An Interdisciplinary Expert Consensus Statement on Assessment of Pain in Older Persons

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An Interdisciplinary Expert Consensus Statement on Assessment of Pain in Older Persons

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Abstract: This paper represents an expert-based consensus statement on pain assessment among older adults. It is intended to provide recommendations that will be useful for both researchers and clinicians. Contributors were identified based on literature prominence and with the aim of achieving a broad representation of disciplines. Recommendations are provided regarding the physical examination and the assessment of pain using self-report and observational methods (suitable for seniors with dementia). In addition, recommendations are provided regarding the assessment of the physical and emotional functioning of older adults experiencing pain. The literature underlying the consensus recommendations is reviewed. Multiple revisions led to final reviews of 2 complete drafts before consensus was reached.

Key Words: pain, assessment, older adults, elderly, dementia

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Aging may be defined as a progressive, generalized impairment of function, resulting in the loss of adaptive response to stress and in a growing risk of age-related disease.[1] The clinical assessment of the older person demands a formulation of the relative contribution of the different factors that result in functional decline. These factors include the biology of aging, disease, disuse, and environmental effects on cohorts of older people.

Most health conditions associated with aging carry a substantial burden of pain.[2,3] Prevalence estimates of persistent pain in older adults range from 25% to 50%.[4] In a large scale study that specifically focused on older adults residing in nursing homes, Proctor and Hirdes[3] found the prevalence of pain to be close to 50%. They also observed that seniors with or without cognitive impairments did not differ with respect to the prevalence of conditions likely to cause pain. Nonetheless, pain problems are often overlooked, under-assessed, and misassessed, especially among seniors with dementia.[5,6] A recent survey of members of the American Pain Society[7] revealed that under-treatment of pain among

seniors and inadequate assessment of pain among people with cognitive impairments were among the most pressing ethical issues for pain clinicians. A systematic assessment is required before prescribing any treatment to alleviate pain and related suffering.

The assessment of older persons experiencing pain can be a challenging process. In addition to the general issues that affect the pain assessment of people of any age, specific concerns are: (1) myths that having pain is ''natural'' for older adults; (2) unjustified fears about the possibility of addiction to opioids; (3) sensory and cognitive impairments; and (4) an increased stoicism that makes some seniors less likely to report pain (eg, Martin et al[5]).

The American Geriatrics Society Panel on Persistent Pain in Older Persons[4] provided a timely, clinically focused overview of pain assessment in this population (see also American Medical Directors Association[8] and Australian Pain Society[9]). Building upon such seminal work, the goal of the present report is to describe a more comprehensive and detailed approach to assessing pain in the older person. This approach, on the basis of an expert consensus process, is intended to be useful both to researchers and clinicians working with older adults. Although assessment can have multiple purposes, in this document we focus on the determination of the presence and cause of pain, the identification of any exacerbating comorbidities that are amenable to treatment or impact treatment decisions, the determination of the domains and specific constructs that are affected by the pain, and the gathering of information that would assist with individualization of the treatment plan and would promote adherence and positive outcomes.

There are several reasons why it is important to assess pain and other symptoms in older adults. First, the data derived from comprehensive assessment are essential not only for diagnostic purposes (ie, to determine the cause of pain, to identify specific comorbidities) but also for clinical decision-making and research. Moreover, important domains of functioning that are affected by pain (eg, mood) need to be addressed both initially and over the course of treatment. In addition, carefully chosen assessment tools are important when designing rigorous research (eg, epidemiologic studies to determine the incidence and prevalence of various disorders, longitudinal studies to examine the trajectory of pain and disability, and clinical trials to evaluate the effectiveness of treatments). In the clinical context, assessment should not be viewed as a single event but as part of an ongoing process. Initial assessments are often more comprehensive than assessments used as part of ongoing monitoring.

Although pain assessment can range from very simple inquiries about pain presence and intensity to a complex evaluative process, it is always important to keep in mind that pain is not solely a sensory event. Pain is also a perceptual experience that has an impact on all aspects of a person's emotional, social, and physical functioning.[10] Similarly, pain reports (including responses to questions such as, ''how severe is your pain?'' or ''rate your usual pain on a 0 to 10 scale with 0 = no pain and 10 = the worst pain you can imagine'') are not necessarily directly correlated with evident tissue pathology and nociception. Instead, biologic aging, prior experiences, attitudes, beliefs, expectations, memory, presence and response of significant others, fear, and social context are among many variables that will influence pain reports. Psychosocial (including cohort effects) and behavioral variables modify the experience of pain and related functional limitations over time, in an iterative and self-reinforcing manner. This means that to gain a full understanding of a patient's pain experience and its effect on that person, insight into the individual's history and social circumstances is highly consequential and fundamental to pain assessment. Although we discuss and recommend specific assessment tools in this paper, our primary goal was not to develop a specific battery of tests but to outline a series of recommendations that would be of value to researchers and clinicians.

CONSENSUS DEVELOPMENT METHODOLOGY

The consensus process was initiated by a subgroup of a research team funded by the Institute of Aging, Canadian Institutes of Health Research. On the basis of publication record, grant awards in the field and with the aim of achieving a broad representation of disciplines, the team members invited an interdisciplinary set of 24 international experts to join the effort. Twenty-two of those invited accepted the invitation to participate. Once an initial group was formed, group members were asked to recommend additional individuals who could complement the team. Two additional people were identified who were included in the group consisting of 24. The consensus group represents the disciplines of anaesthesiology, family medicine, geriatric medicine, neurology, nursing, occupational therapy, pain medicine, pharmacy, physiotherapy, psychology, and rheumatology. Several members of the consensus group (Bruce Ferrell, Perry Fine, Keela Herr, Frank Keefe, Debra Weiner) had previously participated in the AGS panel on persistent pain in older persons. One additional member, Benny Katz, participated in the 1998 Chronic Pain Guidelines.[11]

Initially, 7 members of the group compiled literature reviews and assessment recommendations within their respective areas of expertise. Three additional collaborators were added during this phase in which the consensus panel identified important areas that should be the focus of assessment recommendations. The areas identified included: (1) physical examination; (2) medication history, (3) assessment of pain using self-report approaches; (4) assessment of pain among patients with dementia; (5) functional assessment; (6) assessment of emotional functioning; and (7) special issues relating to neuropathic and nociceptive pain. We decided not to include a separate section on general quality of life issues, because we considered these to be related to emotional functioning and physical functioning. This is consistent with

TABLE 1. Recommendations for Physical Evaluation

Recommendations

1 Patient reports, caregiver observations, and behavioral disturbance patterns should inform the scope of the physical examination and corroborative studies.
2 If the individual is unable to provide a reliable history due to communication or cognitive impairments, behaviors suggestive of pain, including subtle changes in behavioral patterns, should trigger a physical examination for new or progressing pathology.
3 Physical examination for pain assessment commonly considers a systems approach to identify impairments which represent a structural/organ/physiologic problem and seeks to find information regarding areas such as:
   (a) Signs of inflammation: swelling, heat, redness and loss of function in the affected area;
   (b) Pain report or behavioral response evoked or changed by palpation, percussion, compression, movement (active and passive range of motion), weight bearing or other body functions (breathing, swallowing etc);
   (c) Abnormal sensory findings indicative of a lesion or disease affecting somatosensory pathways, including hypesthesia, dysesthesia, allodynia, hyperalgesia, and hyperpathia;
   (d) Loss of function.
4 A comprehensive evaluation is required when the source of pain complaints or behaviors is not obvious and when treatment impacts coexisting conditions. This assessment should include a screen for comorbid conditions likely to affect management.
5 Specific urgent or emergent conditions common in the older-age population should be screened for and recognized, including orthopedic injury, ischemic insult, temporal arteritis, herpes zoster (including the occasional incidence without stereotypical rash), and cerebrovascular events.

Advanced age is associated with an increased likelihood of chronic conditions with abnormal examination findings. Not all chronic conditions are associated with pain, and care should be taken to avoid false attribution. Conversely, the absence of abnormal physical findings does not exclude the presence of pain.

previous consensus-based recommendations.[12] Tables 1 to 5 summarize the recommendations derived from this consensus process. Each of these sets of recommendations is discussed in further detail below.

The initial sections of this paper, prepared by members of the consensus group with particular expertise in that area, were integrated into a first draft of the entire manuscript. Reviews and revisions resulted in several iterations of the document. This draft was circulated to the entire consensus group for comments and endorsement, resulting in this final consensus document.

TABLE 2. Recommendations for Assessing Pain Using Self-report Procedures

Recommendations

1 Take into account patient history, interview information, and results of physical examinations.
2 Determine the presence of any sensory (eg, hearing, eyesight) deficits and check sensory assistive devices (eg, hearing aids) to make sure that they are working properly.
3 Make adjustments to accommodate patients' sensory deficits (eg, provide written and oral instructions, use enlarged type and bold figures, and ensure adequate lighting).[107,158]
4 Determine the ability to complete the pain interview and to use available pain scales.
5 Provide clear, simple instructions on the use of the pain scales each time administered to assure understanding.
6 Consider adaptations necessary to obtain self-report in those with cognitive impairment (See Section on Dementia Assessment).
7 Identify an assessment tool that the patient can easily use. Institutions should have several tool options available for use with older adults. If the use of NRS is questionable or the NRS is not the institution standard, the VDS or pain thermometer have been shown to be the most preferred and easiest to understand tools and are recommended for literate patients. Related recommendations are presented in the section on pain assessment among patients with dementia.
8 Use the same tool consistently with each assessment and standardize the conditions (eg, medication use, function/activities being performed) and time of assessment. It is imperative that reassessments of pain and effectiveness of treatments be conducted using the same tool as in the original assessment. Pain tools are not interchangeable and do not represent comparable findings.
9 Documentation concerning the older adult's report of pain must be kept in an accessible location. For assessment data to be useful, they must be communicated across providers and care settings. Documentation procedures that facilitate monitoring and communication are recommended.
10 Where brief assessment tools are needed, the VDS and the NRS are, generally, recommended for the assessment of pain intensity among seniors who are cognitively intact and can self-report.
11 Where a more detailed self-report assessment of functional impact is possible, the BPI[134] or the GPM[167] should be considered. For detailed assessment of pain qualities, the MPQ[127] should be used for cognitively intact, literate older people.
12 Specialized tools for neuropathic pain should be considered for patients capable of verbal communication who are suspected of having neuropathic pain.
13 Use an individualized approach collecting baseline scores for each patient.
14 Where possible supplement the self-report information with observations of pain-related behaviors during the assessment.
15 A comprehensive assessment of pain should also include evaluations of other related aspects of patient functioning (eg, mood, quality of life, coping resources, social support).
16 Use synonyms for pain (ie, hurt, aching, discomfort) to ensure that the older person understands the question being asked and to encourage appropriate pain self report.

NRS, Numeric Rating Scale; VDS, Verbal Descriptor Scale.

TABLE 3. Consensus Recommendations for Seniors With Limitations in Ability to Communicate Due to Dementia

General recommendations	
1	Take into account patient history, interview information, and results of physical examinations.
2	Use assessment approaches that include both self-report and observational measures when possible.[148]
3	The CAS,[155,156] the 21-point box scale[151] or NRS and the VDS should be attempted with seniors whose cognitive functioning ranges from intact to mildly or moderately impaired. The FPS is an alternate tool that is preferred by some older persons, particularly African Americans and Asians.
4	At this point, assessment scales are under development and consensus could not be reached regarding the definitive recommendation of any particular scale. The PACSLAC[165] seems to be a promising tool for assessing pain among persons with cognitive impairments. Nonetheless, more research regarding the psychometric properties of this tool is needed. Although the initial psychometric findings are encouraging, the scale should be used with caution until additional data become available. Among the shorter instruments, the Doloplus 2[179] seems to be promising. Further research undertaking a direct comparison of various observer rated scales is needed to identify the relative strengths and weaknesses of currently available tools.
5	Pain assessment during a movement-based task is more likely to identify an underlying persistent pain problem and offers enhanced measurement sensitivity and specificity.
6	Examine whether the use of analgesic medications leads to a reduction of behavioral indicators of pain.
7	A comprehensive pain assessment should also include evaluations of other related aspects of patient functioning (eg, mood, quality of life, coping resources, social support).
8	Among persons with dementia, it would be important to solicit the assistance of a knowledgeable informant to accomplish this goal and identify typical pain behaviors for the individual patient.
9	Several instruments contain items that need to be assessed over time (eg, changes in sleeping, eating). With the possible exceptions of the PADE[183] and the NOPPAIN,[178] this should not preclude their use in primary care settings because the health care provider may solicit the assistance of caregivers in completing these tools.
Specific recommendations following the Selection of Suitable Assessment Tools[148]	
10	Use an individualized approach collecting baseline scores for each patient.
11	Solicit the assistance of caregivers familiar with the patients.
12	If assessment tools are used to monitor pain levels over time, they must be used under consistent circumstances (eg, during a structured program of physiotherapy, over the course of a typical evening).
13	Most of the assessment tools reviewed in this section are screening instruments and, as such, they cannot be considered to represent definitive indicators of pain.

CAS, Colored Analog Scale; FPS, Functional Pain Scale; NOPPAIN, Noncommunicative Patient's Pain Assessment Instrument; PACSLAC, Pain Assessment Checklist for Seniors with Limited Ability to Communicate; PADE, Pain Assessment for the Dementing Elderly; VDS, Verbal Descriptor Scale.

COMPREHENSIVE ASSESSMENT OF PAIN IN OLDER ADULTS

The assessment of all people who are having pain, especially persistent pain, should involve consideration of medical, psychosocial, cognitive, neuropsychologic, and behavioral factors. The assessment of pain in older adults can be extremely challenging given the multiple comorbidities that often are present and the variety of issues that impact pain presentation.

A comprehensive assessment of pain must include the identification of relevant underlying physical pathologies and other conditions that may influence pain perception, report, and management. Assessment of functional limitations (eg, impairment in performance of basic, instrumental, and advanced activities of daily living (ADL), mobility, sleep, and appetite), psychosocial function (eg, mood, interpersonal interactions, beliefs about pain, fear of pain-related activity), and cognitive function (eg, dementia or delirium)[13–16] is necessary. As with younger adults,[17] information on functional limitations is extremely important for older persons because this information is used to guide therapy, establish reasonable and attainable goals, and to track outcomes.[18–20] Interdisciplinary evaluation and collaboration are often necessary to address the full range of the older person's health-related circumstances.

TABLE 4. Recommendations for Functional Assessment

Recommendations	
1	As with all assessment measures and procedures, measures selected should be reliable, valid, and sufficiently sensitive to detect clinically important subtle change, such as the effects of common treatment interventions. Whenever possible, measures chosen should have been developed or standardized in older adults, should be time efficient, and should not present an excess burden on the patient.
2	Self-report measures of function should be considered an adjunct to clinical assessments because the scope of the questions addressed by the instruments vary and may not be equally relevant to all patients or pain conditions.
3	The most strongly recommended brief self-report index of function is the FSI.[222] The HAP[198] is also recommended because it measures current and previous activity participation and has been found to be particularly useful with older adults with chronic pain.
4	The Physical Performance Test (PPT) is strongly recommended as a performance-based measure of function because it tests both upper and lower body function.[216]
5	Gait speed (eg, Timed "Up and Go") and/or the Short Physical Performance Battery are recommended as measures of general mobility performance because of their strong predictive validity for disability and mortality.[44,45]
6	For persons with dementia, the reader should refer to the section, concerning pain assessment among persons with dementia, in order to determine if measurement of pain before and after the completion of specific ADL tasks or performance-based assessments is feasible to ascertain the degree of pain interference.

TABLE 5. Recommendations for the Assessment of Emotional Functioning

Recommendations

1 Perceived control over pain should be assessed when possible.
2 Cognitive, emotional, and behavioral responses to pain should be evaluated with an eye toward their appropriateness to the individual's age, personal characteristics, and available resources.
3 Any evaluation of the psychosocial impact of chronic pain should include an assessment of depressive symptomatology, as depression is the most common emotional dysfunction in chronic pain, and strategies for coping with pain.
4 Because verbal and behavioral expressions of pain are highly responsive to social environmental cues, comprehensive psychosocial assessment should include an evaluation of available social support and the ways in which persons close to the patient respond to his or her expressions of pain.
5 Even mildly to moderately cognitively impaired persons can reliably state their feelings and emotional states. Proxy respondents should be consulted where marked cognitive deficits preclude meaningful communication.
6 At minimum, evaluation of emotional function in chronic pain patients should include an assessment of depression and a brief probe of preferred strategies for coping with pain. The GDS[273] is well-validated and simple enough to be used with persons with mild to moderate dementia.[274,275]
7 Assessment of anxiety and pain-related anxiety is also recommended. The Beck Anxiety Inventory[287] and the Pain Anxiety Symptoms Scale[292] are brief and have been used with seniors although separate norms may be needed for the interpretation of scores obtained by older men.[299]
8 More comprehensive evaluation of emotional and psychosocial function in the context of chronic pain should also include assessments of
(a) generalized perceived control or, alternatively, of control-relevant personality traits (eg, neuroticism),
(b) pain-relevant cognitions and beliefs, and
(c) social support with respect to any pain-relevant physical functional impairments as well as emotional support, and including specific evaluation of how the patient's spouse or significant other responds to pain complaints.

