



Title	Person-centered care in Chinese residential care facilities: a preliminary measure
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**Person-centered Care in Chinese Residential Care Facilities:
A Preliminary Measure**

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Person-centered Care in Chinese Residential Care Facilities:

A Preliminary Measure

Aging and Mental Health

Objectives: Person-centered care (PCC) is one of the most desirable approaches for elderly with dementia. However, it has not been initiated and systematically studied in China, on which lacking of reliable and valid measurement tools is one of the key barriers. This paper aims to validate Person-centered Care Assessment Tools (P-CAT) in a Chinese context.

Method: The original 13-item was translated and back translated. And 11 items were added based on literature review and expert consultation. The resulting 24-item P-CAT-C was validated among a sample of formal caregivers (n=330) in all 34 residential care facilities in urban Xi'an, a representative city in north-western China. Chinese version of Staff-Based Measures of Individualized Care for Institutionalized Persons with Dementia (IC) and Caregiver Psychological Elder Abuse Behavior Scale (CPEAB) were used to test the criterion validity.

Results: Confirmatory Factor Analysis (CFA) showed that a three-factor 15-item solution provided an adequate fit indices to the data ($\chi^2 = 145.691$, $df = 81$, $p < .001$, $CFI = 0.926$, $TLI = 0.905$; $RMSEA = .050$). 4 newly items were identified and 2 original items were excluded. The three factors are named as 1) individualized care (6-item); 2) organizational support (6-item); and 3) environmental accessibility (3-item). The internal consistency coefficient (Cronbach's $\alpha = 0.684$) is satisfactory. The inter scale correlation among P-CAT-C, IC and CPEAB showed good criterion validity.

Conclusion: P-CAT-C is a culturally adapted version of the original P-CAT, which showed satisfactory reliability and validity for evaluating PCC in Chinese residential care facilities. It also provides insight to other developing countries.

Key words: person-centered care; residential care facilities; elderly with dementia; China

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Person-centered Care in Chinese Residential Care Facilities:**A Preliminary Measure****Introduction**

In recent decades, the proportion of elderly people in the general population has increased rapidly in China. It is estimated that the number of people aged 60 and older will exceed 200 million at the end of 2013, which accounts for 14.8% of the total population (China National Committee on Aging [CNCA], 2012). This figure will reach 300 million in 2025; and 400 million in 2033. Accordingly, this demographic change has resulted in unprecedented occurrence of senile dementia. It was reported that the number of elderly with dementia in China reached 5.98 million in 2006, accounting for a quarter of the world senile dementia population (Alzheimer's Disease International [ADI], 2008), and this population will reach 10.2 million in 2020 (CNCA, 2006). A recent study reported that the average dementia prevalence rate reached 4.00% and 6.05% among urban and rural aging population respectively (Jia et al., 2011).

The increasing number of elderly with dementia brings about considerable pressure on the government to tackle the issue of dementia care. Although family care remains the cornerstone of support for people with dementia, empirical studies show that elderly with dementia are heavy consumers of social and health service (ADI, 2008). An international and multidisciplinary expert consensus estimated that the disability weight for dementia was higher than for almost any other health

condition, except spinal-cord injury and terminal cancer (Ferri, et al., 2005). Elderly people with dementia ~~thus become one of are~~ the largest groups in residential care facilities worldwide.

Concerns of residential care quality in China

~~China has been no exception to this phenomenon. In recent years, the demand for residential care has dramatically increased in recent years. Traditionally, family relatives take responsibility for elderly care in China's society as a social norm deeply rooted in a strong familism culture. The Chinese constitution, Criminal Law, Marriage Law, as well as the Law on the Protection of the Rights and Interests of Older People, all set that society and family have a responsibility to take care of their elders. Meanwhile, after China introduced the One Child Policy in late 1970s, family size became smaller. The average family size declined from 4.4 in 1982 to 3.4 in 2000, and then to 3.1 in 2010 (National Bureau of Statistics, 2011). Furthermore, the increasing opportunities for mobility of young families, and for young married women to work, mean that the availability of filial care of frail elderly parents may be limited. According to the statistics of China National Committee on Ageing (CNCA), by the end of 2009, "empty nest" households accounted for more than 50% of the total number of households of the elderly, and the rate could hit 70% in some big cities. In rural areas, the proportion of such families may reach 37% (CNCA, 2009). Another survey showed that 16.1% of urban elderly and 15.2% rural elderly over 60 would like to choose residential care (CNCA, 2007). The major reasons older people seek institutional care were as follows: children unable to provide care (44%); living~~

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4 in homes for the aged is better than at home (39%); and not wishing to cause trouble
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7 to one's children (16%).

