

ARTICLE

Systematic pain assessment using an observational scale in nursing home residents with dementia: exploring feasibility and applied interventions

Sandra MG Zwakhalen, Charlotte E van't Hof and Jan PH Hamers

Aims and objectives. To investigate the feasibility of regular pain assessment using an observational scale in nursing home residents with dementia and; determine interventions applied after diagnosing possible pain.

Background. Pain occurs regularly among nursing home residents with dementia and is frequently undertreated. Over the last decade a variety of observational scales have been developed to assess pain in elderly people with dementia. One of these observational scales is pain assessment using an observational scale. There are indications that the regular use of pain assessments scales can contribute to an adequate diagnosis of pain and therefore would improve pain treatment.

Design. In this exploratory descriptive observational study regular pain assessment using an observational scale as an intervention was evaluated.

Methods. Data were collected during a 6-week period (August–September 2009) where pain was measured twice a week among 22 residents of a psychogeriatric nursing home ward, using the pain assessment using an observational scale. Interventions undertaken as a result of the pain score were recorded on a datasheet. After the third and sixth week the implementation of pain assessment was evaluated with staff members using interviews.

Results. In total, 264 pain assessments were conducted using the pain assessment using an observational scale. Of all scheduled standardized assessments, 90% were completed. Sixty out of 264 assessment resulted in a pain score. The completed datasheets ($n = 39$), including information on the selected intervention and the reason for selecting a specific intervention, showed that a pain score ($n = 17$) did not often result in any intervention. The majority of interventions undertaken consisted of a non-pharmacological approach ($n = 19$).

Conclusion. This study demonstrates that although there was a high compliance rate, pain relieving interventions were not frequently applied. Interventions undertaken after pain assessment were mainly non-pharmacological.

Relevance to clinical practice. Providing nursing staff with adequate pain assessment tools alone is not sufficient to change the pain management practices.

Key words: behaviour observation, dementia, nursing homes, pain

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Introduction

Pain is one of the most frequently reported symptoms in older people with dementia with prevalence rates up to 83% (Sengstaken & King 1993, Wagner *et al.* 1997, Weiner *et al.* 1999, Lin *et al.* 2006, Zwakhalen *et al.* 2009). Despite these high prevalence rates, treatment is often inadequate in this highly vulnerable population. Inadequate treatment resulting in persistent pain can decrease the patient's quality of life because of an increase in pain-related consequences such as physical dysfunction and social isolation (Sengstaken & King 1993).

The non-use of pain assessment scales has been identified as an important barrier against the accurate treatment of older people with dementia (McAuliffe *et al.* 2009). In that way, recognising pain is like a cornerstone to adequate treatment. Over the last decade, a variety of observational behavioural scales were developed to assess pain in patients with dementia who are unable to use self-reports (Zwakhalen *et al.* 2006, Schofield 2008, Herr *et al.* 2010). A widely used internationally recommended (Zwakhalen *et al.* 2006, Hadjistavropoulos *et al.* 2007) scale for assessing pain in residents with dementia is the Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC), developed by Fuchs-Lacelle and Hadjistavropoulos (2004). Zwakhalen and colleagues created a revised Dutch 24 items version of this scale called PACSLAC-D (Zwakhalen *et al.* 2007).

These behavioural observational tools should be applied routinely (Chen *et al.* 2010). Guidelines (e.g. AGS Panel on Chronic Pain in Older Persons 1998, Verenso 2011) recommend that using observational tools in older patients with dementia to enhance evidence base practise. It is assumed that easy systematic assessment of pain results in better treatment. Although previous research demonstrates that the use of structured pain assessments can contribute to adequate diagnosis of pain (De Rond *et al.* 2000, Kamel *et al.* 2001) up until now, it has been unclear as to what extent the regular use of a pain assessment scale results in appropriate treatment by pain relieving interventions in nursing home residents with dementia. There only have been a few studies that report on findings of systemic pain assessments improving treatment in patients with dementia (e.g. Fuchs-Lacelle *et al.* 2008).

