3

The Assessment of Pain in Older People

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Abstract

Pain assessment is a crucial step toward adequate management of pain in older adults. This chapter addresses the assessment of pain as part of a multidimensional stepwise approach. Although pain assessment uses standardized screening, assessment, and monitoring tools, it needs to be tailored to the individual patient. In the case of pain assessment in older adults, one size does not fit all is a fundamental principle. Pain is a personal and subjective experience because of numerous factors. A broad, inclusive approach to assessment is required. In this chapter several case studies highlight the differences and factors that need to be taken into account in the assessment of pain in older people.

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3.1 Pain: A Biopsychosocial Model

The International Association for the Study of Pain (IASP) has used a biopsychosocial pain model to define pain since the 1960s, characterizing pain as a multidimensional phenomenon. According to Melzack and Wall (1996), pain consists of three dimensions: sensory-discriminatory, affective-motivational, and cognitive-evaluative. The sensory-discriminatory dimension refers to the localization of pain, the perceived pain intensity, and the sensory pain quality (how the pain feels). The affective-motivational dimension concerns, above all, emotional characteristics, how the pain is perceived emotionally, for example, whether pain is perceived as terrible, depressing, or frightening. The cognitive-evaluative dimension refers to thoughts and reflections about pain, the cause and the expected course of pain, or the estimated effect of therapy. These different pain dimensions inform the pain assessment process (Sirsch et al. 2015a).

3.2 The Assessment of Pain: A Systematic Approach

Systematic assessment must inform all stages of the pain management process. Health professionals with specific skill sets use dedicated instruments and algorithms to collect and structure information about patients and their pain experience. Pain assessment encompasses far more than just the collection of pain intensity ratings; it must be tailored to the individual patient, taking the type of pain, setting, and patient characteristics (such as age or specific conditions such as dementia) into account.

The multidimensional nature of pain, including its sensory, emotional, cognitive, and social components (Williams and Craig 2016), must be reflected in the way pain is assessed so that it can inform the management of a wide variety of pain manifestations and consequences. Pain assessment aims:

> "…to make a differential diagnosis; to predict response to treatment; to evaluate the characteristics of pain and the impact of pain on patients' lives; to assist in disability determination and establishment of limitation of physical capacity; to monitor progress following initiation of treatment; and to evaluate the effectiveness of treatment, along with the need to modify a treatment regimen, along with others.") (Turk and Melzack 2011)

Conceptually, assessment is part of the diagnostic process but separate from making an actual diagnosis (Reuschenbach 2011), but it also forms an important part of the diagnostic and clinical decision-making processes (Lipschick et al. 2009). In clinical practice, assessment and diagnostic decision-making are inextricably linked as elements of the process of care (Alfaro-LeFevre 2014).

Any type of assessment should reach beyond the use of standardized instruments and measures and always include different types of deliberate and intentional appraisals of specific phenomena or concepts such as pain. Assessment is not limited to physiological or pathophysiological aspects of a phenomenon but also extends to psychological or social aspects (Reuschenbach 2011) as well as functioning and participation (Kompetenz-Centrum Geriatrie beim Medizinischen Dienst der Krankenversicherung Nord 2009). Given the multidimensional nature of pain and the effect it may have on the lives of older adults, a broad and inclusive approach to assessment is essential.

Pain assessment in clinical practice is an ongoing process with three phases (see Fig. 3.1):

