision threshold, because the posttest probability is not meaningfully different from the pretest probability. Cancer has remained unlikely. In contrast, screening for moderate or greater depression with the screening test will be informative no matter what the response. Based on the data from our study, we presume a pretest probability of depression of 24.5%. If the patients answered affirmatively to both screening questions, the posttest probability is 59.9%. If the response to one question was positive, the posttest probability is 47.2%. If none are positive, the posttest probability is 8.6%. If the task was to detect severe or greater depressive symptoms, the pretest probability is 13.3% and the posttest probabilities for the 3 possible results are 39.8%, 27.2%, and 3.7%, respectively. In our opinion, the screening test responses result in a clinically meaningful change in the probability of depression.

**Conclusion**

Our results show that physical therapists have a poor ability to screen for depressive symptoms in patients attending private physical therapy clinics in Sydney for management of LBP. The 2 questions “During the past month, have you often been bothered by feeling down, depressed, or hopeless?” and “During the past month, have you often been bothered by little interest or pleasure in doing things?” are an effective means of screening for depressive symptoms, and we believe that they should be incorporated into the initial physical therapist examination of patients with LBP. A negative response to both questions makes depression unlikely. For patients who answer positively to these questions, we recommend that intervention outcome be monitored closely and, if progress is not made, that a follow-up assessment be undertaken using the DASS-21 instrument. Patients who score in the moderate or more severe depression categories should be considered for psychological referral.

**References**