The present study

This study aims to investigate the feasibility of regular pain assessment using an observational scale (the Pain Assessment Checklist for Seniors with Limited Ability to

Communicate-Dutch version in nursing home residents with dementia and determine interventions applied after diagnosing possible pain in nursing home residents with dementia.

More specifically, the following research questions were formulated:

- What is the compliance of nursing staff assessing pain in nursing home residents with dementia?
- What were the experiences of the nursing staff who assessed pain using an observational pain assessment scale?
- What is the reported pain prevalence based on the use of this observational pain scale within nursing home residents with dementia?
- Which interventions were undertaken after diagnosing possible pain using an observational scale for nursing home residents with dementia?

Methods

Design

In this exploratory descriptive observational study, an intervention (regular pain assessment using an observational scale) was implemented. In addition, structured interviews were conducted with nursing staff to gain insight into the current pain status of the ward/patient and to assess the feasibility and their experiences with conducting regular pain assessments.

This study on pain assessment in nursing home residents with dementia was conducted using the new Medical Research Council (MRC) framework for the evaluation of complex interventions (Craig *et al.* 2008), an approach frequently used in the design and evaluation of multifactorial health interventions. While previous studies conducted by our research team focused on pain assessment development (identifying evidence, modelling processes and outcomes), in this study, we focused on the phase of testing feasibility and piloting an observational pain assessment scale (PACSLAC-D) in daily nursing home practice.

Participants

Forty nursing home residents from a geriatric ward, which was randomly selected within that nursing home, in the Netherlands were invited to participate. Residents were eligible whether (1) they met DSM-IV-TR criteria for dementia (American Psychiatric Association 2000); (2) they were at least 65 years old; (3) they had resided in the facility for at least 1 month; and (4) their legal representatives had provided written informed consent.

Residents were excluded whether they had a primary psychiatric diagnosis according to the DSM-IV-TR or were diagnosed with Korsakov's disease because they usually differ from other residents with dementia (e.g. have a better mobility and are younger) and live often in special wards. Of the 40 nursing home residents legal representatives who were invited, 23 residents gave permission to participate.

Six nursing staff members participated in the interview sessions.

Data collection

Procedure

After receiving training on how to use the pain assessment tool and the accompanied datasheet/algorithm, pain was assessed during a 6-week period, twice a week on standard days during morning care (standardised routine assessments) by nursing staff members. Data were collected in August–September 2009. The PACSLAC-D was put in the residents room at the bedside by the nightshift to help nursing staff remember to assess pain during morning care. Scoring of the PACSLAC-D takes on average just a few minutes. If a PACSLAC-D score of ≥ 4 was obtained during the twice-weekly routine assessments, nursing staff was instructed to assess pain again the next morning, until the score had dropped below 4.

During the 6-week assessment period, one of the researchers was present each week in case there were any questions.

During the 6-week period, three interviews took place with the staff members: one interview before the start of the study to gather information about the pain policy and register patients' known pain complaints, and two evaluation

interviews to assess the nursing staff' experiences on assessing pain using an observational pain assessment scale to gain more insight into the feasibility of regular pain assessment. A study design figure describing the study is added (Fig. 1).

Measures

Structured pain assessment and datasheet registration. Pain was assessed using the PACSLAC-D scale. Previous research studies reported a good psychometric quality and clinical utility of the PACSLAC-D. More specifically, construct validity was confirmed and high levels of internal consistency were reported for the complete scale ($\alpha = 0.82-0.86$) and subscales ($\alpha = 0.72-0.82$) (Zwakhalen *et al.* 2007). Inter-rater reliability (ICC) was found to be high for the total scale 0.89; adequate for the subscales of facial and vocal expression (ICC = 0.89) and resistance/defence (ICC = 0.76); and moderate for the subscale social-emotional aspects/mood (ICC = 0.56) (Zwakhalen *et al.* 2009).