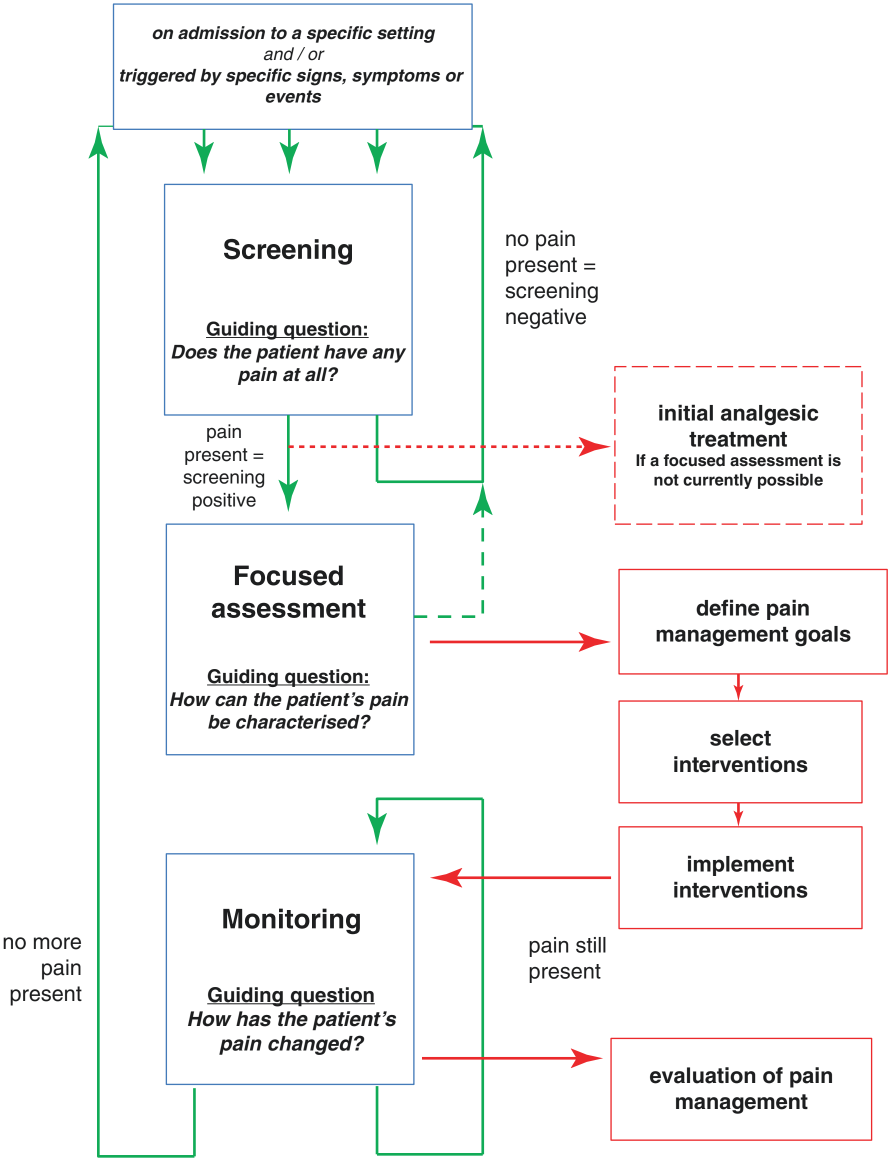

Fig. 3.1 Algorithm for pain screening, assessment, and monitoring (source: German Pain Society and DZNE 2017)

1. *Screening*: Screening is used to identify patients who are at risk of developing a particular health problem or who are already subject to a condition such as pain (Alfaro-LeFevre 2014; Wilkinson 2007). Clinical screening for pain should be guided by the question: "Does the patient have any pain at all?" If pain or pain-related problems are detected, the screening is positive, and a focused assessment of pain should follow.
2. *Focused assessment*: The aim of a focused assessment is to explore a specific health problem or condition in detail (Alfaro-LeFevre 2014; Wilkinson 2007). This should lead to a diagnosis and provides the basis for clinical decision-making regarding appropriate interventions. It also establishes a point of reference for evaluating the success of implemented interventions. A focused assessment of pain should be guided by the question: "How can this patient's pain be characterized or described?"
3. *Monitoring*: Monitoring is an ongoing process in any patient who is subject to pain and is aimed at evaluating the status of known problems and the success of implemented interventions as well as at discovering new problems that may not have been present during the initial focused assessment (Wilkinson 2012). Pain monitoring should be guided by the question: "How has the patient's pain changed?" Findings from pain monitoring may influence the choice and implementation of further interventions.

3.3 Case Descriptions of Older People and the Assessment of Pain

Within these phases nurses must take different factors into account and distinguish between the detection of chronic and acute pain (see Chap. 2). They also need to take the different needs of the older person into account and the range of problems they may experience due to physical or cognitive impairment. The following three cases illustrate these different needs in relation to pain assessment.