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10 Unlike the developed countries, which are well-prepared for aging population in
11 terms of health care and social security system, China has aged quicker than
12 institutions have been built. For nearly 40 years, residential care was solely financed,
13 provided and managed by government, and only open to a small proportion of
14 vulnerable people. It was until the mid-1980s that ~~Since China was founded in 1949,~~
15 ~~the government financed, provided, and managed residential care was only open to~~
16 ~~two groups of people: the "Three No's" (elderly with no legal supporter, no income,~~
17 ~~and no working ability) and disabled veterans or persons who had made contribution~~
18 ~~during the Chinese civil war (Wong & Leung, 2011). This situation remained for~~
19 ~~almost 40 years until the Ministry of Civil Affairs adopted the reform of social~~
20 ~~welfare "socialization" in the mid-1980s, which diversified funding sources from~~
21 ~~government allocation to public donations and individual payments (Wong & Leung,~~
22 ~~2011). In 1998, the government began to allow society-run, non-enterprise units (min~~
23 ~~bian fei qi ye), including enterprise, nongovernmental organizations (NGOs), and~~
24 ~~individuals, to invest in and operate nonprofit-making social welfare units.~~

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50 Due to the increasing demand of residential care and related policy changes,
51 residential care in China has experienced a sharp expanding in last decade. As such,
52 residential care will become the most demanding service for elderly with dementia in
53 China in future.

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60 *Chinese context of residential care*

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4 Compared to western culture, the circumstance of residential care in China has
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6 its own characteristics. Three major features can be identified: (1) acute demand of
7
8 residential care provision; (2) a sharp rise of private residential facilities resulting
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10 from market-driven reforms; (3) limited quality assurance system.
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15 First of all, demand for residential care has dramatically increased in recent years.
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17 Traditionally, family relatives take responsibility for elderly care in China's society as
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19 a social norm deeply rooted in a strong familism culture. The Chinese constitution,
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21 Criminal Law, Marriage Law, as well as the Law on the Protection of the Rights and
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23 Interests of Older People, all set that society and family have a responsibility to take
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25 care of their elders. Meanwhile, after China introduced the One Child Policy in late
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~~provide care (44%); living in homes for the aged is better than at home (39%); and not wishing to cause trouble to one's children (16%).~~

~~Secondly, residential care has experienced a sharp development under the market driven reforms in recent decades, which resulted in a large number of private residential facilities. Unlike the developed countries, which are well prepared for aging population in terms of health care and social security system, China has aged quicker than institutions have been built. Since China was founded in 1949, the government financed, provided, and managed residential care was only open to two groups of people: the "Three No's" (elderly with no legal supporter, no income, and no working ability) and disabled veterans or persons who had made contribution during the Chinese civil war (Wong & Leung, 2011). This situation remained for almost 40 years until the Ministry of Civil Affairs adopted the reform of social welfare "socialization" in the mid 1980s, which diversified funding sources from government allocation to public donations and individual payments (Wong & Leung, 2011). In 1998, the government began to allow society run, non-enterprise units (*min bian fei qi ye*), including enterprise, nongovernmental organizations (NGOs), and individuals, to invest in and operate nonprofit making social welfare units.~~

-As a result, a large number of private residential care facilities have been established, from affordable elderly nursing homes to high-expense elderly mansions. Residential care facilities have doubled ~~more than~~ two times in last 10 years (i.e., 1 million residential beds in 1999 and 2.99 million beds in 2009 [CNCA, 2009]). Moreover, according to the 12th Five Year Plan (2011-2015), residential beds will be

targeted to 30 per 1000 older people. That is to say, the total number of beds will be doubled, with a further increase of over 3 million beds within the next five years (Wong & Leung, 2011).

~~Thirdly~~However, unless there is rapid progress of residential facilities, care quality assurance system varied from place to place and was in general underdeveloped. In China, there are three levels of Civil Affairs Departments (e.g. provincial level; city-level, and district/county-level) in charge of issuing licenses and monitoring services of residential care facilities. ~~However~~Nevertheless, in reality, standards, formulations, and regulations are largely not in place. Even if there are some quality-related regulatory guidelines in big cities, enforcing compliance and monitoring service quality are very difficult (Wong & Leung, 2011). Evaluation standards vary among different regions, due to lack of a nation-wide evaluation system and related assessment tools. Moreover, the private or societal sectors face an uncertain level of government support and rely solely on fees, which further bring down their service quality (Leung, 2010). Concerning dementia care, there is little awareness of dementia and the related diagnosis services.