A preliminary cut-off score of 4 was used, as determined in a previous study using a stepwise approach, including a linear transformation using other pain tools with known cut-offs as an external criterion and empirical data in addition to verify the findings (Zwakhalen *et al.* 2009). An algorithm was attached to the PACSLAC-D that linked possible pain score to possible treatment options (Fig. 2).

Part of the algorithm was a datasheet (Fig. 3). This datasheet was designed to register all PACSLAC-D scores, the related interventions and the motivation behind an applied intervention. Intervention registration options on the datasheet included the following: no intervention applied, nursing home physician consulted, non-pharmacological

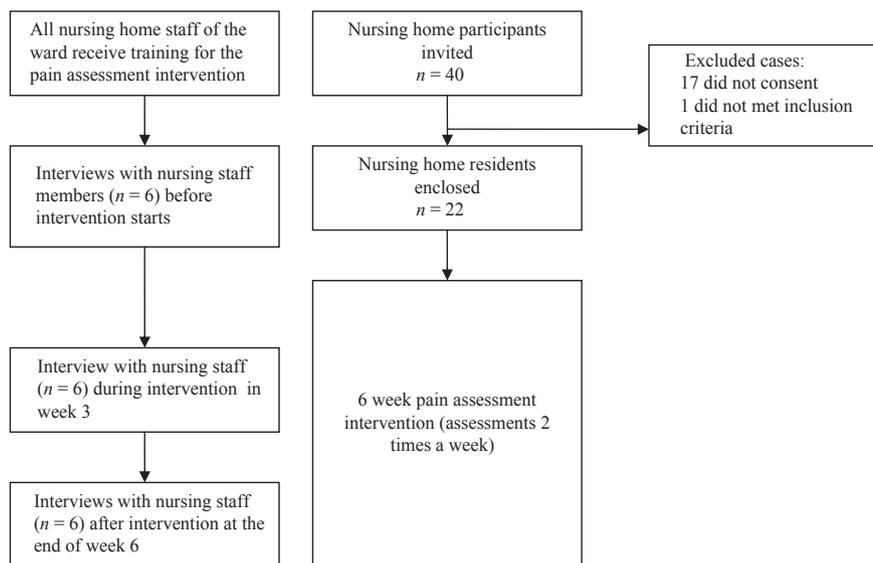


Figure 1 Study design.

