

# Transcultural Adaptation and Psychometric Evaluation of the Chinese Version of the Family Caregiver ICU Delirium Knowledge Questionnaire

Weihua Xue<sup>1</sup>, Shunling Li<sup>1</sup>, Juying Yuan<sup>1</sup>, Surui Liang<sup>2</sup>

<sup>1</sup>Department of Critical Care Medicine, The First Affiliated Hospital of Sun Yat-sen University, Guangzhou, China

<sup>2</sup>Shenzhen Hospital of Southern Medical University, Shenzhen, China

Email: xuewh@mail.sysu.edu.cn, liangsr5@mail2.sysu.edu.cn

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## Abstract

**Objective:** To test the reliability and validity of the Chinese version of the family caregiver ICU delirium knowledge questionnaire (C-CIDKQ) in mainland China. **Methods:** The Brislin translation model was used for standard translation and back-translation; cross-cultural adjustment of the translated scale was carried out through expert group discussion, communication with the original author and pre-investigation; convenience sampling method was used to study 214 family caregivers of ICU patients in a tertiary first-class general university hospital in Guangzhou city in southern China. **Results:** C-CIDKQ included three dimensions and 21 items: risk factor dimension (10 items), action dimension (6 items), and symptom dimension (5 items). The Cronbach's alpha coefficients of the three dimensions of risk factor dimension, action dimension and symptom dimension were 0.713, 0.213 and 0.839, respectively, and the internal consistency reliability of the total scale was 0.777. **Conclusion:** C-CIDKQ has good reliability and validity and can be used as an ICU delirium knowledge evaluation tool for family caregivers of ICU patients in China. If the items of the action dimension are appropriately modified, the reliability and validity of the scale can be further improved.

## Keywords

Intensive Care Unit, Family Caregiver, Caregiver ICU Delirium Knowledge Questionnaire

## 1. Introduction

Delirium is an acute cognitive dysfunction syndrome characterized by acute

changes or repeated fluctuations in the level of consciousness, inattention, disturbance of thinking and confusion; its occurrence and development result from systemic diseases and abnormal brain function (First, 2013; Bo et al., 2019). According to reports, ICU delirium is 9.2% - 91% (Stollings et al., 2021; Slooter, Van De Leur, & Zaal, 2017). ICU delirium will increase the incidence of in-hospital complications, prolong ICU and total hospitalization time, increase hospitalization costs and mortality, and have long-term effects on patients. Decreased cognitive function, increased risk of dementia, decreased ability of daily living, increased readmission rate and long-term mortality, etc., seriously affect the prognosis of patients (Ko et al., 2022; Fiest et al., 2021; Salluh et al., 2015; Vasilevskis et al., 2018).

Studies have shown that family caregivers' participation in the prevention and control of patient delirium can reduce the incidence of delirium, reduce ICU stay and mechanical ventilation time, improve physical and cognitive functions at and after discharge, and improve family caregiver satisfaction (Smithburger, Korenoski, Alexander, & Kane-Gill, 2017; Liang, Chau, Lo, Zhao, & Choi, 2021; McKenzie & Joy, 2020). Most family caregivers are willing to participate in activities to prevent and control patients' delirium. Delirium assessment is very important for the prevention and control of delirium. Some studies have pointed out that family members, as long-term companions of patients, can judge the patient's baseline mental state and identify the patient's awareness and behaviour changes play an essential role. Family caregiver-centred delirium assessment tools improve delirium detection and associated patient outcomes (Krewulak et al., 2019, Rosgen et al., 2018). Delirium assessment and prevention require family caregivers to master delirium-related knowledge, so the assessment and improvement of delirium-related knowledge of family caregivers can effectively implement prevention and control measures and reduce the incidence of delirium. Furthermore, improve the psychological feelings of patients and their families (Jung, Park, Kim, & Ra 2021; BullBoaz & Jerme, 2016).

