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Evaluation of the psychometric properties and the clinical feasibility of a Chinese version of the Doloplus-2 scale among cognitively impaired older people with communication difficulty

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ABSTRACT

Background: Several behaviourally observed tools have been developed to assess pain among cognitively impaired older people with communication difficulty. However, no adequate pain observation instrument is available for this group in Taiwan.
Objective: The study was undertaken to translate the French version of the Doloplus-2 scale into Chinese and to evaluate the psychometric properties and the clinical feasibility of the translated instrument.
Design: A prospective, descriptive design was used.
Settings: Five dementia special care units in the Northern Taiwan were used.
Participants: Two hundred and forty-one residents with dementia and 14 registered nurses in charge of these residents were recruited.
Methods: The Doloplus-2 scale was translated into Chinese using the back-translation technique and pilot testing was performed to determine the comprehensibility and the initial psychometric characteristics. Internal consistency and inter-rater reliability were evaluated by Cronbach's alpha and intra-class correlation coefficient, respectively. Based on the known correlated validity model, the association between C-Doloplus-2 and empirically supported correlates of pain such as the past pain history, the presence of pain related condition, functional disability, agitation and depression were examined using Pearson's correlation coefficient for validating the construct validity. Furthermore, factor structure was investigated using Principal Components Analysis.
Results: The internal consistency was adequate for the total scale (alpha 0.74) and the subscales (alpha range 0.67–0.87). The intra-class correlation coefficient of the total scale was 0.81 and of the subscales ranged from 0.60 to 0.81. The association between pain latent variable and disability or depression was demonstrated, partially supporting the construct validity. Three factors were extracted to confirm the original three-dimensional structure perfectly, accounting 65% of the total variance.
Conclusions: The psychometric qualities of Chinese Doloplus-2 were supported. Further research is needed to assess the clinical value of the translated scale performed in the institutions.

What is already known about the topic?

- Compared with self-report measures, behavioural observational methods are considered a more feasible strategy

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to detect pain among cognitively impaired older people with communication difficulty.
- Behaviourally observed assessment tools for pain have been increasingly developed in recent years, but most instruments indicated lack of satisfactorily reliability, validity and clinical usefulness.
- The French version of Doloplus-2 scale showed good psychometric qualities in the previous validation studies and has been used extensively in France and Switzerland.

What this paper adds

- The back-translation and pilot testing of the Chinese version of the Doloplus-2 scale were performed to examine the translated version measuring the same domain across culture and ensure no potential problems existing translated version or validation procedure.
- The reliability, validity and clinical feasibility of Chinese version of the Doloplus-2 scale were supported among institutional older people with moderate and severe dementia in Taiwan.
- The Chinese version Doloplus-2 scale is suggested to be integrated into routine clinical practice for effectively managing pain in the long-term care facilities.

1. Introduction

Several studies have shown that older people with dementia suffer from unnecessary pain (Hadjistavropoulos et al., 2008; Snow et al., 2004). The inability to report pain appropriately leads, in older people with dementia, to underdetection and undertreatment (Melding, 2004). Unresolved pain may result in serious consequences such as depressive symptoms, functional dependence, decline of cognitive function, agitated behaviours, and even death (Cipher and Clifford, 2004; Cohen-Mansfield and Taylor, 1998). Although self-report of pain is considered the ''gold standard'' for pain assessment, those with moderate to severe dementia may have difficulty communicating their pain or reduced awareness of pain. Several previous studies showed that assessing pain in this population was regarded as a 'guessing game' by nursing staff (Kovach et al., 2000; Weiner et al., 1999). Adequate pain assessment is a critical part of effective pain management in long-term care facilities, implicated with quality of care and quality of life for institutional residents (Stolee et al., 2005). To solve the dilemma of pain assessment, behaviourally observed methods have been suggested for use with this group, and several behavioural pain assessment tools have been developed. However, most instruments published in English lacked satisfactory reliability, validity and clinical usefulness (Herr et al., 2006; Smith, 2005; Stolee et al., 2005).

A systematic review of behavioural pain assessment tools, not just focused on those publications in English, was conducted by Zwakhalen et al. (2006a,b), and based on quality judgment criteria such as the psychometric properties, sensitivity and feasibility. The findings demonstrated that the Doloplus-2 scale was one of the most appropriate scales currently available for assessing pain in older people with severe dementia. Many key indicators of pain in cognitively impaired older people, noted in the literature and by the American Geriatrics Society (AGS) panel on persistent pain in older persons, are included in the Doloplus-2 scale (AGS panel, 2002; Herr et al., 2006). Additionally, the distinguishing characteristic of the tool is the option of items enabling close observation of subtle changes in usual behavioural expressions in different situations, which truly reflect nursing staffs' view about how to recognize pain in older people with advanced stage dementia (Blomqvist and Hallberg, 2001; AGS panel, 2002).

1.1. Background

The Doloplus scale, the precursor of Doloplus-2 scale was developed by Wary et al. in 1993 for assessing pain in older people and inspired by the Douleur Enfant Gustave Roussy (DEGR) scale for young children (Lafebvre-Chapiro and Doloplus Group, 2001). Subsequently, a DOLOPLUS group was formed by geriatricians in France to refine the Doloplus scale into the present version of Doloplus-2 scale mainly for evaluating pain in older people with communication problems (Lafebvre-Chapiro and Doloplus Group, 2001; Holen et al., 2007). The Doloplus-2 scale involves ten main types of pain behaviours in cognitively impaired older people, categorized into three subscales including somatic reactions (somatic complaints, protective body postures adopted at rest, self-protection of sore areas, facial expression and sleep pattern), psychomotor reactions (washing and/or dressing, physical activity) and psychosocial reactions (verbal/vocal communication daily, social life and behavioural problems). Ten items are described separately by four levels of behavioural expression from zero to three representing increasing intensity of pain. A score greater than or equal to five out of 30 is indicative of pain (Lafebvre-Chapiro and Doloplus Group, 2001).

The reliability and validity of the French version of Doloplus-2 has been evidenced in diverse people and settings (Lafebvre-Chapiro and Doloplus Group, 2001). According to the DOLOPLUS team, the French version of Doloplus-2 was tested with more than 500 older people in an early study, showing satisfactory internal consistency and concurrent validity between Doloplus-2 and a visual analog scale (VAS) (Lafebvre-Chapiro and Doloplus Group, 2001). In Pautex et al.'s study (2005), the French Doloplus-2 was used to examine the validity of four pain self-assessments in hospitalized older people with dementia, and the results demonstrated that the tool correlated moderately with these self-report scales. Moreover, Pautex et al. (2007) adopted a VAS to validate this tool in hospitalized older people with and without dementia who could use VAS reliably. The findings showed Doloplus-2 scale could predict 41% variance in VAS and had adequate internal consistency.

In addition, the French version of Doloplus-2 scale was further translated into Norwegian and Dutch for validation, and adequate psychometric qualities were supported in these studies (Bjoro and Herr, 2008; Holen et al., 2005; Zwakhalen et al., 2006a,b). Holen et al.'s pilot study (2005)