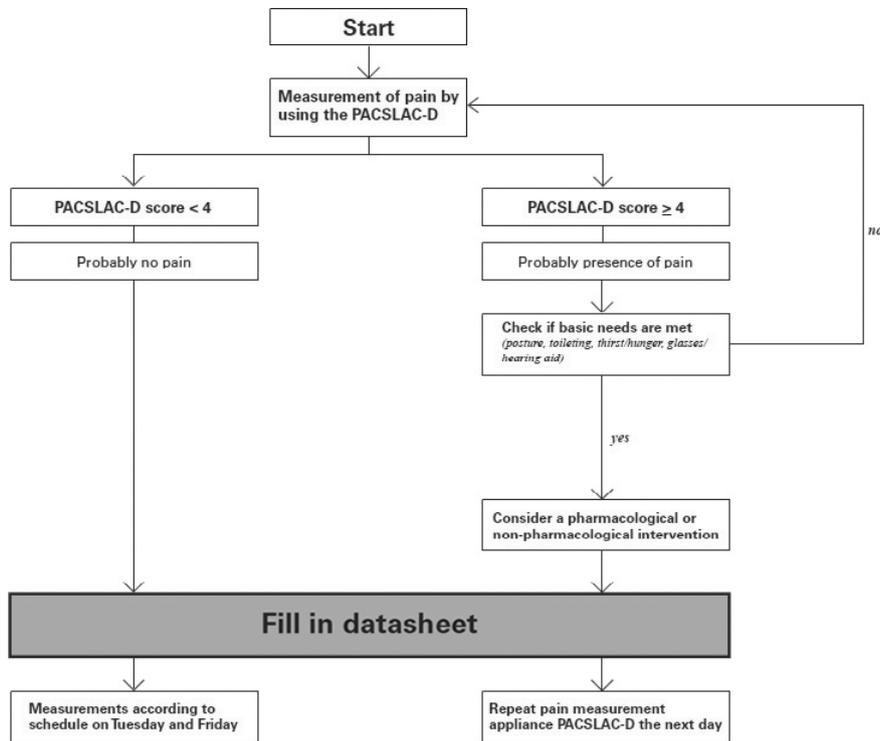


Figure 2 Algorithm.

| | | |
|---|--|--|
| <input type="checkbox"/> None Please include reason* | <input type="checkbox"/> None | <input type="checkbox"/> None |
| <input type="checkbox"/> Consult physician | <input type="checkbox"/> Consult physician | <input type="checkbox"/> Consult physician |
| Pharmacological | Pharmacological | Pharmacological |
| <input type="checkbox"/> Change in pain medication, if so... | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Pain medication is stopped | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Adjustment dosage of pain medication | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> New type of pain medication | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> As needed medication is administered | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Change in remaining medication, if so... | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Medication is stopped | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Adjustment dosage of medication | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> New type of medication | <input type="checkbox"/> | <input type="checkbox"/> |
| Non-pharmacological | Non-pharmacological | Non-pharmacological |
| <input type="checkbox"/> Distraction | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Reassurance /Comforting | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Applience of heath | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Applience of cold | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Massage of the painful area | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Relaxation exercises | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Posture change | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Physical exercise | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Otherwise, namely... | <input type="checkbox"/> | <input type="checkbox"/> |

Figure 3 Section datasheet.

treatment and pharmacological treatment. The intervention options included in the datasheet were extracted from existing literature on pain management in older care (e.g. Horgas & Yoon 2008).

The use of analgesics and psychotropic drugs was recorded based on the medication chart and classified using the Anatomical Therapeutic Chemical/Defined Daily Dose (ATC/DDD) coding system of the WHO (1997).

The 5-item Minimum Data Set (MDS) Cognitive Performance Scale (CPS) (Morris *et al.* 1994) was used to assess the cognitive status of the residents. Following a standardised algorithm, a summary score is retrieved that ranges from 0 (intact) to 6 (very severe impairment).

Furthermore, the following demographic characteristics were registered; gender, age and comorbidities.

Interview data. Interviews aimed to gain insight into:

- current pain policy at the ward;
- occurring pain situation/complaints of participants and;
- staff experiences and ideas on feasibility and acceptability.

Known pain complaints were recorded during a brief interview with the staff on the ward. Interview questions were based on the questions of the MDS pain (section J) (InterRAI 2002).

In addition, the pain policy of the nursing home ward was inventoried using interview questions based on a study by Keeney *et al.* (2008). Example of a question addressed:

'Are there any policies and procedures in effect that address pain management?'

To record and evaluate the nursing staffs' experiences twice during the study (weeks 3 and 6), a meeting with six nursing staff participants was scheduled using semi-structured interviews to gather qualitative data. The questions addressed issues such 'clarity and usefulness of PACSLAC-D' and 'nursing staffs' experiences in assessing pain regularly'.

Ethical considerations. The study was approved by the appropriate ethics committees of the University Hospital. Furthermore, the local Ethical Committee of the participating facility and its board gave approval. Legal guardians of the participants provided written informed consent before the study started.

Data analysis

Descriptive statistics were used for the demographic analysis and completion rates. The nursing staffs' compliance with scoring was calculated by dividing the total number of expected (routine and follow-up) assessments by the total number of completed assessments.