We searched domestic CNKI, Wan-fang and VIP databases, PubMed, Google, MEDLINE, Web of Science and other platforms. The keywords "delirium", "family/family caregiver", and "knowledge/cognition" found that there is currently no study about family members who participated in a study related to the ICU delirium knowledge survey in mainland China (Lao et al., 2019), in order to effectively understand the family caregivers' knowledge of ICU delirium of patients in China. Moreover, to facilitate targeted education to improve the early identification and intervention of ICU delirium, it is urgent to develop a Chinese version of the ICU Delirium Knowledge Scale for Family Caregivers. In this study, Karla D. Krewula's Caregiver ICU Delirium Knowledge Questionnaire was a transcultural adaptation. It is tested for reliability and validity to promote the research on ICU delirium knowledge among family caregivers in China (Krewulak, Bull, Ely, Stelfox, & Fiest, 2020). This research has been authorized by Karla D. Krewulak, the original author of CIDKQ.

## 2. Method

### 2.1. Sinicization Scale

#### 2.1.1. Caregiver ICU Delirium Knowledge Questionnaire (CIDKQ)

Caregiver ICU Delirium Knowledge Questionnaire (CIDKQ) for family caregivers of ICU patients (Krewulak, Bull, Ely, Stelfox, & Fiest, 2020). Referring to a valid “family caregiver delirium knowledge questionnaire (CDKQ)” (Bull, Avery, Boaz, & Oswald, 2015), Karla D. Krewulak’s team created the CIDKQ based on the particularities of ICU patients and their family caregivers. The CIDKQ has 21 items, and three dimensions include risk factors (items 1 - 10), actions (items 11 - 16), and symptoms (items 17 - 21), with YES/NO answers and correct answers counting as 1. A wrong answer (including “do not know”) is counted as 0. The Cronbach’s alpha coefficient of the scale was 0.79, and the Cronbach’s alpha coefficients of the three dimensions, including risk factors, actions and symptoms, were 0.77, 0.43 and 0.57, respectively. The scale measures family caregivers’ cognition of delirium knowledge by calculating the total score. The higher the total score, the better the cognition.

#### 2.1.2. Translation and Cultural Debugging

Two master nurses translated the original scale into Chinese, and another doctoral nurse analyzed and compared the scale to form the first draft of the translation. Invite 1 English-major graduate student and 1 English-major doctoral student who has not been exposed to the original scale to back-translate the first draft of the translation, compare and analyze it with the original scale, and further discuss and revise the differences. Then, three clinical nursing experts and two nursing management experts are invited to review and adjust the translation manuscript. If there is any adjustment, communicate with the original author and finalize the manuscript after reaching an agreement.

Combined with expert advice, change item 1 from “older patients” to “older patients (relatively younger patients)”. Item 11 “Adapt the patient to the time and date, and bring home photos” to “Guide the patient to adapt to the normal time and day and night rhythm, and bring photos from home to assist memory”, which is in line with our language and cultural understanding. Confirmed the translation accuracy of “in the evening”, “tracheal intubation”, and “starting to use new drugs” with the original author and formed the Chinese version of CIDKQ (C-CIDKQ).

#### 2.1.3. Expert Consultation

Four chief nurses, two deputy chief nurses, and a total of 6 experts were invited to evaluate each item’s clarity, content accuracy and importance on the scale. Content rating scale, using four grades of “1 = strongly agree, 2 = agree, 3 = disagree and 4 = strongly disagree”, according to the CVI score, combined with expert opinions, the C-CIDKQ was revised.

#### 2.1.4. Pre-Testing

Pre-testing is required to ensure family caregivers understand the entries, op-

tions, and the form filling process. Through the convenience sampling method, 5 to 6 cases were selected from the general ICU, internal medicine ICU, neurological ICU, and extracardiac ICU in a tertiary first-class general hospital in Guangzhou, and a total of 27 cases of family caregivers of ICU patients were pre-investigated. The target population takes 3 - 6 minutes to fill in the form, reflecting the convenience of the scale. The family caregivers who participated in the pre-investigation reflected that they did not know much about delirium. However, the specific content of the items was clearly expressed and easy to understand. Therefore, the definition and common manifestations of delirium were added to the preface of the scale, which was helpful for the family caregivers to understand. In the pre-survey, it was increased the workload of data entry and the probability of wrong entry by the paper version. Considering the patient's family members have mobile phones, the electronic version (QR code) was changed, and the patient's family caregivers expressed that they could accept the electronic version. During the pre-investigation process, some family caregivers said they hoped to obtain more knowledge about delirium prevention and control. Therefore, this study produced the content of delirium prevention and control knowledge education, also in the form of an electronic version. After the improvement, the family caregivers indicated that the scale was applicable.