All of these problems largely exist in the current system, which bring potential risks towards quality of care for residents with dementia. Drawing the experience of developed countries, adopting a scientific approach to improve the care quality is urgently needed. Most of all, a measurement that can be validated and is suitable to the Chinese context is needed immediately.

Person-centered Care Approach

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4 In the last decade, there has been a consensus that person-centered care (PCC)
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6 (Kitwood, 1993) becomes “synonymous with good quality care for dementia patients”
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8 (Price, 2006). This concept was originally generated from Carl R. Rogers’ (1961)
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10 ‘client-centered’ perspective and initially conceptualized by Tom Kitwood as a new
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12 approach to the traditional medical paradigm in dementia care (Kitwood, 1988, 1993;
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14 Kitwood & Bredin, 1992). It is simply defined as “valuing people as individuals” in
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16 delivering health care (Winefield et al., 1996). Brooker (2004) further enriched its
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18 meaning in an equation: $PCC = V + I + P + S$. where V represents valuing a person
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20 with dementia and those who care for them; I means treating people as individuals; P
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22 stands for the perspective of the person with dementia; and S refers to providing a
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24 positive social environment in which the person with dementia can experience relative
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26 well-being.
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36 Previous studies show that caregivers apply the PCC approach to reduce the use
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38 of antipsychotic drugs in people with dementia (Fossey et al., 2006) and to
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40 significantly improve agitation behaviors (Chenoweth et al., 2009). Besides this
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42 clinical evidence, PCC has also been adopted as a key standard in dementia care
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44 management in Australia (Alzheimer's Australia, 2007) and most European
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46 countries(e.g. France, Netherlands, Norway, the United Kingdom, Portugal, and
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48 Czech Republic). Regarding Asian countries, a recent study identified good practice
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50 of PCC in Hong Kong, which included (1) valuing demented older adults and their
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52 caregivers as a stepping stone of practicing PCC; (2) individualized care as a
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54 mechanism of practicing PCC; (3) continuous assessment as a pathway to practicing
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PCC; and (4) nurturing environment as a facilitator in practicing PCC (Zhong & Lou, 2012).

However, having the world's largest population of elderly with dementia, Mainland China has little information on dementia care in its literature (Chiu & Zhang, 2008). Most studies on dementia care have been conducted through the perspective of medicine or psychology (Dong et al., 2007; Levy & Katzman, 1989; M. Zhang, Ji, & Yan, 1997). In particular, application of PCC in Chinese residential care facilities has not been systematically studied. One of the biggest limitations is a lack of an appropriate assessment tool for measuring PCC in a Chinese context.

Measurements of Person-centered care

~~Regarding the recent development of the PCC approach, establishing measurement tools that are clinically valid and reliable, and culturally sensitive has been promoted in previous researches. To date, there are eight major measurement tools developed to assess PCC in long-term aging and dementia care (Edvardsson & Innes, 2010). They are: (1) Dementia Care Mapping (DCM8) 8th edition (Brooker & Surr, 2005); (2-4) Measures of Individual Care (IC) (Chappell, Reid, & Gish, 2007), which includes three tools; (5-6) Two measurements of family involvement in the care of a relative with dementia (FIC) (Reid, Chappell, & Gish, 2007); (7) The Person Direct Care Measure (PDC) (White, Newton-Curtis, & Lyons, 2008); and (8) Person-centered Care Assessment Tools (P-CAT) (Edvardsson, et al., 2010). There is a need to validate a PCC measure in Chinese context considering the huge demands of dementia care and special features of residential care development in China.~~

Concerning validating a PCC measurement in the Chinese context, two important issues should be taken into consideration. On one hand, this potential PCC measurement should be targeted on organizational performance rather than individual performance, because the purpose of this study is to assess the PCC provision of a residential facility. In this case, IC and FIC are not suitable. The reason lies in that the three tools of IC aim to evaluate staff perception about individual care in long-term aged care settings. Meanwhile, two FIC tools focus on the family involvement in the care of a relative with dementia. Both focus on the individual rather than the organizational perspective.