Results

Sample characteristics

Of the 23 participants, 22 participants: seven men and 15 women whose mean age was 80 years old (SD 8.6), met the inclusion criteria. The mean cognitive function score using the CPS was 5 (SD 1.2), indicating severe cognitive deficits. The participants often had multiple diagnoses (mean of four comorbidities). Further background information showed that 27% ($n = 6$) of participants were known to have pain complaints based on information derived from the patient record. About 41% ($n = 9$) of the participants used pain medication and 68% ($n = 15$) used psychotropic drugs.

The six nursing home staff members who participated in the interview sessions were mainly female certified nursing assistants ($n = 5$) and one male registered nurse. Mean age of these nursing staff participants was 34.5 (SD = 4.9).

Compliance rate

The pain was routinely assessed using the PACSLAC-D twice a week during a 6-week period. The staffs compliance with scoring pain twice a week using the PACSLAC-D was high, indicating the clinical usefulness of the observational pain scale. Of all 264 scheduled assessments, 237 (90%)

were actually completed and registered on the datasheet. Of the 57 scheduled follow-up assessments, 27 (47.4%) were completed.

The compliance rate varied largely from week to week, ranging from 80 to 100% for routine assessments and 0–77% for follow-up assessments.

Nursing staffs' experiences the PACSLAC-D regular pain assessment

The staffs' ($n = 6$) experiences evaluated during the two scheduled evaluations were positive about the clinical usefulness (user friendly and feasible) of the PACSLAC-D, the algorithm and the accompanying datasheet.

The overall aims of the study were clear for all nursing participants and they were also well aware of the possible nursing interventions after scoring for possible pain.

The nursing staffs' experiences within the 6-week intervention period varied from negative to neutral. The staff members commented that scoring less frequently than twice a week would be preferable. Furthermore, the nursing staff members mentioned difficulties in interpreting pain cues. Their main concern was that a score could be increased because of the presence of other reasons than pain such as distress, panic or others. Therefore, score interpretation was reported as being complicated.

Reported pain prevalence

The mean PACSLAC-D score after all assessments ($n = 264$) were completed was 2.2 (SD 2.8; range 0–17). On sixty occasions, the PACSLAC-D was ≥ 4 , with a mean score of 6.3 (SD 3.1; range 4–17). These 60 possible pain scores were related to 16 participants. A total number of three participants were responsible for 48% of the possible pain scores (PACSLAC-D ≥ 4).

Figure 4 shows the prevalence of possible pain in routine assessments based on the preliminary PACSLAC-D cut-off scores of ≥ 4 ($n = 60$). The overall mean prevalence of pain over the total 6-week period was 22%.

Reported interventions

If the PACSLAC-D score was ≥ 4 , the nursing staff was instructed to add information to the datasheet about the interventions used and the rationale. The datasheets were completed in 39 (65%) cases out of the 60 possible pain scores. The other datasheets were incomplete.

In approximately, half of the situations ($n = 17$, 44%) with a score ≥ 4 no intervention was applied. In the other cases

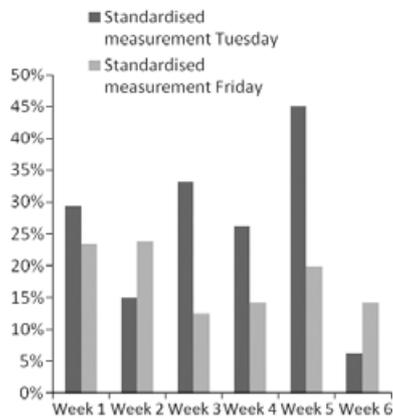


Figure 4 Pain prevalence rates during routine assessments.

($n = 22$, 56%), mainly non-pharmacological interventions were used ($n = 19$, 49%), of which comforting and distraction were most frequently reported. A nurse specialist was consulted for her expertise on behavioural aspects once, and a nursing home physician was consulted three times.

Table 1 provides an overview of the reported interventions.

Discussion

The main finding of the present study showed that although a high completion rate was obtained, supporting the clinical utility of the PACSLAC-D, adequate pain registration (90%) did not result in the frequent use of pain relieving nursing interventions during the 6-week implementation period.