3.3.1 Case 1: Older Patient with Acute Pain after a Fracture

Mrs. Thomas is a 92-year-old widow who has always lived independently. Her medical history includes osteoporosis. Recently, she fractured her left hip after falling while walking in the garden. She underwent surgery and was admitted to a nursing home for rehabilitation. The physical therapist reports that Mrs. Thomas has been uncooperative. She is also unwilling to use the bathroom or go to the dining room for meals. Daily assessment of pain, using a numerical rating scale, demonstrates that she is suffering from severe pain, especially in the morning and in the evening. Her general health has deteriorated and she has, consequently, developed pressure ulcers, which has contributed even further to her pain experience. At a multidisciplinary meeting, the team decided that physiotherapy was needed and walking aids required. Repositioning and an alternating pressure mattress were initiated because of the pressure ulcers. A dietitian makes weekly visits to optimize her food condition.

3.3.2 Case 2: Older Patient with Chronic Pain Due to Cancer

Mr. Smith is a 67-year-old man. He was diagnosed with primary lung cancer 2 years ago and underwent surgery and chemotherapy. A few months ago, he began experiencing moderate pain. The oncologist decided to take a CT scan, which revealed metastases. After approximately 2 months on naproxen, Mr. Smith complained of increasing episodes of intense bone pain. The pain episodes have increased in frequency and severity during the last few weeks, and Mr. Smith has asked his GP for increased pain relief given the frequency and severity of these episodes. His problem with coughing up blood has also worsened recently, and he feels tired and weak. His loss of appetite is making his physical condition worse, and he has suffered from constipation since his dietary intake has reduced. Fortunately, the support of his family makes a huge difference in encouraging him not to give up with his treatment.

3.3.3 Case 3: Older Patient with Cognitive Impairment Due to Dementia

An 85-year-old woman, Mrs. Lander, has been brought to the physician by her son-in-law. He reports that lately she has been less active and increasingly withdraws from social activities. A year ago she was living fully independently and enjoyed things like baking and going out for a walk. Nowadays she is unable to prepare a meal by herself and she rarely leaves the house. Her physical condition is deteriorating. She has lost weight, about 5 kg in the past 6 months. She has no significant medical history and is relatively healthy given her age. When her daughter mentioned that she was worried about her, she became annoyed and resistant. Her daughter visits more frequently nowadays and is concerned that her mother stays in bed during the day and does not want to take a shower anymore. Assessment reveals no depressive symptoms but she has a mini-mental state examination (MMSE) score of 17/30, indicating mild to moderate cognitive impairment. This is in line with her verbal abilities, which have declined. Lately she has also become more forgetful and increasingly resistant to help and support, especially in the morning when the district nurse visits to assist her with ADLs. Getting out of bed seems to be more and more of a struggle. Miss Lander displays aggressive behavior and screams for help. Because of this behavior, during the consultation, the physician asks Mrs. Lander if she is in pain. Her response is unclear and she changes the topic to talk about other issues, so it seems that Miss Lander does not understand the question about pain. The physician is not convinced that Mrs. Lander is free of pain and asks the district nurse to monitor here pain when administering morning care.

3.4 Screening

We know that older adults suffer from pain (Osterbrink et al. 2012; Lukas et al. 2015; Häuser et al. 2014) and that screening helps to identify those who are in pain as early as possible (Lipschick et al. 2009). Pain is a symptom with high prevalence, and nurses have to deal with it in all healthcare settings—community and hospital based as well as in acute or chronic care situations.

Currently very little evidence is available regarding the positive outcomes of screening for pain in older adults and how this may relate to pain reduction, physical or psychological improvements, and improvement in the quality of life (German Pain Society and DZNE 2017). Nevertheless, it is expected that regular screening in the form of a question may reduce barriers and enhance pain therapy (Kaasalainen et al. 2012), and the screening approach will support an awareness of pain characteristics and the identification of risk factors for pain in older adults (Kompetenz-Centrum Geriatrie beim Medizinischen Dienst der Krankenversicherung Nord 2009). The high prevalence of pain in older adults makes this an important aspect of nursing in all healthcare settings, and screening for pain in older adults with variations in cognitive abilities poses particular challenges (Hadjistavropoulos et al. 2010). The following approach to screening will help to identify pain and develop a suitable pain management strategy, especially in older adults whose cognitive impairment means they are not able to communicate their pain verbally.