In contrast, the potential PCC measurement should be feasible in administration, daily practice, and related research. DCM8 is the only dementia specific tool that aims to rate well-being and ill-being status of residents with dementia. It should be conducted by a qualified observer who must be trained in a four-day intensive course. Obviously, qualified assessors are not available in China. Increasingly, the time-consuming and related costs bring considerable constraints to large studies. So does PDC. It aims to ask staff to rate the extent of the care provided that is person-directed in a long-term aged care setting. Participants need to be well-trained to understand the two subscales: person-directed care and person-directed environment.

As a result, P-CAT is the most favorable tool to adopt into the Chinese context. It is a caregiver-based self-report assessment scale, which measures the extent long-term aged care staff rate their settings to be person-centered. It contains 13 items, which cover three sub-scales: (1) the extent of personalizing care; (2) amount of

organizational support; and (3) degree of environmental accessibility (Edvardsson, et al., 2010). The language of the tool is simple and direct, which is easier to understand and apply to the primary development stage of residential care in China. To date, it was validated and used in Swedish, Norwegian, English, Dutch, and Portuguese language.

Methodology

The purpose of this study is to validate a PCC measurement in a Chinese context.

This study employed methods of scale validation, which include two major phases: cultural adaptation and scale validation.

Phase I: Cultural adaptation

To validate a Chinese version of PCC measurement-CAT, “Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measure” (Beaton, Bombardier, Guillemin, & Ferraz, 2000) were as used as a guiding principles through the whole process. Two three main stages were conducted before psychometric evaluation.

Stage I: Choosing a potential measurement tool

To date, there are eight major measurement tools developed to assess PCC in long-term aging and dementia care (Edvardsson & Innes, 2010). They are: (1) Dementia Care Mapping (DCM8) 8th edition (Brooker & Surr, 2005); (2-4) Measures of Individual Care (IC) (Chappell, Reid, & Gish, 2007), which includes three tools; (5-6) Two measurements of family involvement in the care of a relative with dementia (FIC) (Reid, Chappell, & Gish, 2007); (7) The Person-Direct Care Measure (PDC)(White, Newton-Curtis, & Lyons, 2008); and (8) Person-centered Care

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Stage ~~1~~²: Translation and back translation

The ~~first~~-Second stage included three steps. First, two bilingual university graduates with different backgrounds were invited to translate P-CAT into Chinese independently. Translator 1 is a PhD student majoring in elderly care who was aware of the concept of PCC for elderly with dementia; while Translator 2 is an undergraduate student, who was not informed of this concept. The translators each produced a written report of the translation. Additional comments were made to highlight challenging phrases or uncertainties.

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4 The second step was the synthesis of the translations. The two translators
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6 discussed the original questionnaire as well as two versions of translation with the
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8 researcher of this study (T1 & T2). One common translation (T-12) was worked out
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10 through a thorough analysis.
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14 The next step followed back-translation. A third translator was invited to
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16 translate the T-12 version back into the English. The Chinese version was modified
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18 according to the comparison between the back-translated version and the original
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20 English version. Translation accuracy was adjusted through the process of back-
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22 translation.
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28 Stage 23: Expert panel review
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31 The resulting English and Chinese version T-12a was then administrated to a
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33 seven-member expert panel. Four Hong Kong experts included (1) an experienced
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35 occupational therapist; (2) a superintendent of an elderly home; (3) a professor who
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37 specialized in gerontological nursing; and (4) a psychologist who specialized in
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39 elderly with dementia. Two of the three Mainland experts were full-time academic
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41 researchers of China Research Center on Aging, specialized in statistics and long-term
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43 care policy respectively. The third Mainland expert was a superintendent of an elderly
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45 care home in Xi'an city. Except for the last one, all had adequate proficiency in
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47 English and Chinese.
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55 All Hong Kong experts were interviewed. The Mainland experts were contacted
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57 by phone and email. Suggestions that were made by more than one expert were
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59 incorporated into a revision of the tool. Finally, all 13 items were modified, and 11
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items were added. The revised 24-item P-CAT-C (Chinese version) was sent to panel again. Any discrepancies were resolved during this process.

Phase 2: Scale validation

Subjects

The sampling method of this study was a population method. A structured questionnaire was distributed to all 34 residential care facilities in 6 districts of urban Xi'an, a representative city in north-western China. The full-time employees who worked on the day of data collection were considered eligible for participation. A total of 458 questionnaires were distributed and 345 were received, with a success rate of 75.3%.