Pain assessment is situation and context-dependent (ie, patient care or clinical research, acute or persistent, new symptom or ongoing, crisis or routine, outpatient or inpatient, etc). The core outcome domains and measures recommended by the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT[12,21]) for evaluating chronic pain treatments provide a valuable foundation for guiding a comprehensive pain assessment in older adults. Specifically, the IMMPACT initiative recommends that the following domains be routinely considered in pain clinical trails: pain intensity, physical functioning, emotional functioning, patient report of global improvement or satisfaction, and symptoms and adverse events. Figure 1 graphically

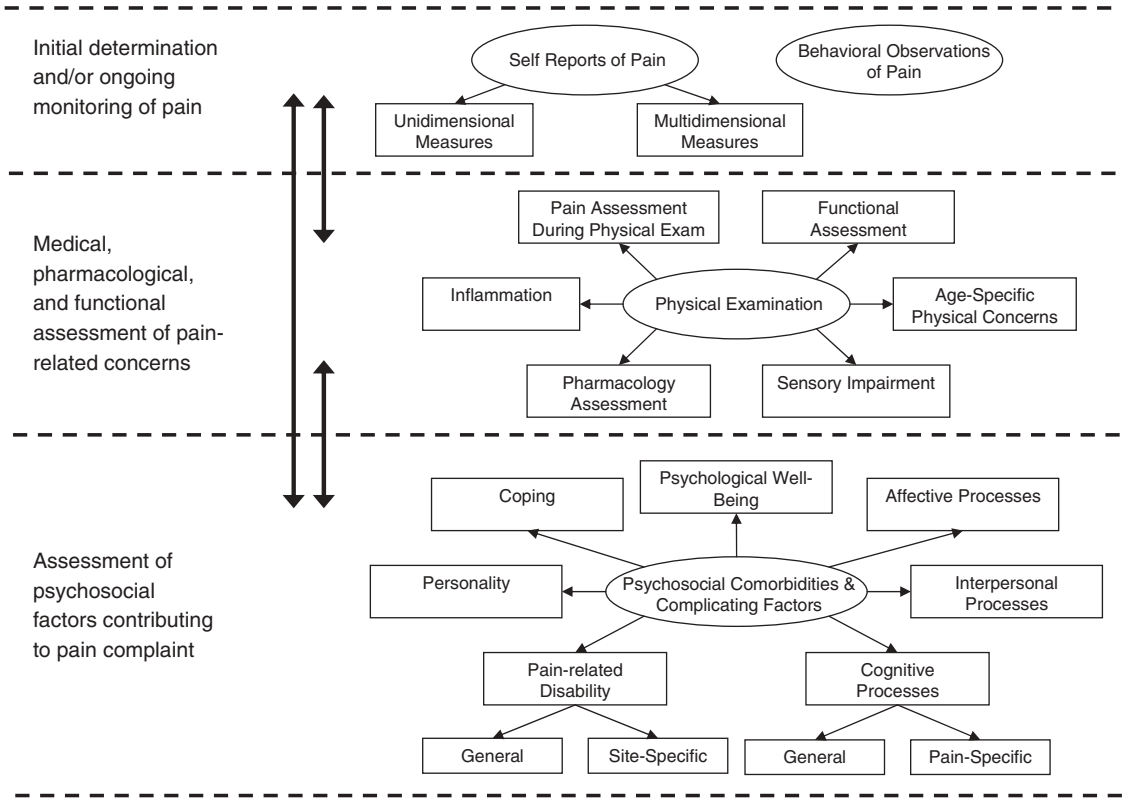

FIGURE 1. Domains included in a comprehensive pain assessment.

depicts the comprehensive assessment approach that has been considered in this paper.

HISTORY AND PHYSICAL EVALUATION

The patient's history is the most important initial source of information about pain and its causes. We can conceptualize the history as comprising both "past medical history" and "pain history." The former will focus on medical conditions influencing pain perception and behavior, and also those influencing pain treatments (eg, renal failure, hepatic failure for which dose of analgesics should be adjusted). "Pain history" would include the characteristics of the current pain, past pain problems, prior experience with pain-relieving treatments, knowledge, and attitudes. The description of the current pain problem should include its site, spread, radiation, temporal pattern, quality descriptors, precipitating, exacerbating and relieving factors, and present and previous treatments (including medications, surgeries, and physical and psychologic treatment strategies). Because traumatic, inflammatory, and neoplastic conditions are most commonly associated with acute pain syndromes, and musculoskeletal and neurologic conditions are the most frequent causes of chronic pain in older adults, the history and physical examination should target these pathologies and systems.[4,16,22]

It is important to establish the time frame of the pain, whether it is acute or chronic, because diagnostic studies (eg, imaging studies) and treatment choices may vary. Relevant medical records should also be obtained and reviewed to corroborate the patient's reports. Surrogates such as family members and caregivers may also provide useful information, especially among seniors who have difficulty communicating. Surrogates are often able to report on overt or subtle changes in behavior that might be indicative of pain.

An equally important part of the history is the evaluation of comorbid conditions that influence pain perception and pain behavior. Especially common comorbid conditions are cognitive impairment, mood disturbance, sleep disturbance, anxiety disorders, cardiovascular and cerebrovascular disease, and degenerative neurologic conditions.[23] Clinicians should be aware that the physical environment in which a pain history is taken can influence pain report. For example, pain can be increased by the anxiety induced by the physician's assessment or by presence or absence of family members.

An important component of the medical history is determining the person's prior experience with medical, surgical, psychosocial, and other pain-relieving treatments. It is important to understand an older person's knowledge of and attitudes towards selected treatment options, because this can have a major impact on adherence to the treatment plan. Determining level of alcohol use, complementary and alternative therapies, and any illicit drug use is also important because of the potential impact on analgesic selection and adverse effects. Recognizing and recording history related to function, ADL limitations, and participation in leisure/recreational activities are important elements that assist in assessing causes and impacts related to pain. Information on other factors affecting health should also be collected (social supports, smoking, nutrition). For example, lack of social support could lead to depression and poor nutrition could lead to obesity, each of which could exacerbate pain problems.

THE MEDICATION HISTORY FOR OLDER PATIENTS WITH PAIN

Multiple chronic conditions and comorbidities are common in aging persons who often require several different classes of medications for management. If the patient is hypertensive, for example, nonsteroidal anti-inflammatory drugs should be avoided or used cautiously and evidence of cardiovascular disease should restrict use of tricyclic antidepressants. Comorbidities add significantly to the complexity of pain-related pharmacotherapy. It also underscores the importance of taking a careful medication history. Drug-disease and drug-drug interactions are especially common in older, frail patients. The management of pain may be further compounded by patients seeking treatment from multiple providers and concurrent (and potentially under-reported) use of over-the-counter drugs and complementary medicinal agents ("nutraceuticals", herbal preparations, dietary supplements, homeopathics, etc).

There are numerous studies evaluating the role of the medication history-taking process, but very few of these studies focus specifically on this process with regard to pain disorders. Tam et al[24] reported that the errors in medication history were especially problematic and common for medications often used in pain management (eg, nonsteroidal anti-inflammatory drugs, and opioids). In the setting of pain management, where patients often will take multiple medications (sometimes this can even be the same pharmacologic agent with different proprietary names), it is especially important that the health care team discerns specific indications for and risks associated with each drug. A careful medical history requires that one not only know what has been prescribed and dispensed, but also know how the patient actually uses all medications. Patients' failure to take medications as prescribed may be quite important in understanding their pain, pain-related problems, and response to intervention.

Using the data generated in a thorough medication history allows clinicians to identify both actual and potential drug-related problems. Older patients with persistent pain and commensurate pharmacotherapy would appear to be a population at high risk for adverse drug reactions, especially considering the potential for complex pharmacotherapy in cancer-related and neuropathic pain conditions.[25] The American Society of Health-System Pharmacists[26] developed a standardized methodology on the delivery of pharmaceutical care that has utility as a template in many settings, including pain

TABLE 6. Pertinent Information for Medication History and Development of Pharmacotherapeutic Regimen

General information
Age and sex
Weight and height
Ethnic background
Acute and chronic medical problems
Pertinent past medical history
Vital signs
Pain diagnosis
Current symptoms (including mood and sleep)
Pain intensity, location, etc
Effect of symptoms on activities of daily life
Diet
Exercise/recreation
Social substance (eg, tobacco/alcohol/caffeine) and illegal substance use or misuse
Laboratory information pertinent to pharmacotherapy (renal and liver functions)
Health beliefs
Name and location of single or multiple pharmacies
Financial/insurance/health plan
Medication specific information
To facilitate a complete history, patients should be encouraged to bring all medications with them to their appointment (including over-the-counter, natural remedies and the ones discontinued) and/or their pharmaceutical history may be requested from their pharmacy
Medication allergies and intolerances
Current and past medications used for pain (prescribed and nonprescription medications)
Strength, dose, route, frequency, actual use, effect on pain/symptoms, adverse effects, length of use, prescriber
Home remedies and other types of health products used, including herbal and complementary agents
Development of pharmacotherapeutic regimen
Specify pharmacotherapeutic goals
Develop a pharmacotherapeutic regimen and corresponding monitoring plan in collaboration with the patient/family and other health professionals
Educate the patient and family about the pharmacotherapeutic regimen
Concerns or questions about therapy
Assessment of understanding of therapy
Assess the impact of fears of addiction and of side effects
Initiate the pharmacotherapeutic regimen
Monitor the effects of the pharmacotherapeutic regimen
Adjust the pharmacotherapeutic regimen and monitoring plan

management. Additional recommendations for assessment of medications are included in Table 6.

PHYSICAL EXAMINATION

The physical examination complements the history-taking in identifying the etiology of the pain and tailoring the investigation and treatment. Although it should be guided by the information gathered during the history-taking, a good understanding of the patient's pain experience also requires an evaluation of the general physical, neurologic, musculoskeletal, and cognitive status of the patient. Because musculoskeletal and neurologic conditions are the most frequent causes of persistent pain in older adults, the physical examination should target these systems.[4,16,22,27] Throughout the interview and physical examination, the clinician should be attentive to pain reports and observation of nonverbal pain-related behaviors (eg, guarding, grimacing, reluctance to move or assume a position or posture).

General Physical Examination

The general physical examination should include observation of general appearance, and sensory (hearing, vision), cardiovascular, pulmonary, and gastro-intestinal examinations. Emaciation, evidence of weight loss, and/or muscle atrophy might indicate failure to thrive associated with pain or comorbidities.

Examination of the Painful Region

The painful region should be carefully inspected for the presence of inflammatory signs (swelling, redness, warmth).[28] Trophic (eg, nail changes, loss of body hair), or autonomic signs (eg, hyperhidrosis, redness) suggest a diagnosis of complex regional pain syndrome. Deep palpation serves to map out the painful area and correlate it with the clinical history; repeated palpation, including distraction of the patient, allows assessment of the consistency of pain report. Allodynia can be detected by the brush test, where pain is elicited by lightly stroking the skin with a cotton swab or paint brush. Hyperalgesia and hyperpathia can be identified by pinprick test or pinch test.

Musculoskeletal Examination

If the patient reports pain of musculoskeletal origin, not only should careful attention be given to the painful region, but it also should include other joints, as anatomic or disuse-related changes can influence the impact of pain on a patient's physical functioning. The spine should be inspected for the presence of deformity (kyphosis, lordosis, scoliosis). The vertebral spinous processes and paraspinal muscles should be palpated and pain on

palpation identified. The range of motion of the spinal regions including cervical and lumbar should be assessed in the 3 cardinal planes. Quantity and quality of movement should be evaluated and presence of movement-evoked pain noted. When examining the muscular system, the clinician should assess the strength, tone (ie, spasm, flaccidity), and girth, to identify muscle weakness, atrophy, or hypertrophy. As an example, asking patients to rise from a chair and to walk on their heels and toes are good ways to assess the lower extremities muscle strength. There are validated performance-based measures that can easily and effectively quantify muscle strength of the primary regions.

Neurologic Examination

The neurologic examination should be tailored to the patient's pain reports. If the history is suggestive of radiculopathy, the affected territory should be assessed for the presence of muscle weakness or atrophy, sensory changes (paresthesias, hypoesthesia, hyperalgesia, hyperpathia), hyper or hyporeflexia, muscle fasciculations (suggesting denervation), or plantar reflexes in extension. A diagnosis of peripheral neuropathy is suggested by the presence of decreased vibratory sensation and hyporeflexia in distal extremities.

Cognitive Status Evaluation

An evaluation of the patient's cognitive function is crucial to the identification of an appropriate pain assessment strategy and to the development of an appropriate treatment plan. It may also be a critical treatment outcome measure. Mounting evidence indicates that both acute and chronic pain can impact cognitive status,[29–31] and that for patients with acute pain, cognitive function should return to normal after the successful pain treatment. The reversibility of cognitive dysfunction in patients with chronic pain is unknown. Cognitive function can be evaluated by questioning patients and their families and caregivers on the presence of memory impairment, apraxia or aphasia, as well as their functional impacts. A Mini-Mental State Examination (MMSE) test is one brief, standardized way to screen cognitive function.[32] Practitioners should be aware, however that the MMSE is not a perfect test and that highly educated individuals with dementia may score within the normal range. Conversely, those with very low educational status may score within the dementia range. The clock drawing test is a complementary method of screening for dementia.[33,34] If these screening tests suggest the presence of dementia, more detailed neuropsychologic testing should be pursued.

Specificities of Physical Examination in Older Patients

The physical evaluation requires an understanding of the diversity in range of function that is considered normal in an older population. False attribution of age-related changes on physical examination may lead to an incorrect diagnosis. For example, some degree of muscle atrophy, muscle weakness, or decreased range of motion of major joints is expected in very old patients. Similarly, vibration sense at the ankle is often reduced in the eighth and ninth decades, and should not be misinterpreted as a sensory peripheral neuropathy.

The frequent presence of several etiologies of pain in older patients can complicate the physical examination. For example, diabetes and radiculopathy can coexist in a person with low back pain radiating into the lower extremities.[35] It may then be difficult to differentiate between a diabetic radiculopathy or neuropathy, nerve root compression from spinal disease, or a combination of both.

Assessment of Mobility and Balance

Older adults are at increased risk of falls and mobility impairment and pain has been shown to be a contributory factor.[36,37] In addition, medications often used to treat pain syndromes heighten fall risks.[38–40] For these reasons, mobility and balance should be routinely evaluated in older adult pain patients so as to assist with treatment planning (eg, involvement of a physical therapist to optimize mobility and balance, and counseling of patients when medications that may further compromise mobility and balance are considered). When selecting evaluation methods, it is important to consider the basic functional level of the individual as some testing procedures may have floor or ceiling effects, or are not safe for certain populations to perform. If inappropriate tests are used for patients, the results will not be useful for monitoring change over time and hamper effective treatment. Two examples, the functional reach[41–43] and the Short Physical Performance Battery[44] are well-validated procedures for assessing balance and mobility. The Timed "up and go" test (TUG[45]), another test of basic functional mobility, is also useful and easy to use with geriatric patients.