## 2.2. Reliability and Validity Test of the Scale

### 2.2.1. Research Objects

The convenience sampling method selected family caregivers of ICU patients in a tertiary A-level general hospital in Guangzhou from June to August 2020. According to the requirements of factor analysis, the number of items in CIDKQ is 21, and the sample size is 5 to 10 times the number of items. A total of 214 cases were collected in this study. Inclusion criteria: 1) adults  $\geq 18$  years old; 2) informed consent to participate in this study; 3) able to communicate generally through writing or language. Exclusion criteria: 1) Refused to participate in the scaling survey; 2) Unable to communicate normally through writing or language. Among them, there were 80 family caregivers (37.4%) of surgical ICU patients, 54 family caregivers (25.2%) of cardiothoracic ICU patients, 48 family caregivers (22.4%) of medical ICU patients, 22 family caregivers (10.3%) of neurosurgery ICU patients, and 10 of neurology ICU patients (4.7%) (Table 1).

### 2.2.2. Data Collection

This study has no risk to the subjects and has obtained the approval of the subject's informed consent form from the medical ethics committee of the hospital where the subject is located. In this study, a nurse as the investigator, after being trained by the researcher, provided the QR code of the scale to the family caregivers and explained the purpose and significance of the survey using unified guidelines. A total of 220 scales were distributed, and 220 were backed, including 214 effective scales, with an effective recovery rate of 97.3%. Elimination criteria for invalid scales: the responses of the entire scale are wavy or straight.

**Table 1.** General information of the research subjects (n = 214).

Contents	Number of cases (%)
<b>Family caregiver-patient relationship</b>	
Parent and child	98 (45.8%)
Couple	68 (31.8%)
Mother-in-law and son-in-law	17 (7.9%)
Brothers and sisters	14 (6.5%)
Relatives	8 (3.7%)
Grandchildren	6 (2.8%)
<b>Education level</b>	
Primary school	11 (5.1%)
Junior high school	54 (25.2%)
High school/secondary school	48 (22.4%)
College	49 (22.9%)
Undergraduate	46 (21.5%)
Graduate and above	6 (2.8%)
<b>Gender</b>	
Male	101 (47.2%)
Female	113 (52.8%)
Time to fill in the scale (seconds): $x \pm s$ (range)	267.6 $\pm$ 118.67 (97 - 605)
Age (years): $x \pm s$ (range)	38.73 $\pm$ 12.23 (18 - 80)
Scale score (0 - 21 points): $x \pm s$ (range)	15.0 $\pm$ 3.7 (6 - 20)

### 2.2.3. Statistical Methods

Each questionnaire was reviewed by two people, screened according to the standard, and checked for consistency. SPSS 19.0 software was used for data analysis, Pearson correlation coefficient analysis was used for validity, and Cronbach's  $\alpha$  analysis was used for reliability.

## 3. Results

### 3.1. Validity of the Scale

#### 3.1.1. Content Validity

Six clinical nursing experts were invited to evaluate the scale. The inclusion criteria of clinical nursing experts were: intermediate or above professional title; bachelor's degree or above; more than ten years of service. The relevance of each item to its associated dimension was rated (0.25 = not relevant, 0.50 = weakly relevant, 0.75 = strongly relevant, 1 = very relevant). The content validity index of all items is between 0.56-1; the content validity index of risk, action, and symptom dimensions with total scale are 0.87, 0.79, 0.93 and 0.86, respectively (**Table 2**, expert content validity evaluation).