The guiding question in attempting to gain an insight into the current pain situation of an older adult should be straightforward, for example, “Are you in pain right now?” This question might be complemented by observations of typical pain behaviors (Hadjistavropoulos et al. 2010; BPS and BGS (British Pain Society and British Geriatrics Society) 2007; Herr et al. 2006). If a single question does not provide the information needed, a numerical rating score (e.g., “rate your pain from 0 to 10”) could be used as an alternative. A score of 3/4 or higher is often seen as an onset pain score. The use of a visual analogue scale (VAS) is not recommended for older adults as they can find it difficult to use such a scale, as demonstrated by its poor success (Ferrell et al. 1995). It might also be helpful to use other words for pain and focus on the most current health situation, for example, by rewording the question as: “Does it hurt anywhere?”

Nurses should have a high degree of suspicion about the presence of pain. Pain might be indicated by a “yes” answer, meaning the older adult expresses that the pain is present or the nurse draws this conclusion after communicating with the older adult and observing their behavior. Several validated pain assessment tools with observational measures have been developed to ensure a systematic observation focused on pain behaviors/characteristics. Such observational tools are used for screening as well as for comprehensive assessment and monitoring of pain. To ensure these are used appropriately, nurses must be trained in the delivery and analysis of the observational tools as well as the interpretation of the results. However, little more than brief training in using the tools is usually needed.

Nurses, nursing assistants, and carers of older adults with cognitive impairment should be aware that knowledge of an individual’s behavior and daily activities/habits is a prerequisite for effective pain screening (German Pain Society and DZNE 2017; AMDA (American Medical Directors Association) 2012). This is important, partly because pain might be presented as a change of individual behavior or daily habits and not demonstrated by typical pain behavior, such as facial expression, due to dementia. These changes can be manifested, for example, as restlessness or changes in eating behavior that are more easily recognized over longer observation periods. Not knowing the person well makes screening for pain, especially in cognitively impaired older adults, even more challenging on admission into an acute care setting. If nurses do not know the person and his/her pain-specific behavior, in this situation, proxy reports of pain-specific behavior from carers or significant others from the person's support network such as nurses from community care or neighbors are essential in screening and identifying pain (AGS (American Geriatrics Society Panel on Persistent Pain in Older Persons) 2002). This can help, for example, to construct an individualized pain passport for the person based on previous experiences that include individualized pain behavior.

In the first instance, to facilitate a pain self-report, it is important to give the patient time to answer questions and, for example, to provide acoustic aids to enable a self-report. The screening question or observation should focus on of the present encounter and may be occasion-related or carried out during regular care activity (Sloane et al. 2007). Pain screening should be focused on both being at rest and during movement (DNQP (Deutsches Netzwerk für Qualitätsentwicklung in der Pflege) 2015; DNQP (Deutsches Netzwerk für Qualitätssicherung in der Pflege) 2011). During morning care, for example, nurses can ask older people about their pain and observe them in both situations.

In long-term care, a screening for pain should be conducted within 24 h of admission. In hospital, screening should be conducted shortly after admission to help the interdisciplinary healthcare team to commence a comprehensive pain assessment and create an individualized care plan to prevent or minimize pain for the older person (RNAO (Registered Nurses Association of Ontario) 2013). In hospital, although changes in vital signs (heart rate, blood pressure) are not the sole source of information regarding the presence of pain, if abnormalities are observed, they should lead to a screening for or comprehensive assessment of pain (RNAO (Registered Nurses Association of Ontario) 2013).

The results of pain screening (positive and negative, including information about the preferred method, and the pain terms used by the older person, or any difficulties such as hearing or visual impairments) must be documented and communicated within the care team. This is especially important in relation to individualized pain characteristics of older adults with cognitive or communicative impairment. This information will provide a baseline for comparison in follow-up screening or assessment (RNAO (Registered Nurses Association of Ontario) 2013).