Autonomic responses, such as diaphoresis and increased heart rate, blood pressure, or respiratory rate, are typically associated with severe acute pain but are attenuated in chronic pain states and older people.[46] Although degenerative joint changes and decreased range of motion are common findings in the older adult population,[47] significant pain is present in only 50% of older adults who show evidence of osteoarthritis (OA).[48] For example, in patients with suspected cervicogenic headache or vertebral canal stenosis, age associated diminished range of movement has to be distinguished from pain and disease associated impairment of spinal mobility. The failure to identify a pathologic explanation for the pain should not be taken to indicate that pain is "not real" (ie, that it is psychogenic or due to psychopathology).[49]

SPECIAL CONSIDERATIONS RELATING TO ASSESSMENT OF NEUROPATHIC PAIN SYMPTOMS AND SIGNS

Many forms of neuropathic pain result from lesions of peripheral and central neural structures associated with

TABLE 7. International Association for the Study of Pain Definitions of Pain Terms[300]

Pain Term	Definition
Allodynia	Pain due to a stimulus that does not normally provoke pain.
Analgesia	Absence of pain in response to stimulation, which would normally be painful.
Dysesthesia	An unpleasant abnormal sensation, whether evoked or spontaneous.
Hypalgesia	Diminished pain in response to a normally painful stimulus.
Hyperalgesia	An increased response to a stimulus, which is normally painful.
Hyperesthesia	Increased sensitivity to stimulation, excluding the special senses.
Hyperpathia	A painful syndrome characterized by an abnormally painful reaction to a stimulus, especially a repetitive stimulus, and also an increased threshold.
Hypesthesia	Decreased sensitivity to stimulation, excluding the special senses.
Paresthesia	An abnormal sensation, whether evoked or spontaneous.

the transmission of noxious stimuli[50,51] and are accompanied by central senitization. Senitization involves the spread of receptor fields. Receptor fields can become quite broad as they gradually extend beyond anatomic boundaries customarily subserved by sensory afferent fibers, nerve roots, and centrally conducting pathways.[52] The pain examination initially includes elements of the traditional and routine sensory examination including perception of light touch, vibration, cold, warm, pinprick, and position sense.[53,54] This should be followed by specific tests for allodynia, hyperalgesia, and hyperpathia (Table 7 for definitions of pain terms). All of these elements of evoked pain may be present in older people with neuropathic pain.

The assessment of specific symptoms and signs has long been recognized as a key part of characterizing both neuropathic and nociceptive pain. Recently, there has been increased clinical and research interest in improved methods of assessing the quality of neuropathic pain (eg, burning, throbbing). The goals of these methods are to provide: (1) more comprehensive characterizations of the multidimensional nature of pain, specifically, distinction among sensory, cognitive, motivational, and affective pain components, discrete qualities of perceptual experiences (eg, burning, throbbing, electric-shock like), and discrete evoked responses (eg, allodynia, hyperalgesia); (2) clues to pathophysiologic mechanisms; (3) more refined outcome measures for clinical trials; and (4) measures that have unique associations to health-related quality of life.

In evaluating the person with possible neuropathic pain, it is important to distinguish between stimulus-evoked pain and spontaneous pain that is stimulus-independent. Spontaneous pain is present in the absence of any stimulation and can be continuous or intermittent. Spontaneous pain that is continuous is present all or almost all of the time; although intensity may vary. Continuous pain often has several different and concurrent qualities, such as burning and aching. Spontaneous neuropathic pains may be intermittent, occurring episodically in random or predictable temporal patterns, and may be short-lived (eg, seconds to minutes).[55] Intermittent neuropathic pain can also be paroxysmal and is most often described as shooting, stabbing, or electric shock-like in quality.

There is a growing consensus that the various types of stimulus-evoked pain and nonpainful sensations that are present in patients with neuropathic pain provide important information about pathophysiology. The different types of stimulus-evoked pain vary with respect to whether the provoking stimulus is normally nonpainful or normally painful. Patients with neuropathic pain frequently report other abnormal sensations that are characterized as spontaneous or evoked by noxious or non-noxious stimuli. The term dysesthesia refers to an abnormal sensation that is unpleasant whereas paresthesia refers to an abnormal sensation that is not unpleasant. Examples of dysesthesias and paresthesias commonly reported by patients with neuropathic pain are itching, numbness, tingling, and pins-and-needles sensations. A less common but very bothersome type of spontaneous dysesthesia is called formication, so named for the feeling of ants crawling on the skin. The feeling of water dripping on the skin or the skin feeling scalded are other stereotypical variations on this theme. Each suggests ongoing sensory neurologic dysfunction in the absence of discernible somatic pathology.

COMMON PAIN PROBLEMS IN OLDER PEOPLE

Table 8 contains a summary of issues concerning the physical evaluation of common pain problems. We briefy describe some of the most common pain syndromes below.

Nociceptive Pain Syndromes

The most common clinical syndromes involving somatic nociceptor activity are associated with skin, muscle, bone, joint, or other connective tissue trauma or degenerative disease. Whereas skin lesions are usually self-evident, with pain exacerbated by touch, pressure, or stretch, nociceptive pain associated with deeper tissue structures is evoked or exacerbated by weight bearing, active or passive range of motion of the part, or mechanical perturbation by percussion or palpation. In older patients, OA and chronic tendonitis are typical examples. Tenderness (mechanical hyperalgesia) is usually not found in the neutral position. It may be present during acute exacerbations of an underlying inflammatory disorder (eg, gout, pseudogout, rheumatoid arthritis). The evoked pain is usually of a sharp quality that

TABLE 8. Comments and Issues Concerning the Physical Evaluation of Common Pain Problems

Common Pain Problems	Findings	Comments
Nociceptive conditions eg, OA of spine and weight bearing joints	Depends upon disorder being assessed (see text)	Depending upon the disorder being evaluated, physical examination findings (ie, reduced range of motion) may be weakly associated with pain
Neuropathic conditions		
Herpetic neuralgia	Symptoms often appear before rash. Physical findings may be unrevealing prior to rash. Increased sensory thresholds can be observed in intact skin in area of rash	
Postherpetic neuralgia	Diminished primary sensory modalities, greater in worst affected areas Allodynia, hyperalgesia, and hyperpathia may be present	Allodynia is pain elicited by gentle brushing or application of cool or warm stimuli Hyperalgesia is increased response to a painful stimulus eg pinprick Hyperpathia is associated with an increased reaction to a stimulus, especially a repetitive stimulus, and an increased threshold. The pain is often explosive
Central poststroke pain	Reduction in spinothalamic function (warm and cold) Frequently associated with allodynia, hyperalgesia, and hyperpathia Posterior column function (vibration and position sense) is preserved There may be proximal referral of pain	Proximal referral of pain—pressure over a distal site in hand or foot may be felt in the shoulder or upper limb or proximal thigh
Trigeminal neuralgia	Sensory examination of the face is normal. Pain may be spontaneous or precipitated by non-noxious stimuli (eg, brushing or cold applied to inner or outer cheek)	Pain paroxysmal with short volleys
Radicular (sharp and superficial) and referred (diffuse and deep) pain secondary to degenerative disease of spine	Reduced range of movement of the spine Focal mechanical hyperalgesia, neurologic signs in affected areas (eg, wasting, weakness, and sensory loss) Nerve stretch such as straight leg raising may evoke or exacerbate pain	
Painful peripheral neuropathy	Sensory abnormalities in affected limbs. Hyperalgesia and hyperpathia may be present. Occurs in approximately 20% to 25% of patients. Abnormalities may be thermal only (warm and cold)	Lower limbs are more likely to be affected than upper limbs, in a glove and stocking distribution

may persist for minutes to hours after examination as a poorly localized aching sensation. The evaluation of hyperalgesia can help identify areas of existing pain, particularly in nonverbal older persons. Movement or stimulus-evoked exacerbations of pain should be a part of the routine assessment protocol in research settings and possibly in clinical practice. Pain associated with minor injuries, such as an over-stretching of structures including ligaments and tendons at or near their bony attachments, is also common. The examination again reveals pain evoked by stretch and mechanical hyperalgesia.

Because radiographic OA is ubiquitous in older adults,[47,56] history and physical examination should be the mainstay of assessment of the arthritides. Patients with OA typically report $\leq$30 minutes of morning stiffness and increased pain with weight bearing (that is, when weight bearing joints are involved). Joint swelling is also common. Radiographs should be ordered when a disorder other than OA is suspected, in preparation for a total joint replacement, or to rule out a fracture.

Pseudogout, a common disorder in older adults, is also commonly identified on radiographs, even in the absence of clinical symptoms.[57–60] Arthrocentesis performed during the first 24 to 48 hours of an acute flare is the diagnostic test of choice for pseudogout, gout, and septic arthritis. The crystalline arthritides may also present with more chronic ''pseudorheumatoid'' symptoms as well. Serologic studies should be reserved for the patient in whom an inflammatory disorder is suspected, such as rheumatoid arthritis [eg, rheumatoid factor, erythrocyte sedimentation rate (ESR), polymyalgia rheumatica (ESR), temporal arteritis (ESR), and systemic lupus erythematosus (antinuclear antibody, creatinine, total blood count, urinalysis, others depending on suspected organ systems involved]. Information about other types of pain (eg, cancer-related pain, angina, claudication, emboli) has not been included in this paper but is readily available in a wide variety of textbooks.[61,62]

Neuropathic Pain Syndromes

Although clinical practice has evolved and refined the conduct of the history and physical examination in patients with neuropathic pain, a validated systematic description of the information that should be obtained from patients is unfortunately not available. The physical examination of the patient with neuropathic pain should include a general neurologic evaluation, including sensory testing and assessment of stimulus-evoked pain discussed previously. These assessments range from simple bedside methods (eg, using cotton swabs and tuning forks), to

more complex and comprehensive assessments for clinical research or clinical trials including punch skin biopsy[63,64]; electromyography and nerve conduction[65]; nerve blocks, infusions, and other pharmacologic challenges[66,67]; laser Doppler flowmetry,[68] laser-evoked potentials[69]; positron emission tomography and magnetic resonance imaging[70]; and quantitative sensory testing (QST).[71] Standardized approaches to QST for neuropathic pain conditions are beginning to emerge,[72] and more widespread implementation of such approaches in older adults could be particularly beneficial for identifying pain-related sensory dysfunction early in its development. In addition to contributing to increased understanding of different pain mechanisms, this technique has become increasingly useful in distinguishing and differentiating among various neurosensory disorders.[73] QST can also play a role in the diagnosis and staging of painful conditions, in research on the natural history of neuropathic pain syndromes, and in evaluating treatment response in patients with neuropathic pain.[74]

All of these procedures can provide important information regarding neuropathic pain. However, all require specialized training for administration and interpretation and are generally more invasive and expensive than other approaches to the assessment of neuropathic pain.

Herpes zoster (shingles) and postherpetic neuralgia are associated with the reactivation of the varicella-zoster virus. Unilateral dermatomal pain is often experienced before the appearance of the shingles rash.[75] This herpes zoster prodrome is very difficult to diagnose because physical examination at this stage is unrevealing.[76] Once the characteristic rash appears, the diagnosis of herpes zoster is readily apparent. In postherpetic neuralgia, which is the persistence of pain beyond the resolution of herpes zoster, there can be an increase or a decrease in sensory thresholds in the affected area. Dynamic allodynia is common, and can be assessed by gently stroking the affected dermatome with a cotton swab or camel's hair brush. Allodynia in patients with postherpetic neuralgia can be so severe that it interferes with the ability to wear clothing. Hyperalgesia and hyperpathia may also be present in the worst affected cases.

Central poststroke pain occurs in up to 8% of patients with stroke.[77] This pain syndrome usually involves a concomitant reduction in spinothalamic tract function (warm and cold sensibility) associated with different degrees of allodynia, hyperalgesia, and hyperpathia in the affected body part conforming to the central sensory pathway anatomy.[78–80]

Posterior column sensibility (vibration and position sense) is often preserved in persons with central neuropathic pain. The sensory abnormality splits the midline of the head and trunk as these pathways have strict contralateral representations of axial structures unlike cortical bilateral representation of the midline of the body. Patients with central neuropathic pain may have proximal referral of the sensation, which is pressure over a distal site in the hand or foot that may be felt as pain in the shoulder or upper thigh. Recent work suggests that, in addition to the presentation of central poststroke pain described in this section, many patients develop regional shoulder pain.[81] Although some cases of such pain may result from peripheral nociceptive activity, others may be related to cortical damage that results in loss of normal tonic inhibitory control.

Trigeminal neuralgia is a neuropathic pain syndrome that is seen in older adults, with an incidence of about 4 cases per 100,000 individuals.[82] The examination of the trigeminal nerve in patients with trigeminal neuralgia is normal (including corneal reflex and jaw jerk). Typical volleys of sharp pain may be precipitated by a non-noxious stimulus such as brushing, blowing air, or a cold substance applied to the outer or inner cheek (ie, allodynia).

Radicular pain may involve a reduction in range of movement of the affected area of spine with end of range replication of pain, focal mechanical hyperalgesia (see Table 7 for definitions of pain terms), and neurologic signs related to the affected nerve roots. These include wasting, loss of power, reduced or absent reflexes, and diminution of primary sensory modalities. Hyperalgesia and hyperpathia may also be present. Stretch testing of affected nerve roots on the extremities, such as straight leg raises may evoke or exacerbate the pain.

Painful peripheral neuropathy[83,84] is associated with sensory abnormalities in the affected extremities and can be caused by diabetes, impaired glucose tolerance, chemotherapy, HIV infection, and a variety of other illnesses and treatments. Hyperalgesia and hyperpathia may be present while allodynia is relatively uncommon. The abnormalities may be limited to thermal (warm and cold) sensations. The impairment is distributed in a glove and stocking manner. The lower limbs are more likely to be affected. The syndrome of painful legs and moving toes that may be associated with peripheral neuropathies is not necessarily associated with abnormal findings on physical examination. There are referred pain sites to surface structures that may be hyperalgesic in young adults, but this appears to be uncommon in older people.[85]

Other Pain Conditions

A number of common pain conditions from which older adults suffer are neither purely nociceptive nor purely neuropathic, but have elements of both. Examples of these include myofascial pain (MP), fibromyalgia syndrome (FMS), and chronic low back pain (CLBP). Moreover, breakthrough (episodic) pain is reviewed in this section because it can have a neuropathic or a nociceptive origin.

MP occurs in the most of both young and old with chronic pain conditions.[86] It may occur as a primary or secondary condition. Secondary MP may be associated with a number of underlying disorders such as cervical and lumbar spondylosis and degenerative scoliosis. MP may be localized or generalized and is characterized by the presence on physical examination of taut muscular

bands and trigger points.[87] When pressure is applied to a trigger point, pain typically spreads and reproduces the patient's spontaneous pain. Allodynia, hyperalgesia, sweating, piloerection, and temperature change may also occur.

Diagnosis of MP relies completely on thorough history and physical examination. Pain descriptors used by patients include dull, achy, and burning, among others. Mild pressure over the affected area and low level physical activity may help to alleviate pain, while excessive activity may worsen pain. Palpation of latent trigger points may cause local pain, although palpation of active trigger points typically causes radiating pain.[88] When a trigger point is stimulated with "plucking" by the examiner's hand or a needle (eg, during trigger point deactivation), a local twitch response (ie, rapid contraction followed by relaxation) may be observed.[89] Identification of taut bands requires firm palpation across the involved muscle(s) in a direction perpendicular to the direction of the fibers. If only one muscle is symptomatic, the examiner should apply the same palpation technique to the same muscle(s) on the opposite side in order to appreciate the textural differences.

FMS is thought to occur in 7% of women age 60 to 79 years.[90] These patients may have had FMS for decades, or symptoms may begin in late life. Often physical or emotional trauma precipitates FMS. As with MP, diagnosis relies entirely on history and physical examination. The American College of Rheumatology classification criteria require pain in 3 of 4 body quadrants and 11 of 18 characteristic tender points.[91] Typically patients with FMS have widespread hyperalgesia and report morning stiffness, fatigue, and nonrestorative sleep. A number of other disorders and symptoms may coexist in the older adult with FMS, thus a thorough history is required. Some examples include: postexertional pain; restless legs or sleep apnea; psychologic distress (eg, anxiety, depression); dysesthesias and paresthesias; impaired memory and concentration; auditory, vestibular and ocular complaints; multiple medication intolerances; palpitations and dyspnea; regional pain syndromes (eg, tension and migraine headaches, atypical chest pain, temporomandibular symptoms, MP, pelvic pain, dyspareunia); irritable bowel syndrome; cold intolerance; interstitial cystitis; subjective joint swelling; and easy bruising.[92]

CLBP is one of the most common regional musculoskeletal syndromes in older adults. Most of the CLBP is mechanical and often associated with a number of disorders including lumbar spondylosis, degenerative scoliosis, hip disease, leg length discrepancy, and spinal stenosis.[31] These conditions should primarily be assessed with history and physical examination given the poor predictive validity of radiographic and advanced imaging abnormalities for clinical symptoms.[56,93] The first step in the assessment of CLBP is ruling out "red flags," that is, serious disorders such as malignancy, infection, or compression fracture that would require specialized medical management. If a red flag is uncovered by a thorough history, imaging should be conducted promptly. If the history is consistent with severe spinal stenosis (ie, neurogenic claudication) and there is evidence of neurologic deterioration, advanced imaging should be pursued in preparation for surgical decompression (that is, assuming that the patient is a surgical candidate). In all other cases, which represent the majority of older adults with CLBP, imaging should be avoided. Guidelines to assist with obtaining a history and performing a physical examination in the older adult with CLBP are provided in Tables 1 and 9.