**Table 2.** Scale results (n = 214).

item content	correct answer	Number of correct answers n (%)	Expert Content Validity Assessment
Risk factor dimension: Which of the following patients do you think may be at risk for delirium?			0.866
1 Older patients (compared to younger patients)	yes	199 (92.99)	0.94
2 Married patients (compared to unmarried)	no	85 (39.72)	0.78
3 patients with dementia	yes	154 (71.96)	0.94
4 infected patients	yes	184 (85.98)	0.94
5 Patients with an above high school degree	no	162 (75.70)	0.72
6 Patients who have recently undergone surgery	yes	187 (87.38)	0.86
7 Patients who experience dehydration (lack of water)	yes	169 (78.97)	0.89
8 Patients with changes in their surroundings, such as hospital admissions or transfers	yes	166 (77.57)	0.92
9 Patients receiving mechanical ventilation or endotracheal intubation	yes	185 (86.45)	1.00
10 Patients starting a new drug	yes	161 (75.23)	0.67
Action Dimension: What would you do if your family members (patients) suddenly showed signs of mental confusion?			0.787
11 Guide patients to adapt to normal time, day and night rhythms, and bring photos from home to aid their memory.	yes	201 (93.93)	0.97
12 Wait 24 hours to see if the patient gets better	no	55 (25.70)	0.58
13 Let the patient sleep during the day to facilitate his recovery.	no	91 (42.52)	0.67
14 do nothing	no	204 (95.33)	0.56
15 Immediately notify the bed nurse or other medical staff	yes	210 (98.13)	0.97
16 Ask the healthcare provider if the patient's medication has changed	yes	206 (96.26)	0.97
Symptom dimension: Which of the following descriptions do you think may have developed delirium?			0.934
17 Confusion progresses over several months, becoming forgetful, having difficulty concentrating, and becoming more confused by the evening of the day	no	50 (23.36)	0.89
18 The patient gradually became more confused over several months, became forgetful, had difficulty concentrating, and saw things that were not there in the evening of the day	no	63 (29.44)	0.94
19 The patient suddenly becomes confused within days or hours. During the day, the state of mental confusion comes and goes, difficulty concentrating, seeing things that are not there	yes	166 (77.57)	1.00
20 Sudden confusion within days or hours, difficulty concentrating and increased daytime sleepiness	yes	163 (76.17)	0.92
21 The patient becomes more confused within a few days and suddenly cannot go to the toilet in time (uncontrollable bowel movements)	yes	159 (74.30)	0.92

### 3.1.2. Internal Correlation

The Pearson correlation coefficient analysis method was used between each dimension and between the dimension and the total scale, and it was concluded

that the correlation between each dimension and the total scale was statistically significant. The correlation coefficients of action, judgment, risk dimensions and the total scale were 0.36, 0.789, and 0.866, respectively (Table 3), and the correlation between each item and the total scale score (Table 4).

### 3.2. The Reliability of the Scale

The internal consistency reliability of Cronbach's alpha of the C-CIDKQ scale was 0.777, indicating that C-CIDKQ has good reliability. The Cronbach's alpha of the risk dimension, action dimension and symptom dimension were 0.713, 0.213 and 0.839, respectively. Examining the Cronbach's alpha for each item showed that the overall Cronbach's alpha did not change if any item was removed from the C-CIDKQ (Table 4).

## 4. Discussion

### 4.1. Validity Analysis of the Scale

Six clinical nursing experts consulted the scale, and the content validity index of each item was between 0.56 and 1. The average content validity index of risk factors, actions, symptoms and the total scale were 0.87, 0.79, 0.93 and 0.86, respectively. The higher the content validity index, the better the scale validity. The content validity index should not be lower than 0.78 (Shi et al., 2012), but this scale has four items below this standard. The content validity index of item 10, "patients starting new drugs", is 0.67. Experts thought that it is necessary to state whether the new drugs are delirium-related, so we discussed with the questionnaire creator Karla D. Krewulak, who said that this item is about Medication changes are reflected as an active dialogue between the family and the medical team. Items 12-14 "Wait 24 hours to see if the patient improves", "Let the patient sleep during the day to promote recovery", and "Do nothing" are 0.58, 0.67, and 0.56, respectively. Experts thought that the three items express similar meanings. The content of item 14 is too straightforward. Considering that there is no better replacement item and want to compare with the research results of Karla D. Krewulak, the item's content has not been changed. The content validity of each dimension and the total scale is >0.78, indicating that the

**Table 3.** Correlation of each dimension and total scale.

Dimension	Risk factor	Action	Symptom	Total scale
Risk factor	R	0.130	0.466**	0.866**
	P	0.029	0.000	0.000
Action	R		0.072	0.360**
	P		0.292	0.000
Symptom	R			0.789**
	P			0.000

Remarks: \*\*At the 0.01 level (two-tailed), the correlation is significant.