3.5 Focused Assessment of Pain

Pain assessment should be a multidisciplinary process. According to the biopsychosocial model, such an assessment encompasses all dimensions of pain and is intended to support a decision on the further course of treatment (German Pain Society and DZNE 2017). The aim of focused pain assessment is also to determine whether pain is caused by newly occurring diseases or by the exacerbation of chronic pain. It should also be considered whether a cause of pain can be identified and/or whether disease-related interventions could have an influence on the cause of chronic pain (German Pain Society and DZNE 2017; AGS (American Geriatrics Society Panel on Persistent Pain in Older Persons) 2002).

McCaffery's paradigm (McCaffery 1968), "Pain is whatever the experiencing person says it is, existing whenever he/she says it does" focuses on the self-report of pain which is regarded as the gold standard in pain assessment. Self-report of pain can be used, for example, to assess the intensity of pain, which mainly refers to the sensory-discriminatory pain dimension and is important for the detection of acute pain. However, it is of equal importance to also include affective-motivational and cognitive-evaluative dimensions of pain during focused pain assessment.

Everyone should specify his or her individual pain threshold and pain tolerance based on his or her own experience and individual conditions (McCaffery and Pasero 1999; Wright 2015). The pain threshold is the point at which a person experiencing a nociceptive stimulus that is increasing in intensity rates this stimulus as painful. Pain tolerance is the intensity a person is willing or able to tolerate before withdrawing from a painful stimulus or situation. It has been shown that pain tolerance differs from person to person, e.g., in relation to personal and cultural beliefs. Nurses must identify the personal threshold and tolerance for each patient since pain is a subjective experience, often based on previous individual experiences. Pain is experienced by each person individually and therefore is expressed individually (Hadjistavropoulos and Craig 2002). Every person has their own "individually acceptable pain tolerance" and their "individually marked pain signature" (DNQP (Deutsches Netzwerk für Qualitätsentwicklung in der Pflege) 2015).

If the ability to self-report pain is absent, a hierarchical sequence in the pain assessment process should be followed (Herr et al. 2006; McCaffery and Pasero 1999) (see Table 3.1). In particular, the hierarchy of pain detection should be taken into account when assessing acute pain where physiological factors could give indications of pain (German Pain Society and DZNE 2017).

In the example of Mrs. Thomas, it becomes clear that she is in severe pain. This can be determined by assessing pain on the numerical rating scale (NRS) or a verbal descriptor scale (VDS). The VDS has shown to be valid and reliable and is preferred for older persons with dementia (Herr 2011). Prior to that, however, Mrs. Thomas showed challenging behavior, which the healthcare team rated as uncooperative. A screening or initial pain assessment could have brought about faster clarification.

Table 3.1 Hierarchy of pain assessment approaches

1.	Self-report of the patient using a self-assessment scale (e.g., verbal descriptor scale, numeric rating scale 0–10, verbal rating scale)
2.	Testing for pathological health conditions that may cause pain
3.	Observe behavior (e.g., facial expressions, crying), using observational pain assessment tools (e.g., PAINAID, PACSLAC)
4.	Pain report of family/proxy members
5.	Physiological changes such as blood pressure and pulse

Assessing different pain dimensions requires a broad view and a holistic approach. When assessing chronic pain, it is important to consider the patient's experience of activities of daily living, quality of life, and dealing with pain and to focus on the motivational dimension and behavior (Snow et al. 2004). The McGill Pain Questionnaire (Melzack 1975) can be used for a comprehensive pain assessment. The tool can be helpful in assessing pain in patients such as Mr. Smith, whose case is outlined above. In the detection of pain in patients with cancer, the focus is not only on pain intensity but on participation in and quality of life and patients' pain coping. Mr. Smith's focus of care is particularly on his fatigue, his weakness, and his lack of appetite.