TABLE 9. Essential Clinic History Questions for Older Adults With Persistent Mechanical Low Back ± Leg Pain

Question	Potential Diagnostic Clue(s) Obtained
1 Can you show me where your back hurts?	If patient places hand to right or left of midline, over sacrum rather than lumbar spine, this suggests sacroiliac joint syndrome (look for associated scoliosis, hip and/or knee disease, leg length discrepancy), inflammatory disorder, or sacral insufficiency fracture.
2 Does the pain get better or worse when you curl up in bed?	Improvement in fetal position suggests spinal stenosis. Worsening in fetal position suggests sacroiliac disease because of joint compression in this position.
3 Does the pain go into your buttocks? If "yes,": Is the pain sharp or dull?	Buttocks involvement can be associated with hip disease, piriformis MP (often sharp or burning), or spinal stenosis and requires contextual evaluation.
4 Do you have pain in your groin?	Groin pain can be associated with intrinsic hip disease, local myofascial pathology, sacroiliac joint syndrome, or an insufficiency fracture.
5 Does the pain shoot down your leg(s)? If "yes,": In what part of your leg do you feel the pain? Is the pain sharp or dull?	Posterior radiation is consistent with sciatica (sharp) or spinal stenosis (dull). Lateral thigh radiation suggests tensor fascia lata/iliotibial band pain (not past the knee) or gluteus minimus (past the knee "pseudo-sciatica") MP. Lateral leg pain with paresthesias or numbness suggests L5 radiculopathy. Anterior thigh pain suggests hip disease, meralgia paresthetica, quadriceps strain with knee OA, or L2/3/4 radiculopathy.
6 Is the pain made better or worse with walking?	Worsening with walking suggests spinal stenosis or vasogenic claudication. Improvement with walking suggests myofascial pathology or neuropathic pain. Prolonged walking may worsen MP. Degenerative disease may be associated with initial pain/stiffness, then improvement and worsening with excessive use.
7 Do you sometimes feel that you have pain all over?	Patients with FMS often have prominent axial pain, and may present with a chief complaint of severe low back pain, but in fact LBP is just one of many sites of pain.

Breakthrough (episodic) pain refers to transitory exacerbations of pain that occur in addition to otherwise stable, persistent pain.[94] Such pain can be either nociceptive or neuropathic depending on its cause.[95] Although it has been defined in different ways, breakthrough pain is well recognized in patients with cancer and has been found to affect 40% to 80% of such patients.[96] However, only one study has investigated breakthrough pain in patients with chronic noncancer pain[97] and considerable additional research will be necessary to evaluate its validity and response to treatment in this very heterogeneous population of patients. Recognition and treatment of breakthrough pain is of significant clinical importance[98] insofar as it adds to morbidity in patients with cancer pain, including decreased functioning and increased levels of anxiety and depression, and its presence predicts a poor medical outcome. Potentially correctable causes of breakthrough pain (eg, an unrecognized vertebral compression fracture) should be investigated.[98] Although several assessment methods have been used with patients presenting with breakthrough pain, no assessment tool has been specifically validated for this type of pain[98] and more research is needed in this area.

Assessment of ''Red Flag'' Conditions

There are several pain-associated clinical conditions that are common in older persons to which the clinician must always be alert when examining a patient because delay in diagnosis may lead to considerable excess morbidity. These red flag conditions include the following:

- Orthopedic injuries associated with a witnessed or unwitnessed fall. This may present in the form of a recent behavioral change in an older patient with limited self-reporting capability. Such a presentation should trigger a physical examination for underlying injury. Similarly, spontaneous fractures (including vertebral collapse) due to osteopenia that may result in neural compression pain syndromes need to be considered in this population.
- Temporal arteritis[99] is a cause of new onset headache in older people and if untreated may cause irreversible blindness. The characteristic finding on examination is a tender, nonpulsatile, firm temporal (and occasionally occipital) artery, although very often this finding is absent. A history of jaw claudication and sudden onset hip girdle or shoulder girdle prolonged morning stiffness (ie, concomitant symptoms of polymyalgia rheumatica) should raise suspicion of temporal arteritis.
- Bone pain that is new or worse at night (or anytime the patient is lying down) and is not associated with acute injury should raise the possibility of metastatic disease.[100] The examination for evoked pain on palpitation must be careful but firm. A low threshold should exist for radiologic confirmation to detect and prevent pathologic fractures.
- Vascular compromise due to occlusion, embolus, thrombosis, or aneurysm. Ischemic limbs are generally cool, pale, and may be mottled or appear cyanotic. Pulses are diminished or not palpable and capillary return to gentle skin compression is delayed. A long-standing sensory neuropathy can often be detected, or there may be acute sensory and/or motor disturbance. Hyperalgesia, hyperpathia, and allodynia may be found in some cases.

CONCLUSION ABOUT HISTORY AND PHYSICAL ASSESSMENT

The history and physical examination of the older person with pain subserves 3 major purposes: (1) determination of the cause(s) of pain; (2) identification of important comorbidities that may impact the experience and expression of pain itself (eg, dementia, depression); and (3) identification of important comorbidities that may influence the choice of treatment (eg, dysmobility, hypertension, congestive heart failure). In nonself-reporting patients, the physical examination should also be used to identify important behavioral manifestations of pain. Regardless of indications, the physical examination requires time and attention to detail. This is because degenerative musculoskeletal conditions and neuropathic pain states are more common in advanced age and often coexist with other comorbid conditions that affect assessment, function, and management of the painful condition. Because of the presence of multiple comorbid conditions, it may be difficult to ascertain which of a number of identified pathologies best accounts for the pain. Treatment of debilitating pain should not be deferred while awaiting specific diagnosis, but efforts to determine and confirm etiology will inform disease-modifying therapies that may, concomitantly, diminish pain. Physical assessment should be an important and continuing part of medical management. Repeat physical assessment is important to determine efficacy of palliative therapies and to exclude the emergence of new pathology, particularly when there is an unexpected exacerbation of pain or loss of symptom control. Table 1 lists our consensus recommendations for physical evaluations.

GENERAL CONSIDERATIONS IN THE USE OF PSYCHOMETRICALLY VALIDATED ASSESSMENT TOOLS

Although the primary focus of the clinical practice should dictate the choice of measures, it is fundamental to select psychometrically-sound measures that are reliable, valid, and sensitive enough to detect subtle change, such as the effects of common treatment interventions. Whenever possible, measures chosen should have been developed or standardized in older adults, should be time efficient, and should not present an excess burden on the patient. Standardized performance-based measures and self-report measures augment the customary assessments performed by clinicians because they include constructs that range from the basic components of function to role function,[101] much of which is not routinely addressed by

many clinical specialties, but is essential when evaluating patients with chronic pain conditions.

Selection of pain assessment approaches and tools is somewhat dependent on the purpose of the assessment and the best available source of information on the patient's pain. Assessment goals include identification of pain etiology and comorbid conditions impacting pain and its treatment, determining severity of pain and its impact, and monitoring and evaluating response to intervention. Certain tools and procedures are best suited for one or more of these purposes and may include direct patient report or use of surrogate information.

ASSESSMENT OF PATIENTS' PAIN USING SELF-REPORT PROCEDURES

Despite its limitations,[102] self-report has been accepted as the most reliable source of information on the patient's pain and is considered to be the gold standard in most populations.[4,103] Discussion about pain, including the use of alternative terms such as "ache," "soreness," "bother," "hurting," and so forth, should occur with all older patients unless the patient has serious limitations in ability to communicate (see discussion below). Most older adults can provide self-reports of pain, particularly if attention is paid to adjusting for their sensory, physical, and cognitive limitations. A Structured Pain Interview that includes simple questions related to presence and absence of pain or discomfort, pain intensity, frequency, location, and impact on daily activities, is a feasible approach to pain assessment even among patients with cognitive impairments.[104–106]

REPORT OF PRESENT PAIN

Many older adults will not automatically report pain for a variety of reasons, including the belief that pain is expected and to be endured, not wanting to be a bother, expecting that the health care provider will know if pain is present, fear of the meaning of pain, fear of diagnostic tests and hospitalization, and fear of loss of independence.[107,108] It is also common for older adults to deny pain but admit to other sensations such as aching, hurting, soreness, or some other descriptor.[109,110] It is often useful to elicit information about the presence of pain with simple questions, such as "do you have any pain or discomfort today? What about aching or soreness?"[106,109] It may be necessary to probe to understand a lack of pain report when evidence (eg, diagnostic test results, pain behavior) suggests that pain should exist. Note also that many pain conditions may not hurt when the older person is at rest, and so assessment during movement or the performance of daily activities is important, particularly for those with memory impairment.

As noted, a thorough assessment includes a description of the pain's onset, pattern (including duration, frequency), intensity, quality, location, and any exacerbating or alleviating factors.[4,111] An example of a brief interview guide that gathers information on the pain and its impact is provided in Table 10.

Use of a pain map or drawing can be helpful in identifying pain location. Most older persons, including many patients with dementia, can reliably identify the location of their pain on a pain map or drawing.[112,113] Widespread pain noted on pain maps can be associated with pain-related disability and can be used to guide therapy decisions.

PAIN ASSESSMENT INSTRUMENTS

Because the purpose of pain assessment instruments is to measure severity of symptoms and impact on quality of life, they can serve as a benchmark for assessment of pathologic conditions over time and the effectiveness of interventions to treat pain.[107] There is research support for the use of existing pain assessment tools in older adults across a range of clinical populations (eg, musculoskeletal pain patients, cancer patients) and settings (Tables 11–13).

TABLE 10. Brief Pain Impact Assessment for Patients Who can Communicate Verbally

Questions	
1	How strong is your pain (right now, worst/average over past week)?
2	How many days over the past week have you been unable to do what you would like to do because of your pain?
3	Over the past week, how often has pain interfered with your ability to take care of yourself, for example with bathing, eating, dressing, and going to the toilet?
4	Over the past week, how often has pain interfered with your ability to take care of your home-related chores such as going grocery shopping, preparing meals, paying bills, and driving?
5	How often do you participate in pleasurable activities such as hobbies, socializing with friends, travel? Over the past week, how often has pain interfered with these activities?
6	How often do you do some type of exercise? Over the past week, how often has pain interfered with your ability to exercise?
7	Does pain interfere with your ability to think clearly?
8	Does pain interfere with your appetite? Have you lost weight?
9	Does pain interfere with your sleep? How often over the past week?
10	Has pain interfered with your energy, mood, personality, or relationships with other people?
11	Over the past week, how often have you taken pain medications?
12	How would you rate your health at the present time?

TABLE 11. Pain Intensity Tools for Older Adults

Name of Measure	Description of Measure	Reliability	Validity/Utility	Limitations
Numeric Rating Scales (NRS)[106,112,114,115,151,158,176,301–311]	Available in a variety of scale ranges and anchors, including 0-5, 0-10, 0-20, and 0-100 scale, with 0 no pain and 5 (10, 20,100) most intense pain imaginable	• High internal consistency (Cronbach α 0.86-0.88)	• Has been tested in acute care, subacute care, pain clinic, long-term care, assisted living facility, and community dwelling	• Verbal version may be difficult for older persons with cognitive impairment
		•Adequate test-retest reliability (r = 0.57-083), decreased in those with cognitive impairment	• Strong positive correlation with other pain intensity scales	• Requires abstract thought
			• Sensitive to change in pain	• Some older adults (with and without cognitive impairment) have difficulty with the scale
			• Validated in white and African American samples	
			• Preferred by many older adults	• A smaller number orientation (0-5) may be less demanding and more effective in those with cognitive impairment; however, testing of this configuration is limited
Verbal Descriptor Scales (VDS)[112–115,126,127,129,151,158,176,301–306,309,311–313]	Available in a variety of scale types, including scales with Verbal Rating Scales (from 4 to 7 point options), Pain Thermometer, Present Pain Intensity (PPI) index, and Graphic Rating Scale	• High internal consistency (Cronbach α 0.85-0.86)	• Has been tested in acute care, subacute care, pain clinic, long-term care, assisted living facility, and community dwelling	• Requires abstract thought
		• Adequate test-retest reliability (r = 0.52-0.83), decreased in those with cognitive impairment	• Strong positive correlation with other pain intensity scales	• Unequal intervals between descriptive anchors
			• Validated in white and African American samples	• Limited number of response categories
			• Preferred by older adults, low failure rate even in cognitively impaired	• Language demands greater
			• Thermometer adaptation may assist with understanding of tool	
			• Adequate for use in clinical setting but sensitivity not sufficient for research purposes	
Facial Pain Scales[115,151,157,176,301–306,309,312–317]	Two main facial pain scales tested with older adults:	• High internal consistency (Cronbach α 0.88-0.89)	• Has been tested in acute care, subacute care, pain clinic, long-term care, assisted living facility, and community dwelling	• May assess a broader construct of pain affect rather than pain intensity
	• Faces Pain Scale (FPS) consists of seven faces (0-6) ranging from a neutral face (no pain) to a grimacing face (worst pain). It was revised to 6 faces as FPS-R to make it suitable with 0-10 scale	• Acceptable to high test-retest reliability (r = 0.44-0.94), decreased in those with cognitive impairment	• Less strong positive correlation with other pain intensity scales	• Requires abstract thinking and has been difficult for some older adults with cognitive impairment to use

(*continued*)

TABLE 11. (*continued*)

Name of Measure	Description of Measure	Reliability	Validity/Utility	Limitations
	• Wong-Baker FACES Scale consists of six faces ranging from a smiling face (no pain) to a face with tears (worst pain)		• Validated in white, African American, and Spanish, the FPS was preferred by many older adults, most preferred by African American and Spanish older adults	• Unequal intervals between response categories
			• Does not require language, facilitating transcultural pain studies	• Limited number of response categories
Visual Analog Scale (VAS)[114,115,126,129,302,305,306,308,310–312,315]	A vertical or horizontal 100 mm line anchored by verbal descriptors such as "no pain" and "worst pain possible." Patients make a mark on the line that represents their pain intensity	• High internal consistency (Cronbach α 0.87-0.88)	• Has been tested in acute care, pain clinic, long-term care, and community dwelling	• Less preferred by many older adults
		• Adequate test-retest reliability (r = 0.75-0.83)	• Strong positive correlation with other pain intensity scales	• High failure rate
			• Continuous variable enhances use for research	• Requires use of paper/pencil or mechanical device, extra step in scoring which is more time-consuming and adding additional source of error
			• Highly sensitive to change in pain intensity	• Requires greater abstract thought
Philadelphia Geriatric Center Pain Intensity Scale (PGC-PIS)[116,230,315,318]	• Six items tapping experienced pain over the past several weeks, at the present moment, at its least and at its worst, number of days per week that the pain is "really bad," and the extent to which pain interferes with daily activities	• Excellent internal consistency (Cronbach α 0.84-0.91)	• Correlated well with the NRS (Spearman r = 0.68)	
	• All but the "days per week" item were rated on 5-point scales (range 1 = not at all to 5 = extremely). A composite pain intensity measure was calculated by converting the "days per week" to a 5-point scale and averaging across all six items	• Good test-retest reliability (r = 0.84)	• Adequate reliability and validity for use with patients with dementia	
	• Scoring 2 or more are considered to have pain		• Correlation between caregiver and care recipient pain report was stronger than for other pain measures examined	