Several limitations of this study need to be addressed. This study should be considered as a preliminary study with

an emphasis on the testing feasibility and piloting of the procedure used (Craig *et al.* 2008) because the sample size was limited. In addition, the study time span of 6 weeks was also limited. Owing to this short observational period and small sample size, external validity is restricted. Therefore, further research is suggested with an extended length of study and an increased number of participants. The second limitation concerns the observational procedure. To enhance the clinical utility and minimise the workload of the observational pain assessment procedure, nursing staff performed pain assessments during routine morning care. In previous studies on pain assessment in dementia patients, the observations were performed by independent raters who were not involved in care at the moment of scoring. A disadvantage of the procedure used in the present study could be that the nursing staff members did not observe all pain cues and missed important behavioural information because of their involvement in care. This may explain the pain prevalence of 22% assessed in this study, which is lower compared to other studies in this patient population (e.g. Zwakhalen *et al.* 2009). Furthermore, nursing staff was instructed to complete the assessments. These included nurses as well as nursing assistants. However, it should be mentioned that nursing assistants have restricted functions. This might have affected the actually interventions undertaken by nursing assistants and therefore the care provided.

Although the majority of routine assessments were completed accurately, the datasheets were often incomplete, pain scores were sometimes registered inaccurately and follow-up assessments were not always completed as scheduled. This might be caused by the fact that assessing pain is not embedded in daily nursing home care and more integration in a pain management programme is needed. Several studies have acknowledged the importance of a pain management programme that provides information on training, guidelines and treatment options (Keeney *et al.* 2008, Herman *et al.* 2009, Leone *et al.* 2009). A consensus about the content of such a pain management programme, however, is lacking. In the near future, pain will probably become more important and embedded in daily nursing home practices as it will become one of the quality indicators used in the Netherlands. In some countries (i.e. the USA, using the RAI-MDS), pain already is part of the quality assessment procedure (Morris *et al.* 1990).

The staff members acted on only about half of the situations in which a possible pain score was registered using pain relieving interventions. The interventions undertaken were mostly related to distracting or comforting interventions. Fuchs-Lacelle *et al.* (2008) showed a significant increase in pain management interventions after regular

Table 1 Interventions reported ($n = 39$) if PACSLAC-D score ≥ 4

| Reported intervention | |
|---|----------|
| No intervention applied | 17 (44%) |
| Non-pharmacological intervention | 19 (49%) |
| Comforting | 6 (15%) |
| Distract + comforting and massaging | 5 (13%) |
| Distract + comforting | 2 (5%) |
| Distract | 2 (5%) |
| Comforting and relaxation | 1 (3%) |
| Massaging sore area | 1 (3%) |
| Relaxation | 1 (3%) |
| Consulting nurse specialist | 1 (3%) |
| Consulting nursing home physician | 1 (3%) |
| Consulting nursing home physician + pharmacological treatment | 2 (5%) |
| Pharmacological treatment | 0 (0%) |

pain assessment. Whether there was an increase in the use of pain management strategies in the present study could not be determined because the study design was not appropriate for answering this research question. Limited use of pain management strategies and the use of mainly non-pharmacological approaches could be the result of the relatively low pain scores obtained. Furthermore, it should be taken into account that 41% of the participants already had pain medication and 68% used psychotropic drugs. This could have been a reason for nursing staff to opt for a non-pharmacological intervention. Another reason could be the result of limited knowledge and a misconception of pain and its management. Previous studies (Jones *et al.* 2004, Zwakhalen *et al.* 2007) frequently reported limited knowledge and a misconception among nursing staff, mainly about pharmacological treatment. These misconceptions could influence pain assessment and its treatment. Willson (2000) emphasised the fact that a shortage in knowledge is the most determining factor for the application of pain relieving interventions. It remains unclear if and to what extent applying these non-pharmacological interventions actually are effective in relieving pain.