As the cognitive-evaluative dimension of pain is important, healthcare staff must select the right pain assessment approach and draw the right conclusions from it. Therefore nurses need to be aware of the cognitive status of patients. This can be particularly important after surgery or during a stay in an intensive care unit, when delirium is common in older patients (Herr et al. 2006). In the presence of delirium, the ability to provide information can fluctuate greatly and changes within a very short period of time. In contrast to dementia, self-report can be re-established when the delirium has subsided (Hadjistavropoulos et al. 2010). It is, therefore, important to screen for the presence of delirium, using established instruments such as the 4AT and the Confusion Assessment Method (CAM) or CAM for intensive care unit (CAM-ICU) to inform the choice of a pain assessment approach.

Older adults such as Miss Lander, with mild to moderate dementia, are usually able to give a self-report. It remains important, however, to use the patient's own words, e.g., "ow" or "it hurts," or to take into account individual statements like "aching" or "moaning" (Hadjistavropoulos et al. 2010; AMDA (American Medical Directors Association) 2012); otherwise it is possible that such vocalizations will be misinterpreted, and pain will not be properly assessed. As in the case of Miss Lander, challenging behavior may be mistakenly not assessed as pain. In cases of severe dementia, self-report is sometimes impossible and has to be supplemented with observational assessment (German Pain Society and DZNE 2017; Hadjistavropoulos et al. 2007; Verenso 2011).

In the literature, different statements are made regarding the ability of people with dementia to report pain. It cannot be assumed that all patients suffering from moderate to severe dementia are able to provide an adequate self-report on the pain they experience (Verenso 2011; Basler et al. 2001). Patients with severe cognitive impairment (e.g., dementia, delirium) often have difficulty in expressing pain and using a self-report tool due to these cognitive and verbal limitations.

If a behavioral tool is needed to assess possible pain in persons, for example, with severe dementia, various tools exist. Nurses should consider the following (German Pain Society and DZNE 2017):

- A proxy-rating tool should be used to screen for pain in older people who cannot provide a self-report.
- When an older person is asked about pain, communication aids (e.g., glasses, hearing aids) must be used, and ample response time should be provided.

- During the provision of basic care, the person's pain behaviors should be observed, and/or they should be asked about pain.
- When caring for cognitively impaired older people, healthcare staff shall ask about the person's possible pain.

Proxy-rating tools for pain assessment must be valid and reliable; the following assessment tools are recommended based on their validity and reliability in various reviews (Verenso 2011; Zwakhalen et al. 2006; Lichtner et al. 2014):

- Abbey pain scale
- Behavior checklist
- CNPI, CPAT
- NOPPAIN
- MOBID
- PACSLAC
- PAINAD
- DOLOPLUS

The format of the different tools available differs enormously: Some of the tools are in categories (PAINAD), and others include very detailed behavioral pain cues (e.g., PACSLAC). Although the abovementioned instruments have proved to be valid and reliable, the choice of instrument also depends on contextual aspects and staff preferences. For example, PAINAD is used worldwide because the tool is rather short (includes five items) and is often used in an acute care setting to assess pain in persons with cognitive impairments. The Abbey pain scale is frequently used in Australia and the UK (it is incorporated as one of the preferred tools in the national guidelines), while it is rarely used in other countries.

An up-to-date database of the tools is available on the following website: http://prc.coh.org/pain_assessment.asp.

Without any doubt, these tools help nurses to assess and report on pain in older nonverbal patients. However, it must be acknowledged that these are all aids to assist and support the decision-making process and are not intended to replace the clinical decision-making of nursing staff. Interindividual variability between patients with dementia is well known and always needs to be taken into account. This implies that patients can have pain-specific behaviors that are not even present in generic pain tools. All behavioral pain tools contain a facial expression component that has been shown to be a strong indicator of the presence of pain. These facial responses seem to represent a universal pain response as these cues are also present in all other pain scales for other nonverbal populations (e.g., neonates).

More recently, pain tools were developed to assess specific pain conditions in a specific population. An example is a pain tool to observe pain behavior in cognitively impaired older persons with osteoarthritis (the Pain Behaviors for Osteoarthritis Instrument for Cognitively Impaired Elders (Tsai et al. 2008).