Instruments

P-CAT-C contained 24-items. A 5-point Likert-type scale was used for scoring purposes (1 = strongly disagree; 5 = strongly agree). The score range is from 24 to 120. Higher score represented a higher degree of PCC provision in the respective nursing homes.

Chinese versions of Staff-Based Measures of Individualized Care for Institutionalized Persons with Dementia (IC) and Caregiver Psychological Elder Abuse Behavior Scale (CPEAB) were used to test the criteria related validity. The IC measures included 4 sub-scales, which were IC-KNOW, IC-AUTONOMY, IC-COMMUNICATION-SS, and IC-COMMUNICATION-SR. The 6-item IC-KNOW scale captured the care staff's perception of their knowledge of the residents. The scale range is from 6 to 24 (1= strongly disagree, 4=strongly agree). The 8-item IC-

AUTONOMY scale referred to the general institutional environment. Possible scores ranged from 8 to 40 (1= very frequently, 2=frequently, 3=occasionally, 4=seldom, 5=never). The 5-item (short version) IC-COMMUNICATION-SS scale reflected communication with other staff and supervisors and produced scores from 5 to 20 (1=never, 2=sometimes, 3=often, 4=always). The 3-item IC-COMMUNICATION-SR scale referred to communication between staff and residents. Possible scores ranged from 3 to 12 (1=never, 2=sometimes, 3=often, 4=always).

CPEAB was developed in Chinese, containing 20 items (Hsu, 2006). Each item was rated on a 4-point Likert-type scale ranging from “1=never behave this way” to “4=often behave this way”. The total potential scores ranged from 20 to 80. A score greater than 20 indicates at least one abusive behavior was present with higher scores indicating a higher tendency toward abusive behavior.

Procedure

The superintendents in each residential care facility helped to hold a staff meeting where the researchers explained the current research project and sent the consent form and questionnaires to the staff. The researchers also reached to those care workers who could not leave their position to conduct the survey. Adequate time was provided for the subjects to complete the questionnaire. In all, 345 surveys were obtained. Due to 20% or more of the questions not being answered on many surveys, 15 observations were dropped, and finally 330 observations remained for statistic analysis.

Results

Demographic Characteristics

The sample (n=330) consisted mostly of women (79.4%), with more than half of them aged 40-59 (40-49, 34.2%; 50-59, 31.5%). The education of participants ranged from illiteracy (6.1%); under 6 years (20%); 7-9 years (34.2%); 10-12 years (20.3%), and 13 and above (16.7%). Participants had the following occupations: personal care workers (68.5%); doctors (3%); enrolled nurses (8.2%); social workers (1.5%); logistics (7.3%); administration (6.4%). Most of the participants were farmers (58.2%) and workers (13.7%) before they were involved in aged care occupations.

Item analysis and reduction

Confirmatory Factor Analysis (CFA) was conducted by using Mplus6.1 (Muthen & Muthen, 2010) among 330 observations. A three-factor, 15-item solution provided adequate fit indices to the data ($\chi^2 = 145.691$, $df = 81$, $p < .001$, $CFI = 0.926$, $TLI = 0.905$; $RMSEA = .050$). The three factors are named as (1) extent of individualized care (P-CAT-C1, 6 items); (2) amount of organizational support (P-CAT-C2, 6 items); (3) degree of environment accessibility (P-CAT-C3, 3 items) (e.g. Table 1). All factor loadings are higher than 0.4 (except for the loading of item 13, which is 0.399 and, which is very close to 0.4) and related to their respective constructs, indicating the unidimensionality and convergent validity of each factor. Two original items (7 and 12) were deleted due to the low value of factor loading (both less than 0.3).