TABLE 12. Multidimensional Pain Tools for Use With Older Adults

Name of Measure	Description of Measure	Time to Complete	Reliability	Validity/Utility	Limitations
SF-MPQ[128,129,131–133,319–321]	• 15 pain quality words scored on a 4-point Likert severity scale, plus a VAS for average pain intensity and a PPI for current pain sensation	Not specified but likely 5-10 min	• Inadequate to adequate internal consistency (Cronbach α 0.41-0.98)	• Factor structure supported for pain sensory, affective dimension	• Not recommended for illiterate and cognitively impaired persons
	• Dimensions: sensory and affective		• High test-retest reliability for the total, sensory, affective, and average pain scores (ICC 0.88-0.96) but lower ICC of 0.75 for current pain scores	• Suited for population in community dwelling and acute care	• May not discriminate between pain types
				• Reliable and valid for older adults	• Not sufficiently validated with seniors whose language is other than English
Functional Pain Scale (FPS)[133]	• 0-5 scored tool that combines pain severity and function and rates tolerability of activity	Less than 1 minute	• Interrater reliability > 0.95	• Validity testing showed high or quite acceptable correlations with other scales(r = 0.62-0.90)	• Limited by indicators included in the tool with interference based on ability to watch TV, read, and use telephone
	• Dimensions: intensity and function			• Responsiveness was superior to the other instruments tested	
				• Suited for population in the community setting	
				• Short and easy to use	
Pain Disability Index (PDI)[135,322–325]	• 7-item inventory using 11-point scale measures perceived pain interference with the performance of 7 areas of daily functioning	Not reported but likely less than 10 min	• High internal consistency (Cronbach α 0.86-0.93)	• Demonstrate concurrent and construct validity, with score most strongly related to pain behavior	• Its utility as an outcome measure needs further studies
	• Dimensions: pain-related disability		• Moderate test-retest reliability (r = 0.44)	• Suited for population in the community dwelling	
			• Interrater reliability 0.99	• Has been tested for chronic pain and response to treatment in older persons	
				• Short and easy to use	
BPI and-Short Form (BPI-SF)[134,326–329]	• 11-item tool that gathers information on pain severity and rates level of pain interference on seven key aspects of function on a 0-10 NRS	10 to 15 min (interference subscale fewer than 5 min)	• High internal consistency (Cronbach α 0.82-0.97)	• Consistently measured 2 underlying constructs, severity and interference in cancer pain, chronic pain, and acute pain	• Does not evaluate affective dimension or qualities of pain
	• Dimensions: severity and interference		• Test-retest reliability moderate to strong (0.58-0.95)	• Discriminated among levels of condition severity and was sensitive to change in condition over time	
	• Has been adapted to assess pain and discomfort specifically			• Has been validated in over 30 languages with good psychometric	

(*continued*)

TABLE 12. (*continued*)

Name of Measure	Description of Measure	Time to Complete	Reliability	Validity/Utility	Limitations
	due to the presence of herpes zoster (ZBPI)			properties as an intercultural, multinational research tool • Suited for cancer pain, noncancer chronic pain conditions, acute postsurgical pain, and acute pain and older adults • Generic rather than condition-specific, simple to administer and score	
GPM[137,330,331]	• 24-item instrument consists Of 22 items scored dichotomously assessing pain-related physical and psychologic function and 2 items scored 0-10 measuring pain severity • Modification of GPM (GPM-M2) has 17 items. Dimensions: intensity, interference, disengagement, pain with activity	5-15 min	• Reliability moderate to strong (Cronbach α 0.87-0.94) • Good test-retest reliability (r = 0.74-0.90) • High interrater reliability (κ = 0.93)	• Significant correlations between GPM and MPQ (r = 0.63) • Suited for ambulatory geriatric clinic and nursing homes • Short, easy to use	• Limited evaluation data
Multidimensional Pain Inventory (MPI)[136,332–334]	• 61-item, evaluates the impact of and adaptation to chronic pain, comprised of 13 subscales across 3 sections • Dimensions: pain intensity, interference of pain with everyday activities, perceived life control, affective distress and social support	Approximately 20 min	• Adequate to high internal consistency (Cronbach α 0.61-0.92) • Adequate to high test-retest reliability (r = 0.62-0.91)	• Strong concurrent validity with other multidimensional pain and interference scales • Well-established in chronic pain • Cross culturally validated • Identifies adaptation styles and response to treatment	• MPI classifications may not be stable, trait-like characterizations • Limited psychometric study in the elderly
Structured Pain Interview (SPI)[106]	• Two questions focus on patient's presence of pain or discomfort, one question for pain location with pain map	Not specified, but likely less than 5 min	Acceptable test-retest reliability (κ = 0.56-0.72)	• Significant correlations with 0-10 scale	• Not suitable for monitoring treatment response when improvements in pain are anticipated

TABLE 12. (*continued*)

Name of Measure	Description of Measure	Time to Complete	Reliability	Validity/Utility	Limitations
	• Dimensions: pain prevalence and location			• Highly feasible tool for examining pain prevalence in nursing homes and comparing resident with nurse perspectives	
Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)[140,335–343]	• 24-item, available in both 5-point Likert and 100 mm Visual Analog scaling format	Not specified but likely brief	• Adequate to high internal consistency (Cronbach α 0.73-0.95)	• Valid and widely used for knee and hip OA-specific health status with latest version available in 65 alternate language forms	• May be less sensitive to change than the generic Health Assessment Questionnaire
	• Dimensions: pain, disability and joint stiffness		• Adequate to high test-retest reliability (r = 0.64-1.00)	• Used in diverse clinical and interventional environments as valid, reliable and responsive measure of outcome • Alternative forms of administration (telephone, mouse-driven cursor, touch screen) • Studied extensively among cognitively intact seniors and those suffering from mild to moderate dementia with better proxy pain report	
Arthritis Impact Measurement Scale (AIMS)[141,142,344–351]	• 78-item measure assessing the effects of rheumatoid arthritis pain, with shorter version AIMS2-SF containing 26 items, score for subscales ranges from 0 to 10	About 20 min	• Acceptable internal consistency (α coefficients for the subscales 0.72-0.96)	• Construct validity supported by scores correlated with related instruments	
	• Adapted for elderly as GERI-AIMS, generates both generic and arthritis-specific impairment scores		•Adequate to high test-retest reliability (0.78-0.94)	• GERI-AIMS correlates well with clinical measures of arthritis severity, suitable for frail elderly	
	• Dimensions: physical, affect, symptom, social interaction and role				

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TABLE 13. Characteristics of Clinically-Relevant Pain Assessment Tools for Seniors With Limited Verbal Communication Due to the Presence of Dementia

			Scales With 10 or Less Items			
Name of Measure	**Description of Measure**	**Time to Complete (times approximate)**	**Internal Consistency**	**Interrater Reliability**	**Validity Considerations**	**Limitations**
Abbey Scale[177]	Six items, 0-3 scale	Less than 1 min	0.74-0.81	ICC = 0.44-0.63	• Moderate positive correlations between total score and a nurse's global pain assessment	• Although scores significantly decreased after pain intervention (eg, medication), the raters were not blind as to whether there was an intervention
CNPI[174]	Six items, present/not present	Not specified but likely very brief	0.54-0.64	κ = 0.62 to 0.82 (P = 0.019 to 0.006)	• Significant (moderate) correlations between CNPI scores and verbal report	• Low internal consistency may imply that a construct other than pain is being measured by some of the items
Discomfort Scale (DS-DAT)[173]	Nine items, 0-3 scale	5 minutes	0.86-0.89	r = 0.61-0.98	• Positive correlations between self-report measures and DS-DAT scores	• Validity evidence based on a gold standard of illness involving fever (not pain per se) • The gold standard was illness involving fever (ie, not pain per se)
DOLOPLUS-2[179]	10 items, 0-3 scale	Less than 5 min	0.82	Not reported	• Significant convergent validity of the VAS and Doloplus-2 scores	• English version not sufficiently researched but validation studies in English, Spanish, Italian, German, Portuguese, and Dutch are currently underway
NOPPAIN[178]	Six pain behaviors, Multiformat—yes/no and 0-5 scale	30 s to complete the measure, 10 min to complete the observations	Not reported	Not reported	• Accurate classification of pain in a simulated patient portraying a variety of pain conditions	• Validity evidence based on a gold standard of an actress portraying a patient with severe dementia in a variety of pain conditions
PACI[176]	Seven items, yes/no	2 minutes	Not reported	κ = 0.74-0.85; ICC = 0.82-0.88	• Moderate correlations with 3 self-report measures of pain among some groups	• Low correlations with self-report measures of pain among some groups • Validation based on a standard other than self-report is still needed for patients with dementia
PAINAD[175]	Five items, 0-2 scale	5 minutes	0.50-0.67	r = 0.82-0.97	• Concurrent validity indicated by positive correlations with DS-DAT scores • Scores on the DS-DAT decreased following pain intervention	• Low internal consistency may imply that a construct other than pain is being measured by some of the items • Concerning validity evidence, there was no indication as to whether raters were blind to the intervention
PATCOA[180]	Nine items, yes/no	Not specified but likely brief	Below 0.70	% Agreement for each item = 56.5% to 100%	• Content validity based on factor analysis	• Psychometric properties investigated among cognitively intact seniors undergoing orthopedic surgery ~ not investigated among seniors with cognitive impairments

TABLE 13. (*continued*)

Scales With More Than 10 Items						
Name of Measure	**Description of Measure**	**Time to Complete (times approximate)**	**Internal Consistency**	**Interrater Reliability**	**Validity Considerations**	**Limitations**
PACSLAC[165]	60-item checklist, present/absent	5 minutes	0.85	0.92	• Moderate correlations with nurses' global ratings of pain • Ability to discriminate among painful, calm, and distressing events	• Validity evidence based on nurses' retrospective reports
PADE[183]	24 items, multiformat—4-point Likert scale, Visual Analog Scale	10 minutes	0.24-0.88	ICC = 0.54-0.95	• The PADE could discriminate between people with clinically significant pain and those without	• Although the PADE could discriminate between people with clinically significant pain and those without, a measure of verbal agitation was also able to do so (indicating that the PADE may not be pain specific). • Severity of dementia of the sample is unclear (ie, described as mild to moderate, but no detailed assessment information provided) • Variable results obtained for reliability evidence
Simmons and Malabar[182]	25 items, multiformat (eg, yes/no, open-ended)	8 minutes for the first evaluation, 3 min for subsequent evaluations	Not reported	Not reported	• Scores were found to decrease following pain intervention	• Although scores decreased after pain interventions, it is unknown whether the raters were blind as to whether there was an intervention • Cognitive status of participants unclear

CNPI indicates Checklist of Nonverbal Pain Indicators; DS-DAT, Discomfort Scale for patients with Dementia of the Alzheimer Type; ICC, Intraclass Correlation Coefficient; NOPPAIN, Noncommunicative Patient's Pain Assessment Instrument; PACI, Pain Assessment in the Communicatively Impaired; PACSLAC, Pain Assessment Checklist for Seniors with Limited Ability to Communicate; PADE, Pain Assessment for the Dementing Elderly; PAINAD, Pain Assessment in Advanced Dementia; PATCOA, The Pain Assessment Tool in Confused Older Adult.

Pain Intensity Scales

Pain intensity scales are often used to assesses current pain or average, worst, or lowest pain in the past day, week, or month. They are easy to administer, require limited training of staff, and have demonstrated validity and reliability properties when used with older adults. For older adults who are cognitively intact and even those with mild to moderate cognitive impairment, a variety of scales are available for assessing pain intensity that have acceptable psychometric properties.[16,107] For older adults without cognitive impairment and those with adaptations to sensory losses, very few modifications in the assessment approach are required. Caution should be exercised, however, because adaptations will deviate from the standardization of the scales thus limiting clinicians' ability to compare scores to normative values. Such adaptations may also have a negative impact on the validity of the scores.

It is important to note that there is wide variability in individual preference for and understanding of specific self-report formats so several options should be available for selection. Generally, numeric rating scales are preferable because they have good psychometric properties, minimize linguistic demands and can be completed verbally.[114] Verbal descriptor scales also have good properties with seniors and are often preferred, while visual analog scales (and, especially, vertical visual analog scales) have been found by some researchers to lead to frequent unscorable responses among seniors.[108,115] A variation of the standard pain intensity scales is the Philadelphia Geriatric Center-Pain Intensity Scale (PGC-PIS) that may have utility assessing pain and its perception by patients, including those with dementia.[116] Table 11 provides information on instruments for assessing pain intensity in older adults for which psychometric evaluation is available. Recommendations for assessing pain intensity are presented in Table 2.

Self-report Regarding Neuropathic Pain

The tools discussed in this section have generally not been validated with large senior samples, although older adults were included in the preliminary validation studies. Three groups of investigators have recently developed measures specifically intended to assist in diagnosing neuropathic pain. Bennett[117] developed the Leeds Assessment of Neuropathic Symptoms and Signs (LANSS), which includes 5 self-report items and 2 examiner-assessed sensory testing items. A self-report version of the LANSS, the S-LANSS, has recently been developed.[118] Krause and Backonja[119] developed the Neuropathic Pain Questionnaire (NPQ), which includes 12 items rated by patients, and a short form of the measure that consists of 3 of these items.[120] Finally, Bouhassira et al[121] developed the DN4, which includes 10 items that are based on an interview and examination of the patient.

Each of these measures has been shown to successfully discriminate patients with neuropathic from non-neuropathic pain with adequate sensitivity and specificity for screening purposes[119,122] For example, burning, cold, electric shocklike, shooting, and stimulus-evoked pain, as well as various dysesthesias and paresthesias, were found to be more common in patients with neuropathic compared with non-neuropathic pain.[119,122] On the basis of these research findings, it seems that any of these measures could be used in the first stage of epidemiologic studies to identify patients with an increased risk of neuropathic pain. To make a firm diagnosis of neuropathic pain, however, a second assessment stage would be required that integrates physical examination data with other assessments required for a differential diagnosis.[123]

Two questionnaires have been developed specifically for providing comprehensive evaluations of neuropathic pain symptoms that could be used in clinical research on natural history and pathophysiologic mechanisms and also in clinical trials as outcome measures. Although the symptoms included in these questionnaires overlap with the symptoms assessed by the measures designed for diagnosing neuropathic pain, these 2 questionnaires are generally more comprehensive because they were designed to provide a complete description of the symptoms of neuropathic pain rather than to assess the subset of symptoms that are most diagnostically discriminating. Galer and Jensen[66] developed the Neuropathic Pain Scale (NPS), which was specifically designed to assess the different qualities of neuropathic pain in a questionnaire format and has been designed to assess treatment response.[66,124,125]

Bouhassira et al[122] developed the Neuropathic Pain Symptom Inventory (NPSI), which consists of 12 self-report items that ask the patient to rate spontaneous and evoked pain qualities, dysesthesias, spontaneous pain duration, and intermittent pain frequency on 0 to 10 scales. Importantly, in research using the NPSI,[122] patient reports of evoked pain to brush, pressure, and cold stimuli were significantly associated with ratings based on more routine physical examination (Speaman ρ's ranged from 0.66 to 0.73). These results suggest that patients are able to provide reports of their stimulus-evoked pain that may be accurate enough to address some research objectives.

While these tools continue to undergo validation testing, and insofar as they may have utility in clinical research settings, it remains to be seen if they are useful in routine clinical settings. Other tools, such as the McGill Pain Questionnaire (MPQ) which has been validated for older adults with chronic pain,[126] also use pain descriptors that differentiate pain qualities relevant to determining neuropathic versus non-neuropathic pain etiologies However, the utility of the Short Form McGill Pain Questionaire (SF-MPQ) in differentiating neuropathic from non-neuropathic pain has been questioned.[123] Future research will need to determine whether the different pain qualities that are assessed by self-report or interview questionnaires actually reflect distinct pain mechanisms in patients with neuropathic pain.

Multidimensional Pain Assessment Tools

Multidimensional tools can be used to capture more comprehensive assessment information on additional characteristics of the pain complaint (eg, quality, location) and other domains of pain-related function or its impact on aspects of quality of life. For the past 30 years, the preeminent method for systematically assessing the quality of a patient's spontaneous pain has been the MPQ, which includes sensory, affective, and evaluative descriptors of pain.[127] Because the MPQ can be relatively time-consuming, Melzack[128] developed the SF-MPQ. The MPQ and SF-MPQ have been used frequently in the assessment of all types of acute and chronic pain, including neuropathic pain with evidence that, among people who can read the adjectives, the psychometric properties of the MPQ and SF-MPQ are not age-related[114,126,129,130] and many older people with post-operative or chronic pain are able to complete these scales. The internal consistency, convergent, discriminant, and construct validity and factor structure of the full scale MPQ have been demonstrated in older people with acute and chronic pain[114,130] and the SF-MPQ has been validated for use with older persons.[131,132] The use of the MPQ and SF-MPQ is unfortunately limited when it comes to older persons who are non-native speakers of the English language.