Conclusions

The PACSLAC-D scale was easy to use because high completion rates were demonstrated by the study findings. An overall pain prevalence rate of 22% was found in this study. However, the pain management strategies undertaken by the nursing staff after a possible pain score were limited and were mostly non-pharmacological, easy-to-use strategies, such as comforting.

References

- AGS Panel on Chronic Pain in Older Persons (1998) The management of chronic pain in older persons. *Journal of the American Geriatrics Society* **46**, 635.
- American Psychiatric Association (2000) *Diagnostic and Statistical Manual of Mental Disorders*, 4th edn. American Psychiatric Association, Washington, DC.
- Chen Y, Lin L & Watson R (2010) Validating nurses' and nursing assistants' report of assessing pain in older people with dementia. *Journal of Clinical Nursing* **19**, 42–52.
- Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I & Petticrew M (2008) Developing and evaluating complex interventions: the new Medical Research Council guidance. *British Medical Journal* **337**, a1655.
- De Rond MEJ, De Wit R, Van Dam FSAM & Muller MJ (2000) A pain monitoring program for nurses: effects on communication, assessment and documentation of patients' pain. *Journal of Pain and Symptom Management* **20**, 424–439.
- Fuchs-Lacelle S & Hadjistavropoulos T (2004) Development and preliminary validation of the pain assessment checklist for seniors with limited ability to communicate (PACSLAC). *Pain Management Nursing* **5**, 37–49.
- Fuchs-Lacelle S, Hadjistavropoulos T & Lix L (2008) Pain assessment as intervention: a study of older adults with severe dementia. *Clinical Journal of Pain* **24**, 697–707.
- Hadjistavropoulos T, Herr K, Turk DC, Fine PG, Dworkin RH, Helme R, Jackson K, Parmelee P, Rudy TE, Lynn BB, Chibnall JT, Craig KD, Ferrell B, Ferrell B, Fillingim RB, Gagliese L, Gallagher R, Gibson SJ, Harrison EL, Katz B, Keefe FJ, Lieber SJ, Lussier D, Schmader KE, Tait RC, Weiner DK &

Relevance to clinical practice

Pain detection using a pain scale is important for increasing the rates of uniform and objective registrations, and for enhancing communication about pain with the nursing home physician and the evaluation of treatments. Providing nursing staff with adequate assessment tools alone is not sufficient to change pain management practices.

To improve pain management in nursing home residents with dementia future studies should:

- 1 Deal with common barriers that limit the use of observational assessment approaches. In this study, nursing staff mentioned that differentiation between pain and other constructs was still difficult and limited actions were undertaken after giving a possible pain score.
- 2 Determining the content of a pain management programme and examining the effectiveness of standardised pain assessment strategies included in such a pain management programme.

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Contributions

Study design: SZ, CH, JH; data collection and analysis: SZ, CH, JH and manuscript preparation: SZ, CH, JH.

Conflict of interest

No conflict of interest has been declared by the authors.