Reliability

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4 The internal consistency coefficient (Cronbach's α) is satisfactory for the total
5 scale (0.68), and for the first two subscales (P-CAT-C1 0.69, and P-CAT-C2 0.76).
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7 The third subscale P-CAT-C3 shows an α value of only 0.43. This value is interpreted
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9 as reflecting a smaller amount of variances among the respondents and is also a result
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11 of having merely three items constituting the factor.
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17 **Validity**

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19 The inter-scale correlation between P-CAT-C and IC, P-CAT-C and CPEAB
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21 shows good criteria-related validity (e.g. Table 2). Furthermore, the three sub-scales
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23 of P-CAT-C and 4 sub-scales of IC and CPEAB show good criteria-related validity
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25 (e.g. Table 3). The content validity of the scale is regarded as satisfactory by experts,
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27 as the scale is deemed to contain items reflecting the dimension described in the
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29 literature as central aspects of person-centeredness. The culture adaptation was taken
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31 into consideration through the adding item procedures. In conclusion, estimates of
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33 content and construct validity for the P-CAT-C indicates satisfactory psychometric
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35 properties of the scale.
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44 **Discussion**

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46 The aim of this study was to validate a Chinese version of the Person-centered
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48 Care Assessment Tool. The tool is primarily intended to measure the presence of PCC
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50 in residential care facilities as reported by staff. The overall result of this study
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52 provides support for the psychometric properties of the scale when used in a Xi'an
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54 sample of long-term aged care staff (n=330).
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4 First of all, the 15-item P-CAT-C recognized the three components of the
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6 original scale. They are (1) “extent of individualized care”; (2) “amount of
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8 organizational support”; (3) “degree of environmental accessibility”. As such, the
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10 dimensionality of the reconstructed Chinese version reflects the conceptualization of
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12 PCC. For example, according to VIPS equation (Brooker, 2004), the factors of V, I,
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14 and P are captured by P-CAT-C1. Item 5 represents the basic idea of valuing
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16 residents with dementia; items 1, 2, and 6 emphasize providing individualized care;
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18 and item 3 and 4 show how to understand elderly with dementia. P-CAT-C2 presents
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20 the factors of I (item 8/9/10) and S (item 7/11/12). Item 11 shows that the organization
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22 emphasizes a homelike environment. Item 12 illustrates that keeping close contact
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24 with a resident’s family is another important aspect in building an active and
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26 supportive environment for residents. Moreover, the elements of S and V are further
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28 emphasized in P-CAT-C3. Item 13 and 15 emphasize the environment safety. Item 14
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30 stresses that residents’ autonomy is respected.
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42 Second, P-CAT-C has well-adjusted culture differences during the validation
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44 process. Both the original deleted items and four newly developed items reflect the
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46 real practice in Chinese residential care facilities. For example, the original item 7 is
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48 about assessing residents’ needs on a daily basis. However, it is an impossible task in
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50 most Chinese residential care facilities, due to a lack of professionals and related
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52 assessment tools. Thus, this item was excluded. Original Item 12 said “it is hard for
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54 residents in this facility to find their way around.” It was further clarified by two new
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56 items, 13 and 15, which stress “barrier-free facilities” and “environment safety.” The
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4 reason lies in that they are the basic construction requirements for residential care
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6 facilities in China.
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10 Moreover, the new item 9 reflects the current task-oriented situation in most
11 residential care facilities in China. Due to the under-developed administration level,
12 finishing tasks has been recognized as the easiest way to serve clients and monitor
13 employees. The new item 12 provided a “regular response system towards residents’
14 and their family members’ complain.” Residents’ families normally have close
15 contact with care units. Especially, when the care quality is disputed, dealing with
16 complaints from residents’ families is common.
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28 FinallyThird, P-CAT-C contributes to existing literature by further explicating
29 what aspects organizations should emphasize in realizing PCC. Staff agreement
30 towards PCC has been seen in P-CAT-C1. This reflects staff attitudes and
31 organization culture, which deeply influences the extent of PCC can be realized.
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33 Moreover, relationship with residents’ families has been identified in P-CAT-C2,
34 which enriches the understanding of PCC. The reason lies in that providing PCC
35 requires a joint effort from formal caregivers and informal caregivers.
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47 Finally, this study also provided some interesting findings about the correlation
48 between employees’ age/education and employee’s P-CAT-C results. On the one
49 hand, for example, employees’ age has a significantly negative correlation with
50 subscale P-CAT-C2 “amount of organizational support” ($r=-0.196$; $p<0.001$). On the
51 other hand, employee’s education has a significantly positive correlation with
52 employee’s P-CAT-C score ($r=0.178$; $p<0.01$) and the subscale P-CAT-C2 “amount
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of organizational support” ($r=0.314$; $p<0.001$). Future studies may explore more possible relationships between employees’ other demographic characteristics and the P-CAT-C results.