The Functional Pain Scale (FPS), which combines pain severity and function, rates pain severity as tolerable or intolerable with levels of impairment graded by interference with activity focusing on ability to watch TV, read, and use the telephone.[133] Preliminary psychometric evaluation suggests the tool might be a brief alternative in evaluating pain and its impact. However, it uses a narrow categorization of activities impacted by pain. Another brief tool, the Structured Pain Interview, was developed to evaluate pain prevalence and location and seems a feasible approach for this purpose in the nursing home setting.[106] Several additional comprehensive instruments that assess multiple components of the pain experience (eg, pain intensity, mood, activity level, functional limitation), reflect a variety of approaches to comprehensive assessment and have been used effectively with older adults include the Brief Pain Inventory (BPI[134]), the Pain Disability Index (PDI[135]), and the Multidimensional Pain Inventory (MPI[136]). The Geriatric Pain Measure (GPM[137]) is a recently developed assessment option specifically for use with older adults. Three of these instruments, the BPI, the PDI, and the GPM, are relatively short and easy to complete and provide information on the impact of pain that can be used to monitor for changes over time and response to treatment in the clinical setting. The BPI in particular has been used widely and successfully among older adults.[138,139] A summary of selected available multidimensional tools for use in older adults is presented in Table 12.

Disease-specific Measures

Selected disease-specific self-report measures, that are suitable for use with frail seniors, have been developed including the McMaster University Osteoarthritis Index (WOMAC[140]) and a modified version of the Arthritis Impact Measurement Scale (AIMS[141]; GERI-AIMS[142]). Both the WOMAC and the AIMS were designed to assess the impact of OA on a patient's quality of life and have psychometric properties supporting their use in older adults. The version of the AIMS suitable for use with frail seniors (GERI-AIMS) has been found to have acceptable internal consistency (α coefficients for the subscales ranged from 0.70 to 0.86).[142] Construct validity of the GERI-AIMS has been investigated and scores on the GERI-AIMS have been shown to correlate with related instruments.[142] Moreover, concerning validity evidence, Hughes et al,[142] found that the correlation between scores on the GERI-AIMS arthritis index and other measures of arthritis was stronger than the relationship between the arthritis index and a measure of general health.

The Zoster BPI (ZBPI) was developed as a disease-specific measure of zoster-associated pain and used in the main outcome measures of the recently published zoster vaccine trial, the Shingles Prevention Study.[143,144] The ZBPI is an adaptation of the BPI that captures pain and discomfort (including allodynia and pruritis) due specifically to herpes zoster using a 0-10 point numerical and visual pain intensity scale. In a study of herpes zoster patients age ≥ 60 (n = 121), ZBPI pain scores were strongly correlated with MPQ Present Pain Intensity (PPI) scores, interference with ADL, and worsening quality of life, supporting its validity.[143] Reliability, measured by intraclass correlation coefficients within 14 days of rash onset, ranged between 0.63 and 0.78.

Pain Diaries

A helpful tool in gathering information about the older persons' pain and response to treatment, particularly in clinical trials and the community setting, is the pain diary. Diaries have been shown to be valid and reliable measures of pain severity and activity.[145,146] Pain diaries are particularly useful for identifying related factors that exacerbate (including incident and evoked pain) or decrease pain. However, careful explanation and instructions to the patient and family caregiver are needed to assure consistent use of the diary. A variety of diaries are available, including one that can be downloaded from the AGS website (http://www.healthinaging.org/public_education/pain/), which was developed as part of a tool kit for use by older patients with persistent pain.

Although diaries may be useful, they do have limitations. These include recall bias, problems with current pain as an anchor for retrospective reports, and nonadherence.[147] The latter is particularly noteworthy because it has been determined that some individuals complete diaries immediately before they are to be turned in ("fill backwards") or a week's diary is completed in advance ("fill forward").[147] The use of modern technology (eg, hand-held computers) is promising as these instruments may be programmed to facilitate timely record keeping and prohibit invalid entries. There are, however, limitations to the use of these technologies

including cost, ease of use by the elderly, and other logistical details. Recommendations for the assessment of pain using self-report procedures among seniors without significant cognitive impairments are presented in Table 2.

Self-report Among Seniors With Dementia

As cognitive functions deteriorate, patients become less likely to self-report pain (for example, Parmelee and colleagues and Hadjistavropoulos et al[116,148,149]), despite a lack of differences in the prevalence of painful conditions between people with and without cognitive impairments.[3] Self-report assessment approaches rely on higher mental processes whereas observational assessment procedures rely on pain behaviors such as overt expression of pain, distress, and suffering (eg, grimaces, limping), that are more automatic and, therefore, more likely to be preserved as cognitive functions deteriorate.[150]

Unidimensional self-report measures have been found to differ with respect to psychometric properties when used among seniors with varying degrees of dementia. Seniors with mild to moderate impairments (on the basis of a MMSE[32] score of about 18 or higher) would likely be able to respond to some unidimensional self-report procedures (for example, Weiner et al,[106] Chibnall and Tait,[151] and Hadjistavropoulos et al[106,151,152]). In some psychophysical studies involving self-report procedures (for example, Gibson et al[153]) persons with MMSE scores of 12 (indicative of moderate to severe dementia) were also able to respond to unidimensional self-report scales. Nonetheless, reliable responses to self-report assessment tools do decrease as MMSE scores decline to approximately 12 and 13.[106] Several measures have been found to have adequate reliability and validity when used with seniors with mild to moderate dementia including a 0-10 pain assessment scale,[154] the 21-point box scale,[151] the Verbal Descriptor Scale,[115] and the Colored Analog Scale (CAS[155,156]). The 21-point box scale may prove to be particularly helpful, as Chibnall and Tait[151] found an advantage of this format over a verbal rating scale[127] and the faces pain scale[157] among seniors with an average MMSE score of 18. Nonetheless, people with lower MMSE scores may also be able to provide some information by self-report.[158] Research on multidomain self-report pain assessment scales among seniors with dementia is lacking, but these tools may be less useful than unidimensional measures due to their complexity.

OBSERVATION OF BEHAVIORS ASSOCIATED WITH PAIN OR THE ABSENCE OF PAIN

Because pain is a subjective experience, the only way to know about a person's pain is often by what he or she tells us or reveals through verbal report or other behaviors. The earliest attempts to quantify pain using behavioral observation suggested that a standard protocol be followed where patients were asked to perform a series of behaviors during which they were videotaped.[159] Raters then scored the presence or absence of specific behaviors in timed sequences or epochs.[159] Such approaches, although useful for research purposes, are cumbersome for a clinical assessment. Nonetheless, we review them briefly because they formed the basis for approaches that were developed for use in busy clinical settings.

Pain Behavior Measurement (PBM[159]) is an observational system whereby the frequency of clearly defined pain behaviors is noted while the patient undergoes a series of standardized structured activities. The Facial Action Coding System (FACS[160,161]) is an atheoretical anatomically-based system developed to provide objective descriptions of facial activity (ie, facial reactions to various stimuli). Both the FACS and the PBM have been found to be useful in assessing pain among seniors with and without cognitive impairments in research.[162–164] No substantial differences between cognitively intact seniors and seniors with dementia have been detected using either FACS or PBM.[152,162] Nonetheless, both these systems are labor-intensive and unlikely to be useful in busy clinical settings.

Several attempts have been made to develop observational, clinically relevant tools for persons unable to self-report. However, some concerns regarding the psychometric properties and small numbers of items on some scales have been noted (for example, Hadjistavropoulos[148] for a review). The complex sequelae characterizing dementia (eg, diverse causes and brain regions affected) may affect the pain response in numerous ways, emphasizing the need to sample a wide variety of potential reactions that could occur in response to a painful stimulus. As such, measures consisting of only a few items will potentially result in considerable numbers of false negatives. Nonetheless, clinically useful pain screening tools that assume the existence of a wide range of pain expressions have begun to emerge (eg, Fuchs-Lacelle and Hadjistavropoulos[165]).

The American Society for Pain Management Nursing (ASPMN) recently appointed a task force to address this issue and their following recommendations are especially appropriate when considering a comprehensive strategy for assessing pain in nonverbal persons.[166] The task force recommended a hierarchy approach to identify presence of pain starting with determining ability to self-report, as some persons with severe cognitive impairment may be able to indicate presence of pain. Moreover, the task force recommended investigation for possible pathologies that could produce pain, observation of possible behaviors that may signal pain, use of surrogate reporting, and the potential use of analgesics to examine whether pain management causes a reduction in the behavioral indicators thought to be related to pain. A detailed process that could be implemented in the assessment of dementia patients is included in Table 3.

Because responses to chronic pain can vary from increased levels of agitation to decreased levels of motor activity in patients with advanced dementia,[167] the application of unidirectional measures of pain behavior

may fail to identify a significant subset of patients with inadequately treated pain. Hence, some investigators have proposed that pain assessment be linked to clinical interventions, reasoning that changes in behavior associated with interventions are likely to reflect improved pain control for patients who demonstrate behavior change. Although this strategy has shown good effectiveness when integrated in an unblinded manner into clinical care,[168,169] the results of randomized trials have been less impressive. Three blinded trials have compared analgesic and placebo interventions. One study found no effect for the administration of acetaminophen relative to placebo on a measure of agitation among residents in several nursing homes[170] and another study reported similar findings when patients routinely received an opioid analgesic—although an effect may have occurred for the over 85 age group.[171] These outcomes, however, may be related to the low dosing of analgesics used in each trial. A more recent study, however, suggests that there may be promise to this approach.[172] In a double-blind, cross-over design, patients demonstrated increased levels of activity on an observational measure of behavior when they received acetaminophen relative to times that they received placebo (although this finding was not reflected in more global, retrospective measures). Although not yet adequately explored, the limited literature suggests that the integration of analgesic interventions with behavioral pain assessment strategies may hold promise as another way of identifying and subsequently assessing patients for whom pain impacts function to a significant degree.

BRIEF OBSERVATIONAL TOOLS

Clinically relevant measures may be categorized into those that are brief (comprising 10 items or less) and those that are extended (comprising of more than 10 items) (Table 13). Measures of 10 items or less include the Discomfort Scale (DS-DAT[173]), Checklist of Nonverbal Pain Indicators (CNPI[174]), Pain Assessment in Advanced Dementia (PAINAD[175]), Pain Assessment in the Communicatively Impaired (PACI; unpublished measure developed by a group headed by J. Middleton; used by Kaasalainen and Crook[176]), Abbey Scale,[177] Noncommunicating Patient's Pain Assessment Instrument (NOPPAIN[178]), the DOLOPLUS-2,[179] and the Pain Assessment Tool in Confused Older Adults (PATCOA[180]). The measures vary with respect to number of items (5-10 items) and format of administration (eg, Yes/No checklist; 4-point rating scale). These scales can be further categorized in terms of whether they require information from a collaborative informant (eg, about changes in sleeping and eating patterns) or whether an observer, who is unfamiliar with the patient, can administer them. The following aforementioned instruments have items requiring information from a collaborating informant: the DOLOPLUS-2 and the Abbey Scale. A rater, who does not need to know the patient, can complete the remaining scales (ie, the Discomfort Scale, CNPI, PAINAD, PACI, NOPPAIN, PATCOA).

Unfortunately, research has shown that most of these measures have unsatisfactory or unreported internal consistency, introducing uncertainty about whether all items measure the same construct (eg, the work of Feldt,[174] Wardenet al,[175] and Decker and Perry[174,175,180]). Although it must be acknowledged that it is more difficult to achieve satisfactory internal consistency with scales that have relatively few items, 3 measures with 10 or fewer items (ie, Abbey Scale, DOLOPLUS-2, DS-DAT) have been found to be satisfactory in this regard (Table 13). Some reservations also arise concerning validation procedures. For instance, the PATCOA was designed for use among confused older adults but evidence for its validity comes from investigations of cognitively intact seniors (only a few of whom were "confused"). Moreover, the Discomfort Scale provided validity information on the basis of a gold standard of illness involving fever, which may not have been accompanied by pain, per se.

EXTENDED OBSERVATIONAL MEASURES

Several lengthy measures (more than 10 items) have been developed to assess pain among seniors with dementia. These include Amy's Guide,[181] Simons and Malabar's[182] scale, the Pain Assessment in Dementing Elderly Scale (PADE[183]), and the Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC[165]). The number of items constituting these measures ranges from 24 to 60 supporting the potential of the tools because, as previously mentioned, their breadth of items is more likely to encompass the varied responses of patients with dementia who suffer very diverse effects of brain pathology. As is the case with several of the briefer instruments, one of these assessment tools requires information from a collaborative informant (ie, Amy's Guide). The PADE and the Simons and Malabar scale do not require an informant whereas the PACSLAC requires an informant for only 2 of its 60 items.

A certain degree of content validity is inherent in Amy's Guide, the PADE, and the PACSLAC partly because of the nature of their development (ie, the items were derived from interviews with professional caregivers). However, inadequate information about the psychometric properties of Amy's Guide and Simons and Malabar's scale is available. The PADE, although demonstrating satisfactory interrater reliability, is questionable as a specific measure and may be reflective of general distress.[183] The PACSLAC has demonstrated excellent internal consistency and interrater reliability[184] and initial validity evidence (on the basis of retrospective ratings) and is promising. Moreover, in a recent prospective validation study of the Dutch version of the PACSLAC, the DOLOPLUS-2 and the PAINAD, nurses considered the PACSLAC to be more clinically useful than the other measures.[185] However, because of the need for additional prospective validation, the PACSLAC (which takes approximately 5 min to complete) should only be used with caution at this time.

PUBLISHED EVALUATIONS OF PAIN ASSESSMENT TOOLS FOR SENIORS WITH DEMENTIA

Several reviews of pain assessment tools for patients with dementia are available and each concludes that there are promising instruments in development, but there is insufficient evidence of reliability and validity at this time to recommend any one tool for broad use across populations and settings.[148,166,186,187] The reviews highlight the challenges of developing a tool to identify presence of pain in patients that have diverse presentations, determining pain severity on the basis of behavioral presentation, and validating tools without a "gold standard" comparison. A major consideration in tool selection focuses on the desire for specificity versus sensitivity. Shorter tools tend to focus on limited indicators, but if present may be more likely to accurately recognize pain (although this remains an empirical question). Unfortunately, if persons with dementia do not present with these limited behaviors, pain will not be recognized. Longer instruments that are more comprehensive are more likely to identify patients who have pain but are not demonstrating typical pain behaviors, although some patients may be identified that do not have pain as the cause of their behavior. This is one of the reasons that a comprehensive approach to assessment in this population is recommended.

Behavioral observation is an appealing alternative to self-report as it is not dependent on the verbal ability of the older person. However, observation as a means for assessment is more difficult to decode and interpret than self-report information. Observation depends on making inferences about behavior and these inferences may be biased and require validation. Moreover, the behaviors observed will vary depending on whether the observation period includes patients at rest, engaged in activity, or following some activity or examination that may have invoked or alleviated pain. In addition, who is present (eg, caregiver, family member) may influence the behaviors observed. Differences in the observation period between 2 raters might lead to different conclusions and observation may appear unreliable. However, it might not be the procedure but rather the observation period and different activities that might lead to variability in the presence and absence of pain behaviors (see Table 3 for an overall approach to the assessment of older patients with cognitive and communication impairments).

SETTING CONSIDERATIONS

The self-report measures (suitable for seniors with mild to moderate dementia) described above can be used in any setting. However, some of the observational measures that appear in Table 13 are more suitable primarily for long-term care or other inpatient facilities because a significant portion of their items require monitoring over time or during situations likely to be encountered in inpatient facilities or make references to "the resident" (ie, the PADE and the NOPPAIN). The Abbey Scale and the DOLOPLUS-2 also contain some items that require monitoring over time (eg, pertaining to eating behaviors), but these can be completed with the aid of a knowledgeable informant. The PACSLAC contains 2 of 60 items that relate to behaviors that require monitoring over time (ie, eating and sleeping), but given that these items only represent a small portion of the total score, the PACSLAC may be suitable across a wider variety of settings (this, however, remains an empirical question as most of the PACSLAC research has focused on long-term care settings). Table 3 lists our consensus recommendations for seniors with severe limitations in ability to communicate due to dementia.