- Williams JMA (2007) An interdisciplinary expert consensus statement on assessment of pain in older persons. *The Clinical Journal of Pain* 23(Suppl), S1–S43.
- Herman AD, Johnson TM 2nd, Ritchie CS & Parmelee PA (2009) Pain management interventions in the nursing home: a structured review of the literature. *Journal of the American Geriatrics Society* 57, 1258–1267.
- Herr K, Bursch H, Ersek M, Miller LL & Swafford K (2010) Use of pain-behavioral assessment tools in the nursing home: expert consensus recommendations for practice. *Journal of Gerontological Nursing* 36, 18–29.
- Horgas AL & Yoon SL (2008). Pain management. In *Evidence-Based Geriatric Nursing Protocols for Best Practice*, 3rd edn (Capezuti E, Zwicker D, Mezey M & Fulmer T eds). Springer Publishing Company Inc, New York, NY, pp. 199–222.
- InterRAI (2002) *RAI for Nursing Home Care (RAI 2.1)*. InterRAI Corporation, Utrecht.
- Jones KR, Fink R, Pepper G, Hutt E, Vojir CP, Scott J, Clark L & Mellis K (2004) Improving nursing home staff knowledge and attitudes about pain. *The Gerontologist* 44, 469–478.
- Kamel HK, Phlavan M, Malekgoudarzi B, Gogel P & Morley JE (2001) Utilizing pain assessment scales increases the frequency of diagnosing pain among elderly nursing home residents. *Journal of Pain and Symptom Management* 21, 450–455.
- Keeney CE, Scharfenberger JA, O'Brien JG, Looney S, Pfeifer MP & Hermann CP (2008) Initiating and sustaining a standardized pain management program in long-term care facilities. *Journal of the American Medical Directors Association* 9, 347–353.
- Leone AF, Standoli F & Hirth V (2009) Implementing a pain management program in a long-term care facility using a quality improvement approach. *Journal of the American Medical Directors Association* 10, 67–73.
- Lin WC, Lum TY, Mehr DR & Kane RL (2006) Measuring pain presence and intensity in nursing home residents. *Journal of the American Medical Directors Association* 7, 147–153.
- McAuliffe L, Nay R, O'Donnell M & Fetherstonhaugh D (2009) Pain assessment in older people with dementia: literature review. *Journal of Advanced Nursing* 65, 2–10.
- Morris JN, Hawes C, Fries BE, Phillips CD, Mor V, Katz S, Murphy K, Drugovich ML & Friedlob AS (1990) Designing the National Resident Assessment Instrument for Nursing Facilities. *The Gerontologist* 30, 293–307.
- Morris JN, Fries BE, Mehr DR, Hawes C, Phillips C, Mor V & Lipsitz LA (1994) MDS cognitive performance scale. *The Journals of Gerontology* 49, M174–M182.
- Schofield P (2008) Assessment and management of pain in older adults with dementia: a review of current practice and future directions. *Current Opinion in Supportive & Palliative Care* 2, 128–132.
- Sengstaken EA & King SA (1993) The problems of pain and its detection among geriatric nursing home residents. *Journal of the American Geriatrics Society* 41, 541–544.
- Verenso (2011) *Herkenning en behandeling van chronische pijn bij kwetsbare ouderen (Recognition and Treatment of Pain in Vulnerable Elderly Patients)*. Available at: http://www.pijnverpleegkundigen.nl/Verenso_deel_1.pdf (accessed 27 April 2012) [in Dutch].
- Wagner AM, Goodwin M, Campbell B, Eskro S, French SA, Shepherd PA & Wade M (1997) Pain prevalence and pain treatments for residents in Oregon nursing homes. *Geriatric Nursing* 18, 268–272.
- Weiner D, Peterson B, Ladd K, McConnell E & Keefe F (1999) Pain in nursing home residents: an exploration of prevalence, staff perspectives, and practical aspects of measurement. *The Clinical Journal of Pain* 15, 92–101.
- WHO (1997) *Anatomical Therapeutic Chemical (ATC) Classification Index Including Defined Daily Doses (DDDs) for Plain Substances*. World Health Organization Collaborating Centre for Drug Statistics Methodology, Oslo.
- Willson H (2000) Factors affecting the administration of analgesia to patients following repair of a fractured hip. *Journal of Advanced Nursing* 31, 1145–1154.
- Zwakhalen SM, Hamers JP, Abu-Saad HH & Berger MP (2006) Pain in elderly people with severe dementia: a systematic review of behavioural pain assessment tools. *BMC Geriatrics* 6, 3.
- Zwakhalen SM, Hamers JP & Berger MP (2007) Improving the clinical usefulness of a behavioural pain scale for older people with dementia. *Journal of Advanced Nursing* 58, 493–502.
- Zwakhalen SM, Koopmans RT, Geels PJ, Berger MP & Hamers JP (2009) The prevalence of pain in nursing home residents with dementia measured using an observational pain scale. *European Journal of Pain* 13, 89–93.

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