3.6 Pain Monitoring

Monitoring constitutes the integral third phase of the pain assessment cycle, after screening and a focused assessment have been completed. The patient's pain-related situation and symptoms are regularly and systematically reassessed as long as pain or pain-related problems persist. The objectives for pain monitoring are:

- To detect and assess intended and unintended effects of pain-related pharmacological and nonpharmacological interventions
- To evaluate whether individual pain management goals have been met
- To establish whether and how pain-related interventions should be modified

Pain reduction, improved functioning, improved mood, and improved sleep quality have been suggested as clinical endpoints that pain monitoring should focus on (AGS (American Geriatrics Society Panel on Persistent Pain in Older Persons) 2002).

Pain must be continuously monitored in all patients with known pain and pain-related problems and in patients who receive pharmacological or nonpharmacological pain therapy. Instruments and approaches used for focused assessment of pain should also be used for the reassessment of pain in order to make comparisons over time. However, it is neither necessary nor helpful to fully replicate lengthy assessments. On the contrary, pain monitoring needs to be concise and readily integrated into clinical routines while at the same time sensitive to changes in the patient's situation in order to be useful, acceptable for the patient, and manageable for clinical staff. However, research on this topic is scarce, so the following recommendations are predominantly based on expert opinion (German Pain Society and DZNE 2017).

In cognitively intact, verbal patient's pain intensity, based on the patient's self-report, is the key indicator for pain monitoring. The same self-report measure for pain intensity that was used for the focused assessment should also be used for monitoring. Pain intensity ratings should be collected regularly, in intervals adjusted to the patient's individual situation.

Mrs. Thomas, from our first case study, suffers from acute pain due to a fractured hip and pressure ulcers. She is in acute hospital care, and some of the treatments she receives, such as physiotherapy, are likely to increase her pain in certain situations. In such acute settings, where changes to the patient's situation, due to interventions, disease progress, or complications, are likely to occur frequently, pain needs to be closely monitored. Pain intensity at rest should at least be assessed in the morning, once during the day, and in the evening, usually by a nurse or a nursing assistant. Also, when Mrs. Thomas receives physiotherapy or other interventions, the clinical staff responsible should ask for the pain intensity she experiences in that situation, to make sure that mean levels do not exceed set limits. All staff need to stick with the same instruments, such as the numerical rating scale, which was introduced to Mrs. Thomas initially. In addition to charting the pain intensity, the pain situation should be subject to discussion during interdisciplinary team rounds and with the patient, and further detailed investigations into causes of newly developed increased pain or changes to the patient's therapy may result from those discussions.

Mr. Smith, from our second case study, is on a slow, palliative illness trajectory due to his cancer diagnosis. He is supported by his family in his own home with the major goal of maintaining his quality of life. It is likely that his health will slowly deteriorate over time, including increasing pain. Sudden episodes of severe or very severe pain also have to be expected in cancer patients. Such critical situations may indicate a need for further investigation of disease progression. Mr. Smith and his family will need to develop a way of maintaining good quality of life despite pain and other symptoms. This means that some chronic pain may have to be integrated into his daily life as complete pain suppression may have other unwanted effects, such as sedation. Pain monitoring, therefore, should not become a focus of daily life but rather a necessary routine that should receive "just enough" attention. Daily assessments may not be warranted if the pain situation is stable, and weekly assessments may be enough in the specific case of Mr. Smith. When his health situation changes, or when he indicates increasing pain or other symptoms, pain should be reassessed more often.

In addition to pain intensity, other indicators may be regularly monitored in patients with pain, depending on the individual patient's situation and goals. Those indicators may include, for example (German Pain Society and DZNE 2017):

- Direct pain-related indicators, such as pain quality, localization, duration, etc.
- Unintended effects of the pain therapy, such as constipation, sedation, etc.
- Adherence to the pain management plan
- Mood
- Physical, psychological, and social functioning
- Sleep
- Delirium
- Indicators for abuse of analgesics

It has also been suggested that in chronic pain, monitoring should rather focus on "positive" indicators, such as quality of life and desirable social interaction of functioning, than on "negative" indicators such as pain intensity.