ASSESSMENT OF FUNCTION AND CONSIDERATION OF PHYSICAL ACTIVITY LEVELS

Although a detailed discussion of function is beyond the scope of this paper, we outline some central considerations here. The extent to which pain interferes with everyday life sometimes increases incrementally with age.[188,189] There has been insufficient research attention given to age differences in the relationship among pain, disability, and adaptation. Younger and older chronic pain patients report similar levels of pain-related interference in their relationships and activities.[190,191] However, pain-related difficulties may actually be more emotionally distressing for younger adults than they are for older persons.[192]

Chronic pain and aging[193] are associated with impairments in the performance of ADL. Older persons with chronic pain report more disability and ADL impairment than seniors who are pain free.[194] Moreover, prospective studies of pain predict subsequent decreases in muscle strength and balance and increases in physical frailty, emotional distress, and activity avoidance.[195,196] As such, pain may magnify and accelerate age-related disability and functional decline.[197]

Thus, functional status is a critical component of assessment, and is essential for planning treatment, determining efficacy of treatment, maintaining continuity of care, and developing and improving treatment resources (also Farrell et al[198]). The most in-depth investigation of the pain-function relationship in older adults has occurred in clinical studies of OA. These studies support: (1) a high prevalence of OA-related pain,[199] (2) decreases in function associated with pain,[200,201] (3) pain as a significant predictor of disability,[202] and (4) the important mediating role of psychologic factors on both pain and function.[197,203–205]

To understand the true impact of pain on older adults, function needs to be broadly defined rather than limited, for example, to only consider a loss or limitation in a body organ or part, restrictions in ADL, restriction in social roles, or disability or handicap, as is frequently done. Recently, Rudy and Lieber[206] recommended that the framework proposed by the World Health Organization,[207] entitled *International Classification of Functioning,*

Disability, and Health (known as ICF), is a sufficiently broad conceptual system to guide the assessment of the functional impact of pain in older adults. In the ICF, functioning is seen as an umbrella term encompassing all body functions, activities, and participation; similarly, disability serves as an umbrella term for impairments, activity limitations, or participation restrictions. Within the ICF, environmental factors interact with functioning and disability. In this way, this framework enables one to develop useful profiles of an individual's functioning, disability, and health in various domains. The conceptual model of functioning proposed by the ICF integrates diverse factors that may influence performance and disability; its inclusion of psychosocial and environmental factors and the significant impact they can have on functioning; and the use of a standardized, clearly defined, and common language that permits communication about functioning across various disciplines and sciences.

The World Health Organization[208] encourages a description of older adults considering a continuum of health fitness. Older adults cover the spectrum from healthy-fit at one end to physically frail, dependent at the other. When considering the impact of pain on function and physical activity levels in older adults, it is essential to recognize this diversity. Although advanced aging is characterized by progressive decline in most physiologic systems, the consequences of these changes on function and physical activity vary greatly from individual to individual. In addition a variety of chronic conditions that are more commonly found in older adults, have substantial influence on function and physical activity. Pain is often a component of the condition-specific evaluations, however, there are a variety of other factors that can influence function and physical activity including: structural, physiologic, psychologic, and social changes. Well known are biologic changes in the musculoskeletal, cardiopulmonary, and neurologic systems that impact on mobility.[209] As a result, a number of measures and tools have been designed with a system or condition-specific approach to functional evaluation.

MEASURES OF FUNCTION

Self-report Measures of Function

The structured interview is the primary self-report measure in the clinical assessment of a patient. Because of the time constraints faced by clinicians and the necessity of addressing other examination findings related to their specific discipline, obtaining information on functional abilities in an interview format can be impractical. These constraints, coupled with the increasing need to demonstrate the efficacy of treatment interventions, have led to the development and use of standardized self-report assessments of function. These measures should be considered an adjunct to clinical assessments because the scope of the questions addressed by the instruments vary and may not be equally relevant to all patients or pain conditions. Additionally, they are subjective as they rely on the patients' perception and interpretation of their pain and on their ability to function. Lastly, these measures are subject to many influences, including demographic, social, cultural, and psychosocial factors.

Many self-report functional measures evaluate a patient's ability or difficulty in performing ADLs. Because ADLs represent a very broad category, a hierarchy of these activities has been developed to reflect the degree of difficulty or physical resources necessary for their successful completion. Basic ADLs include self-care and basic mobility. Instrumental ADLs are activities associated with independent living in the community. The category of advanced ADLs was established to reflect activities that are discretionary and more physically and socially demanding[210] and it is these activities that are most likely to be impacted by persistent pain in older adults living in the community. More recently, Duong et al[197] have proposed a taxonomy of activities that classifies advanced ADLs into 2 subgroups—higher order physical activities and social/recreational activities. Interestingly, only 3% of the geriatric sample reported that their basic ADLs were affected by pain. Whereas, 83% reported pain affected one or more higher-order physical activities, 74% reported impact on social and recreational ADLs, and 57% reported that instrumental ADLs were affected. This finding is consistent with earlier studies of older chronic pain patients attending a multidisciplinary pain clinic.[211] Tuokko and Hadjistavropoulos[212] pointed out that some of these instruments can be modified for administration to caregivers of seniors with dementia (who report on patient functioning) and have presented normative information (on the basis of caregivers' responses).

The instruments proposed meet criteria for good psychometric properties, time and cost efficiency, and limited patient burden, and have been found useful in clinical practice and in research with older adults. These instruments are presented in Table 14, which also indicates the ADLs that are measured by each instrument. This list is by no means exhaustive, but is intended to provide the clinician with an array of solid measures to choose from when evaluating functional aspects of older adults with persistent pain. In addition to the measures presented here, there is a variety of well-validated self-report measures (eg, Washburn et al[213]) of function and physical activity that are used in research and clinical evaluation of older adults. Future research is required to specifically link the use of these tools with the evaluation and monitoring of pain-related conditions.

Performance-based Measures of Function

The recent increase in the use of performance-based measures in the older adult population illustrates a broadening appreciation of their value. Data from these measures can provide realistic functional markers or guideposts that can aid in fine-tuning treatment goals. Assessment of overall physical function has led to the common practice of combining a series of measures to sample upper and lower body function.[214–216] Diagnostically, many of the instruments to date have focused on

TABLE 14. Self-report Functional Assessment Measures by Domain

Domain	Measure	Minutes to Complete	Activities of Daily Living Measured
Functional status	Functional Status Index[222]	8	Basic ADLs Instrumental ADLs
	MPI-General Activity Scale[136]	5	Instrumental ADLs Advanced ADLs
	Physical Activity Scale[213]	8	Basic ADLs Instrumental ADLs Advanced ADLs
	SF-36: Physical functioning and role limitations-physical composite scale[352]	10	Basic ADLs Instrumental ADLs
	Human Activity Profile[198]	7	Basic ADLs Instrumental ADLs Advanced ADLs
	Groningen Activity Restriction Scale[353]	5	Basic ADLs Instrumental ADLs
	Sickness Impact Profile[354]		
	Older Americans Resources Service[355]		
General pain disability	Pain Disability Index[135]	3	Basic ADLs Instrumental ADLs Advanced ADLs
Site-specific disability			
Lower back	Oswestry Disability Scale[356]	5	Basic ADLs Instrumental ADLs Advanced ADLs
	Roland Morris Disability Index[357]	5	Basic ADLs Instrumental ADLs
Hip and knee	Western Ontario and McMaster Universities Osteoarthritis Index[337,358]	8	Basic ADLs Instrumental ADLs
Neck	Neck Pain and Disability Scale[359]	5	Basic ADLs Instrumental ADLs Advanced ADLs
Upper extremity (not validated on older adults)	Disabilities of the Arm, shoulder, and Hand[360]	5	Basic ADLs Instrumental ADLs Advanced ADLs

measuring the impact of a specific impairment, such as lower-extremity weakness[217] or knee OA.[218,219] In the selection of performance-based functional measures, focus was on measures with established psychometric properties that have been found particularly useful and well suited to older adults with chronic pain conditions. Additionally, in compiling the list of recommended measures, a strong preference for those measures that are time and cost efficient was noted. These instruments are presented in Table 15, by domain evaluated, along with the time necessary to complete each instrument.

As can be seen in Table 15, all but one measure can be completed in five minutes or less by patients who are cognitively intact. Although this may still be too much time for some health care providers who may be restricted to 10 to 15 minutes per patient, a qualified assistant could complete many of the evaluations before the appointment. Instructions and normative information for these measures can be obtained from the references cited for each measure. Additionally, most of these measures are summarized with normative information for a large sample of community dwelling older adults with and without low back pain.[206] In addition to the performance-based measures that are presented here, there are other well validated performance-based measures of function and physical activity[220,221] that are used in research and clinical evaluation of older adults. Future research is needed to specifically link the use of these tools in evaluation/monitoring of pain-related conditions.

TABLE 15. Performance-based Functional Assessment Measures by Domain

Domain	Measure	Minutes to Complete
Lower back	Trunk Rotation[206,361]	2
	Functional Reach (LBP)[41,42,206]	3
Lower extremities	Chair Rise[362]	2
	Short Physical Performance Battery[44]	5
	Gait Speed[363]	3
	Stair Climb[216]	2
	Timed Up and Go Score[45]	30 sec
Lower and upper extremities	Physical Performance Test[216]	15
Upper extremities	Timed Manual Performance[364]	15

SETTING CONSIDERATIONS

Assessment of functional status of the older adult with persistent pain in the primary care or acute setting can be conducted in a time efficient manner by administering 2 self-report measures: the Difficulty subscale of the Functional Status Index (FSI[222]) and the Human Activity Profile (HAP[198]). The FSI Difficulty subscale, rather than the Pain subscale, is recommended to focus the patient's attention on task performance rather than the amount of pain experienced while performing the task. Earlier studies have shown that the Pain and Difficulty subscales of the FSI are highly correlated.[223] The HAP also is recommended because it measures current and previous activity participation and has been found to be particularly useful with older adults with chronic pain.[198]

FUNCTIONAL ASSESSMENT IN OLDER ADULTS WITH DEMENTIA

Measurement of physical function and pain-related disability is particularly complex in patients with moderate to severe dementia for a variety of reasons. Although many patients with cognitive impairments can provide valid self-reports about their pain condition, dementia (especially at the more advanced stages) could compromise ability to provide valid responses to verbal questions or self-report measures.[224] Second, cognitive impairment in and of itself has been associated with disabilities in both basic and instrumental ADLs.[225–227] Most recently, Dodge et al[228] observed that the severity of cognitive impairment at baseline had a variable impact on functional disability over a 3-year period. Lastly, there is limited ability with our current methods of measurement to distinguish the unique contribution of pain to disability in this population.[154] Consequently, we recommend that practitioners refer to the section concerning pain assessment among seniors with dementia, to determine if measurement of pain before and after the completion of specific ADL tasks or performance-based assessments is feasible to ascertain the degree of pain interference. Table 4 contains our consensus recommendations for the functional assessment of seniors with pain.

ASSESSMENT OF EMOTIONAL AND PSYCHOSOCIAL FUNCTION ASSOCIATED WITH PAIN IN LATE LIFE

Because pain is by definition a subjective phenomenon, it is closely intertwined with emotional and social processes across the life span. There is now a sizeable, albeit not well-integrated, literature on assessment of psychologic and interpersonal function in the context of pain. Extension to older persons is limited, but there is sufficient knowledge to identify appropriate measures and recommend a broad general assessment approach.

Some Initial Considerations

Domains of Emotional and Psychosocial Function

This section is organized around a psychosocial model of pain that includes personality (representing core and suitable dimensions), cognitions, moods and emotions, interpersonal processes, coping, and psychologic well-being.[229] In laying out a comprehensive assessment strategy, it is crucial to remember that these domains are closely interrelated.

Contextual Factors: Site, Setting, and Type of Pain

The bulk of research relevant to this topic has dealt with persistent rather than acute pain. This is logical, given both the large general literature on psychosocial dynamics in chronic pain[50] and the increased prevalence of pain-producing health conditions with advancing age. There is a need for more research to be conducted on psychosocial concomitants and effects of acute pain in older persons. Similarly, perhaps because of challenges of assessing persons with dementia, most research reviewed here is based on outpatients or other community-residing samples. Nonetheless, the little evidence that does exist suggests that findings are directly generalizable to long-term care residents as well (eg, Weiner et al,[154] Parmelee et al[154,230]).

Table 16 summarizes commonly used, pain-relevant instruments in each of the domains outlined previously. This is not a comprehensive list, but a selection of well-validated and relatively easy-to-use measures. A brief literature review in each area follows.

Personality

Although the assessment of the pain patient is often restricted owing to limitations in time, we are including here a discussion of assessment tools that are often used by psychologists and other professionals who conduct in-depth evaluations of the psychologic functioning of the pain patient. Stable dispositions play an important role in the experience of pain, and may moderate its long-term effects upon well-being (eg, Brenes et al,[231] Ormel et al,[232] and Ramirez-Maestre et al[231–233]). Of the many personality measures available, the handful depicted in Table 16 are known both to perform well with older adults and to predict psychosocial well-being in pain patients. The NEO-PI[234] is a straightforward, multidimensional measure appropriate for both research and clinical use (in situations where time allows). A strong plus is that it includes a neuroticism subscale, which is known to be a strong influence on pain, perhaps through its effects on more specific cognitive and affective processes.[233,235] Hypochondriasis and dispositional optimism have each been shown to predict both pain response and psychologic adjustment in older persons as well.[231,236]

Attitudes About Pain

This domain includes attitudes, beliefs, and schemata that individuals apply to pain. Few of the measures presented in Table 16 have been specifically validated

TABLE 16. Selected Instruments for Assessing Domains of Pain-related Psychosocial Functioning in Older Adults

Domain/Construct	Measure	Brief Description	Validation in Older Adults
Personality: multidimensional measures	NEO-PPI[234]	Multitrait scale assesses conscientiousness, extraversion, impulsiveness, neuroticism, openness to experience. Long and short-forms available	Costa and McRae[365]*
Personality: single-item measures	Dispositional Hardiness Scale[366]	36 items comprising commitment, challenge and control	Lawton et al[367]
	Illness Attitudes Scale[368]	21 yes-no items assess severity of hypochondriasis	Frazier and Waid[369]
	Life Orientation Test-Revised[370]	10-item measure of dispositional optimism	Guarnera and Williams[371]
Cognitive processes: pain-specific	Cognitive Errors Questionnaire[372]	48 vignettes assessing catastrophizing, overgeneralization, personalization, selective abstraction. Half the vignettes use chronic pain as the stimulus situation	Smith et al[373]†
	The Barriers Questionnaire II (BQ-II[374])	27-item self-report assesses beliefs that could interfere with pain management	None known
	Inventory of Negative Thoughts in Response to Pain[375]	21 5-point items comprising 3 subscales: Negative self-statements, negative social cognitions, and self-blame	Gil et al[375]†
	Pain Attitudes Questionnaire[244]	27 items load on 4 factors representing stoicism (superiority, reticence) and cautiousness (self doubt, reluctance)	Yong et al[244]
	Pain Beliefs and Perceptions Inventory[376]	16 items measure pain beliefs in the areas of constancy, permanence, self-blame and mystery	Stroud et al[377]†
	Pain Catastrophizing Scale[245]	13 items comprise 3 subscales describing catastrophic thinking: helplessness, rumination, and magnification	None known
	Survey of Pain Attitudes, Revised[243]	Separate subscales assess attitudes regarding medical cure, pain control, solicitude, disability, medication, and emotion	Jensen and Karoly[243]†
	Arthritis Helplessness Index[378]	5 items tapping perceived (un) controllability of arthritis symptoms	Stein et al[379]
	Arthritis Self-efficacy Scale[380]	20 items measuring self-efficacy in 3 domains: pain, function, and other symptoms	Creamer et al[381]
Cognitive processes: general	Health Locus of Control Scales[382]	18 items tapping perceived locus of control for health items in 3 domains: internal, powerful others, and chance	Buckelew et al[383]†
	Personal Mastery Scale[239]	7-item index of generalized feelings of personal control	Reich and Zautra[384]
Affective processes: pain-specific	Pain Anxiety Symptoms Scale[292]	62 items comprising 4 subscales: fear of pain, cognitive anxiety, somatic anxiety, escape, and avoidance	None known
Affective processes: general	Affect-balance Scale[385]	5 positive and 5 negative affect items	Reich and Zautra[384]
	PGC Positive and Negative Affect Rating Scales[386]	5 positive and 5 negative affect items, plus health and pain, rated on 5-point scales	Lawton et al[386]
	Positive and Negative Affect Scales (PANAS[387])	20 5-point scales assess generalized positive and negative affect	Beck et al[388]
Interpersonal processes: pain-specific	MPI Pain Support[136]	14 items address significant others' responses to expressed pain in 3 domains: solicitous, punishing, and distracting	Boothby et al[389]
Interpersonal processes: general	Interpersonal Support Evaluation List[390]	40-item measure assesses perceived support in the areas of appraisal (availability of confidants), belonging, tangible assistance, and self-esteem support	Uchino et al[391]*
	MOS Social Support Survey[392]	19 items assessing perceived support in 4 areas: emotional/informal, tangible, affectionate, and positive social interaction	Sherbourne and Stewart[392]†
	Social Provisions Scale[393]	Twenty-four 4-point items assess perceived functions of close relationships on 4 subscales: intimacy, social integration, reassurance of worth, and opportunity for nurturance[394]	Mancini and Blieszner[394]
Coping: pain-specific	Coping Strategies Questionnaire[395]	42 items assess 7 strategies (coping self-statements, ignoring pain sensations, reinterpreting pain sensations, praying/hoping, catastrophizing, diverting attention, increasing activities), but various factor structures have emerged	Keefe et al[396]