However, this study has limitations as well. The factor loading of item 13 is 0.399, which failed to reach the cut-point of 0.40, though it is very close. Moreover, the internal consistency value of the P-CAT-C3 is only 0.43, which is comparatively low. However, this result was in line with the counterpart of original scale. And the overall α value of P-CAT-C is satisfactory. Last but not least, the present study conducted in one city area that locates in the mid-west of China. Future study in rural areas and other urban cities are recommended.

Conclusion

The 15-item P-CAT-C is a culturally adapted version of the original P-CAT, which showed satisfactory reliability and validity for evaluating PCC in Chinese residential care facilities. It makes an exploration of person-centeredness in relation to health outcomes, organization models, characteristics and levels of staffing, degree of care needs among residents, and impact of interventions possible. Moreover, this tool could also provide insight to other developing regions share similar development features in residential care. In conclusion, not only does this study fill a research gap, it also builds a solid foundation for further exploring on care quality for demented adults and the relationship of organizational support, individualized care, and environmental accessibility for developing countries.

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Tables attached to Manuscript ID CAMH 2012-0323

Table 1 CFA Results of P-CAT-C

Items	Item content	P-CAT-C1	P-CAT-C2	P-CAT-C3
1	We often discuss how to give person-centered care.	.500		
2	We have formal team meetings to discuss residents' care.	.523		
3	The life history of the residents is formally used in the care plans we use	.666		
4	The quality of the interactions between staff and residents is more important than getting the tasks done.	.473		
5	We are free to alter work routines based on residents' preferences	.460		
6	Residents are offered the opportunities to be involved in individualized everyday activities.	.443		
7	The environment feels chaotic.		.459	
8	This organization prevents me from providing person-centered care.		.617	
9	We are busy to finish the work tasks and follow the rules, and can't provide any personal service.		.729	
10	I simply do not have time to provide person-centered care.		.689	
11	We have to get the work done before we can worry about a homelike environment.		.557	
12	There is no regular response system towards residents' and their family members' complain.		.454	
13	There are enough barrier-free facilities which enable residents move around freely.			.399
14	Residents are able to access outside space as they wish.			.510
15	The environment and facilities are safety for the residents.			.458
<i>Cronbach's α</i>		0.694	0.764	0.434

Notes: P-CAT-C=person-centered care assessment tool Chinese version; P-CAT-C1= extent of individualized care; P-CAT-C2= amount of organizational support; P-CAT-C3=degree of environmental accessibility;

Tables attached to Manuscript ID CAMH 2012-0323

Table 2 Mean, Std. Deviation and Correlation among P-CAT-C, IC and CPEAB

Variables	Mean	Std. Deviation	P-CAT-C	IC
P-CAT-C	4.092	0.421		
IC	3.422	0.347	0.420**	
CPEAB	1.210	0.219	-0.103	-0.157**

Notes: P-CAT-C=person-centered care assessment tool Chinese version; IC=Chinese version of Staff-Based Measures of Individualized Care for Institutionalized Persons with Dementia;

CPEAB= Caregiver Psychological Elder Abuse Behavior Scale.

** $P < .01$, * $p < .05$ (2-tailed)

Tables attached to Manuscript ID CAMH 2012-0323

Table 3 Mean, Std. Deviation and Correlation among Subscales of P-CAT-C, IC and CPEAB

Variables	Mean	Std. Deviation	P-CAT-C1	P-CAT-C2	P-CAT-C3	IC-1	IC-2	IC-3	IC-4
P-CAT-C1	4.332	0.484							
P-CAT-C2	3.755	0.800	0.043						
P-CAT-C3	4.286	0.630	0.230**	0.065					
IC-1	3.710	0.392	0.201**	0.422**	0.125*				
IC-2	3.577	0.471	0.165**	0.031	0.007	0.034			
IC-3	3.035	0.595	0.176**	0.347**	0.014	0.344**	0.234**		
IC-4	3.081	0.672	0.218**	0.309**	0.089	0.434**	0.241**	0.603**	
CPEAB	1.210	0.219	-0.021	-0.130*	0.018	-0.252**	0.067	-0.158**	-0.194**

Notes: P-CAT-C1= extent of individualized care; P-CAT-C2= amount of organizational support; P-CAT-C3=degree of environmental accessibility; IC-1=IC-Known; IC-2=IC-Autonomy; IC-3=IC-Communication-staff; IC-4=IC-Communication-staff and residents; CPEAB= Caregiver Psychological Elder Abuse Behavior Scale.

** $P < .01$, * $p < .05$ (2-tailed)