In chronic pain, patients should be enabled and empowered to monitor pain independently to strengthen their self-management competencies and self-efficacy (Lovel et al. 2014). Providing targeted and tailored education about pain assessment methods, documentation, and resulting adjustments to their pain management, for example, by adjusting PRN medication or consulting a clinician, is essential. As pain and pain management always affect the patient's social relations, the patient's family may be given an active role in pain monitoring, if the patient agrees to family involvement.

Pain diaries may help to document how chronic pain and pain-related symptoms develop over time (Hadjistavropoulos et al. 2007). They may also help the clinician to evaluate longer periods of time between consultations. However, the effects of pain diaries on chronic pain and symptom outcomes have not been studied fully, even though they form an integral part of current clinical practice.

Traditional "paper and pencil" pain diaries are now complemented by mobile apps for pain assessment and documentation that can be obtained from the app stores of Apple and Google. However, these apps have rarely been scientifically developed and evaluated to meet the needs of users, especially older adults (Free et al. 2010). Initial studies indicate that apps adapted to the needs of older adults may improve health outcomes (Klasnja and Pratt 2012; McGeary et al. 2012).

The challenge in monitoring pain in patients like Ms. Lander from our third case study lies with her impaired verbal communication skills. Behaviors that are used to gauge pain in persons with cognitive impairment are not necessarily pain-specific. Therefore, when such behaviors are newly discovered during reassessment, a thorough investigation regarding their cause needs to be initiated. There is a real danger in patients with cognitive impairment that behaviors are falsely attributed to either dementia or an already known cause of pain, while the real cause may be completely different. Given the high prevalence in patients with pain, delirium should always be considered a cause of altered behaviors.

Patients with impaired cognition may also be unable to communicate new causes of pain or pain exacerbation due to disease progress. Clinical staff must therefore be vigilant regarding any changes in patients' situation that may cause pain and may easily go unnoticed in this population.

3.7 Implications for Practice, Practice Development, and Research

At present, different instruments are available for self-assessment and proxy assessment of pain. However, as an international survey on the use of pain assessment instruments in people with cognitive impairments has shown, they are not consistently used in clinical practice (Sirsch et al. 2015b), and it seems safe to assume that in general pain assessment is poorly implemented in clinical practice. A specific challenge is posed to nurses if the patient's self-report and the nurses' observation of patient's pain behaviors seem to be incongruent. Both objective (nurses' observation) and subjective (patient's self-report) sources of information have to be taken into account in determining the presence of pain. If possible, further information from proxies should also be included in this process. Additionally, when pain is suspected or possible, an analgesic (non)pharmacological trial should be initiated. Subsequent pain monitoring will help to determine whether pain was present. Communication about pain-specific findings within a "collegial dialog" in nursing teams or as an interdisciplinary case conference will enhance the understanding of pain, pain assessment, and pain management in all members of the healthcare team. Furthermore, it will facilitate the unique process of pain screening and necessary interventions, as well as the identification of an advanced/comprehensive pain assessment in older adults with and without cognitive or communicative impairment after positive screening.

Only limited research has focused on how to best implement and perform pain monitoring in patients outside the acute care setting. Therefore, the intervals in which pain is reassessed and the methods and instruments used for monitoring pain need to be based on the clinician's judgment of the individual patient's situation, needs, and preferences. Future research should take a longitudinal perspective on pain assessment throughout the patient's journey with pain over months and years in different settings.

Pain assessment is an ongoing process that must not stop once a focused assessment of a patient's pain situation has been completed. Continuous monitoring of intended and unintended effects of pharmacological and nonpharmacological interventions is an integral part of the pain assessment cycle. The choice of instruments and approaches needs to be based on the patient's situation and individual shared pain management goals. New assessment instruments have been developed. An attempt is being made to automatically capture mimic change through electronic face recognition for patients with cognitive impairment or sedated patients. Future technological advances should aim to improve the interconnectedness of apps for pain monitoring used by patients with information systems used by clinicians. Systems currently available are still in their infancy and do not adequately reflect patients' and clinicians' perspectives. Internet-based e-health systems for real-time communication (including video consultations) and remote monitoring are currently under development. Whether this automated recording of facial changes and information systems will fit into a comprehensive pain assessment in which all dimensions of pain should be recorded and whether these improve care is a question for further research.

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