TABLE 16. (*continued*)

Domain/Construct	Measure	Brief Description	Validation in Older Adults
	CPCI[397]	65 items assess behavioral coping strategies in 11 domains	None known
	Vanderbilt Pain Management Inventory[398]	Separate active (11 items) and passive (7 items) subscales	Brown and Nicassio[398]†; Mercado et al[399]*
Coping: general	Coping with Chronic Illness[400]	54 items comprise 6 subscales: cognitive restructuring, emotional expression, wish fulfilling fantasy, self-blame, information seeking, and threat minimization	Felton and Revenson[400]*
	Ways of Coping Scale (revised)[401]	66 items comprise numerous subscales and 2 higher-order factors: problem-focused and emotion-focused coping. Revised by Vitaliano et al[402]	Kemp et al[403]
Psychologic well-being	Activities-specific Balance Confidence (ABC) Scale[404]	16 items rated on a 0-100% continuum	Powell and Myers[404]
	Beck Anxiety Inventory[287]	21 items answered on a 4-point scale	Morin et al[288]
	Center for Epidemiological Studies Depression Scale[278]	20 4-point items	Radloff and Teri[405]
	Falls Efficacy Scale[294]	10 items each rated on a 10 point Likert scale	Tinetti et al[294]
	GDS[273]	30 yes/no items; omits somatic and other depressive symptoms possibly confounded with aging; short form available	Yesavage et al[406]
	Hospital Anxiety and Depression Scale[289]	14 items rated on a 4-point scale	Spinhoven et al[290]
	Patient Health Questionnaire—Depression Module[283,284]	9 items rated on a 4-point scale	None known
	PGC Morale Scale[407]	17 yes/no items assess general emotional well-being; factor analysis yielded agitation, attitude toward own aging, and lonely dissatisfaction subscales	Lawton[407]
	Satisfaction with Life Scale[408]	5-item scale tapping overall life satisfaction	Pavot and Diener[409]
	State-trait Anxiety Inventory[285]	40 items (20 targeting state anxiety and 20 targeting trait anxiety) rated on a 4-point scale	Nesselroade et al[286]
	Survey of Activities and Fear of Falling in the Elderly[295]	11 items, subscales include activity restriction, fear of falling, and activity level.	Lachman et al[295]
	Well-being Scales[410]	6 scales, 9 items each, assess autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance	Ryff[410]

*Examined scale in adults ≥ 65 y, but did not report psychometric properties separately.
†Sample included adults ≥ 65 y, but did not examine scale properties separately for that group.

with older adults. Although we expect that most of the listed measures should perform well with cognitively-intact persons, validation with seniors is needed before this opinion can be expressed with confidence. Most cognitions about pain center on perceived ability to control pain and its effects, reflecting the central importance of generalized perception of control for psychologic adjustment.[237,238] Perhaps the most straightforward measure of perceived control is the 7-item Personal Mastery Scale.[239] The multidimensional locus of control scale has good evidence of validity in older pain patients[240] and assesses generalized perceptions of one's ability to control events in one's life. More specific measures cover generalized attitudes about the cause of pain and other health problems and one's ability to manage them.[241,242] In addition, several composite measures are wholly or partially devoted to assessing beliefs and attitudes about pain, including the perception of control[136,243] and stoicism.[244]

By far the most heavily studied cognitive orientation to pain is "catastrophizing," a tendency to magnify and be preoccupied with threat and to feel unable to cope.[245] There is some evidence, albeit inconsistent, that catastrophizing may simply be a more specific manifestation of the personality trait neuroticism.[246,247] More work is needed on this issue. However, at this point it may be advisable simply to assess the broader personality construct. It is important to note that older adults show an increased stoicism when it comes to reporting pain and this could lead to an under-reporting of pain.[244] Usually attitudes and beliefs such as "it is not good to complain" underlie this stoicism.[248] The astute clinician will typically recognize such attitudes and encourage patients to report on their other pain concerns with no hesitation.

Emotional Responses

Short-term emotional (affective) responses, which may affect and be affected by the experience of pain, vary in complex ways across the lifespan.[249,250] For example, older adults have been found to under-report emotional symptoms,[251] which could affect the validity of assessment conclusions. As with the under-reporting of pain, clinicians should be alert to this possibility and aim to overcome any barriers to reporting through the use of specific and pointed questions.

Several general measures of affective processes perform well with seniors and may be quite relevant to pain (Table 16). In addition to the measures that are listed on Table 16, the versions of the Beck Depression Inventory (BDI[252]) have been used extensively in the assessment of older adults. However, caution should be exercised as there is evidence that somatic symptoms of depression that are listed on the BDI could inflate BDI scores among older adults.[253]

In measuring emotional concomitants of pain, it is crucial to distinguish transient states from more stable temperaments or affective disturbances. In particular, one must resist the temptation to generalize from temporary or situational responses—for example, negative mood induced by pain—to general emotional well-being or psychopathology.

Coping

Paralleling the general coping literature,[254] studies of pain coping have distinguished between problem-focused and emotion-focused coping and between active and passive coping strategies.[255,256] Passive coping strategies and emotion focused strategies have been linked to poorer psychologic adjustment in all age groups[255,257] (see Table 16 for measures). The 2 factor distinction among subgroups of coping types is, however, something of an oversimplification.[254,258] Current work therefore focuses on differentiating the elements that make up pain-related coping and distinguishing it from related cognitive, personality, and affective processes.[245,259,260]

Most standard coping indices tend to be quite lengthy, presenting a problem for use in clinical settings. Jensen and Baron[52] offered substantially reduced versions of several pain-specific coping scales. Although further validation of these "short-form" measures is needed, Jensen et al's analyses suggest that the 16 item-version of the Chronic Pain Coping Inventory (CPCI), which has been used successfully among older adults[138,261] may be a good place to start. This instrument has demonstrated excellent internal consistency when used among older adults.[262]

The single most important psychologic mediator relevant to pain is the individual's perception of control (see earlier discussion in the section "Attitudes about Pain"). Perceived control over pain and its effects strongly influences choice of coping strategies, behavioral adaptation, and emotional effects of both chronic and acute pain. Patients who feel that they have no control over chronic pain are at high risk of psychologic and functional impairment. It is important to consider that orientation to control changes with increasing age as a result of both maturation (learning what we can and cannot expect to control) and adaptation to changing abilities and circumstances. An important approach involves measurement of Pain Locus of Control,[263] which has been validated for older people.[240]

A more important consideration than the specific tool chosen is the relevance of various coping strategies[248] to the source and nature of pain in question. For example, the extent to which pain is associated with functional limitations may determine the range of coping strategies that the individual employs, as may the objective "controllability" of the pain. Although there has been little study of the syndrome-specificity of pain coping strategies, careful analysis of the situation and the individual may help guide selection and interpretation of measures. Generally, patients who engage in passive and emotion-focused coping would be candidates for psychologic intervention (eg, Reesor and Craig[264] and Keefe et al[265]) aimed at replacing such strategies (associated with poorer adjustment) with more active and adaptive ways of coping

Interpersonal Processes

A growing literature documents how older persons affect and is affected by the experience and expression of pain. Table 16 presents a sample of measures including general social support[266] and pain-specific social influences and dynamics.[267,268] Work with people with OA and their spouses[269,270] confirms that effects of others' behavior upon well-being vary with specific circumstances and relationship history. Hence, assessment should measure not only positive, supportive functions that others may provide the older pain patient, but also critical attitudes and other potential sources of conflict and distress.

Psychologic Well-being

The bulk of research on how pain affects psychologic well-being has focused on depression (eg, Campbell et al[50] and Hassett et al[50,271]). In fact, depression is an extremely common response to uncontrollable pain and is also frequently comorbid with other emotional disorders.[272] We therefore examine issues in assessing late life depression first, and then return briefly to broader measures of psychologic well-being.

The Geriatric Depression Scale (GDS[273]) is widely regarded as the standard for assessing depressive symptomatology and for preliminary screening for diagnosable depressive disorders in older adults. The GDS is well-validated and simple enough to be workable even for persons with mild to moderate dementia.[274,275] However, as with other domains discussed here, selection of a depression measure should take into account specific

characteristics of the population of interest and the goals of the assessment. For example, more able elders may find the GDS's yes or no format overly simplistic. Nonetheless, a five-item version of the GDS with good psychometric properties is also available.[276,277] As an alternative, the Center for Epidemiologic Studies Depression Scale (CES-D[278]) may yield more complete data and better correspondence to the clinical diagnostic gold standard.[279] In addition, the CES-D can be used across the lifespan allowing for the assessment of age-related patterns. As another illustration, there is evidence that depression is manifested differently among African American as compared with European American elders.[280,281] Here again, a single measurement approach may cloud rather than clarify dynamics of interest. Rather, assessors should familiarize themselves with the subtleties of psychologic well-being in the individual(s) at hand, and tailor measurement approaches to those subtleties. Other brief instruments that have been used successfully in the assessment of old age depression include the Patient Health Questionnaire-Depression Module (PHQ-9) which is a brief tool that scores on each of the nine DSM-IV[282] diagnostic criteria.[283,284]

Anxiety is often a central concern of patients with pain problems. Anxiety is a frequent concomitant of depression, and differentiation of the 2 may be difficult. Nonetheless, in many cases it may be useful to assess anxiety separately, particular among individuals who do not display the despondent mood typical of depression. Spielberger's[285] State-Trait Anxiety Inventory is widely used and offers the advantage of differentiating enduring (trait) from transient (state) moods. Evidence supports its utility among older adults (for example, the work of Nesselroade et al[286]). Another brief screening tool for general anxiety symptoms that has been used with seniors is the Beck Anxiety Inventory.[287] The instrument has been validated with seniors.[288] Finally, the Hospital Anxiety and Depression Scale (HADS[289]), which consists of 14 items, deserves mention because it has been validated across the lifespan.[290] Table 16 lists several such indices that may help provide a fuller, more balanced picture of individuals' emotional states.

Other measures that merit consideration relate to the assessment of fear of pain and fear of falling, both of which have been associated with either pain or difficulties with rehabilitation. Indices of fear of pain and fear of falling have been studied among seniors (eg, Martin et al[291]). The Pain Anxiety Symptom Scale[292] (PASS) is recommended for the assessment of pain-related anxiety and the Activities Balance Confidence Scale[293] as well as the Falls Efficacy Scale[294] for the assessment of fear of falling because of their comprehensiveness and prior successful use with seniors (see Martin et al[291] for a confirmation of the factor structure of the Pain Anxiety Symptom Scales in a group that included older adults). Finally, the Survey of Activities and Fear of Falling in the Elderly (SAFFE)[295]; is another well-validated measure of fear of falling that provides additional information about the types of activity avoidance that result from fear.

In sum, there is a range of choices for measuring pain-related psychologic and social processes. Psychometrics are a necessary concern when one is dealing with very old or physically frail older adults; but many available instruments are known to perform well even with institutionalized older persons. The greater challenge is with respect to the conceptual adequacy of extant measurement approaches: the appropriateness of their content and interpretation with respect to the developmental tasks of late life, their adequacy in operationalizing underlying constructs, and their ability to distinguish among convergent, closely intertwined states and processes. Other important factors include the time required to complete these measures, which may limit their impact on clinical utility. Table 5 contains our consensus recommendations for the assessment of emotional functioning.

A BRIEF BATTERY

We recognize that clinicians in busy settings operate under extreme time pressure. As such, we are recommending a 10-minute pain assessment battery as being suitable for cognitively-intact older adults in most settings. Specifically, we recommend administration of the BPI[134] combined with the SF-MPQ.[127] The former instrument will allow for the assessment of pain intensity, interference with function (physical, relational, and psychologic), location, medication use, and perceived relief while the SF-MPQ will allow for the measurement of pain qualities. This approach is consistent with the IMMPACT recommendations,[12,21] and involves assessment tools that are both widely validated across pain types and populations. Moreover, the numeric rating scales employed in the BPI maximize use among people with limited linguistic abilities. Finally, these 2 scales reflect the biopsychosocial model of pain (see Asmundson and Wright[296] for a review).

The situation is more complicated with seniors who have serious limitations in ability to communicate because the validation process of most of the promising tools is now underway. For this population, we refer the reader to Table 3, which outlines a general approach to assessment.

CONCLUSIONS

Adequate assessment is critical as it serves as the basis for clinical decision-making and ultimately optimal care. There is a wealth of literature suggesting that geriatric patients are not provided with adequate pain management. Much of the problem is associated with the failure of appropriate assessment. Over the past decade a number of procedures and measures have been developed to address assessment of pain and function in older persons. One problem is that it is difficult to select the most appropriate approach—one that is sufficiently comprehensive but efficient. In this consensus paper, we have identified the domains that comprise appropriate assessment, reviewed a number of measures and

TABLE 17. Brief Measures for Use in Pain Assessment

Self-report Assessment of Pain Intensity
Numeric Rating Scale[54,151,158,308]
Verbal Descriptors Scale or Verbal Rating Scale[54,127]
21-point Box Scale[151]
Observational Assessment Tools for People with Severe Dementia
The following 2 measures are examples of promising measures. Our group is not recommending any specific measure at this time as research in this area is continuing
PACSLAC[165]
The DOLOPLUS-2[179]
Functional Assessment
FSI[222]
HAP[198]
Physical Performance Test[216]
Neuropathic Pain
S-LANSS[117]
NPQ[119]
DN4[121]
Emotional Function
Depression
GDS[406]
Anxiety
Beck Anxiety Inventory[287]
Pain Related Anxiety
PASS[292]

This table is not presenting a battery of tests. Instead, it is a list of recommended measures that could be used to assess specific pain domains. Refer to "A Brief Battery Section."

NPQ indicates Neuropathic Pain Questionnaire; PASS, Pain Anxiety Symptom Scale.

procedures for evaluating patients in each of these domains, and suggested a brief assessment protocol. For research purposes, the brief protocol should be extended to address relevant areas. We also noted some problems with the available assessment armamentarium. We hope that our review and analysis will lead to better care of the elderly who are experiencing pain and will direct research to fill in the holes of our current knowledge.

Key strategies for improving pain assessment in older adults should be part of quality improvement processes in all health care settings and specific measures should be chosen according to accepted methods.[297,298] Establishment of institutional standards for assessment procedures should be based on current best practices, development and use of documentation systems/tools that facilitate assessment and communication of assessment data, and commitment to ongoing education and training of all individuals caring for older persons. This consensus document should aid in these processes.

Several limitations should be acknowledged. Given the nascent state of the literature pertaining to this population (eg, many pertinent clinical questions about persistent pain have only been addressed with nongeriatric samples), some recommendations were necessarily based on clinical observations, experience, and inference and not on systematically collected empirical evidence. Although the panel was chosen without conscious bias, it must always be acknowledged that empanelling a group for a consensus project is not a random selection process; availability, willingness to serve, familiar network of associates, and many other variables contribute to this imperfect but pragmatic process.

Lastly, it is recognized that many of the recommendations offered involve processes and procedures that may be too cumbersome or time consuming for use in busy clinical practices. Ultimately, though, the purpose and context of the assessment will dictate the most appropriate methods to be used. In instances where brief assessments are conducted, ongoing clinical monitoring will be needed to evaluate patient progress and to determine whether further assessment is necessary. For this purpose, acknowledging the reality of limited time in most clinical settings, we have recommended a brief clinical battery (see previous section). Table 17 lists a series of measures that were chosen by the consensus team as most appropriate when time allows (or clinical needs dictate) for a more thorough investigation of specific domains (eg, mood, functional ability).

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