**Table 4.** The internal validity after excluding each item and the correlation between each item and the scale.

item content	Cronbach's alpha of the scale after excluding item	Item-Scale Correlations
1 Older patients (compared to younger patients)	0.783	0.171
2 Married patients (compared to unmarried)	0.786	0.260
3 Patients with dementia	0.762	0.521
4 Infected patients	0.754	0.630
5 Patients with an above high school degree	0.780	0.283
6 Patients who have recently undergone surgery	0.758	0.585
7 Patients who experience dehydration (lack of water)	0.755	0.601
8 Patients with changes in their surroundings, such as hospital admissions or transfers	0.758	0.562
9 Patients receiving mechanical ventilation or endotracheal intubation	0.761	0.539
10 Patients starting a new drug	0.761	0.530
11 Guide patients to adapt to normal time, day and night rhythms, and bring photos from home to aid their memory.	0.770	0.382
12 Wait 24 hours to see if the patient gets better	0.787	0.188
13 Let the patient sleep during the day to facilitate his recovery.	0.797	0.111
14 Do nothing	0.782	0.064
15 Immediately notify the bed nurse or other medical staff	0.776	0.227
16 Ask the healthcare provider if the patient's medication has changed	0.777	0.174
17 Confusion progresses over several months, becoming forgetful, having difficulty concentrating, and becoming more confused by the evening of the day	0.759	0.560
18 The patient gradually became more confused over several months, became forgetful, had difficulty concentrating, and saw things that were not there in the evening of the day	0.751	0.643
19 The patient suddenly becomes confused within days or hours. During the day, the state of mental confusion comes and goes, difficulty concentrating, seeing things that are not there	0.754	0.614
20 Sudden confusion within days or hours, difficulty concentrating and increased daytime sleepiness	0.754	0.614
21 The patient becomes more confused within a few days and suddenly cannot go to the toilet in time (uncontrollable bowel movements)	0.751	0.648

scale has good content validity.

Through the analysis of the correlation between each dimension and between the dimension and the total scale, it was found that the correlation between the three dimensions and the total scale was statistically significant ( $P < 0.01$ ). The correlation coefficients of the scales are 0.87, 0.36, and 0.79, respectively, and the corresponding correlation coefficients of the CIDKQ (Krewulak, Bull, Ely, Stelfox, & Fiest, 2020) are 0.89, 0.67, and 0.72, respectively. It can be seen that the



internal correlation (0.36) of the action dimension in this study is lower than that of the CIDKQ (0.67). It is also the lowest among the three dimensions, indicating that the correlation between the action dimension and the scale in the C-CIDKQ is average. Especially the correlation coefficients between items 12 - 16 in the action dimension and the scale are 0.06 - 0.23, indicating that the correlation is weak, indicating that the items in the action dimension need to be adjusted appropriately for content and entries. The correlation coefficient between the three dimensions is 0.07 - 0.47, and the risk and symptom dimensions are statistically significant ( $P < 0.01$ ). In contrast, the action dimension with risk and symptom dimensions are not statistically significant ( $P > 0.01$ ), indicating that the action dimension is weakly correlated with the other two dimensions. The correlation coefficient between each dimension and the total scale is higher than the correlation coefficient between each dimension, indicating that each dimension is consistent with the overall concept and has relative independence.

#### 4.2. Reliability Analysis of the Scale

The Cronbach's alpha of the C-CIDKQ total scale was 0.777, which was similar to the CIDKQ (0.77), indicating that the C-CIDKQ also had good reliability. Cronbach's alpha comparison of each dimension: The C-CIDKQ risk dimension (0.71) was consistent with the CIDKQ (0.77), and the C-CIDKQ of the symptom dimension (0.84) showed higher internal consistency than the CIDKQ (0.57). In comparison, the C-CIDKQ of the action dimension (0.21) showed worse internal consistency than the CIDKQ (0.43). By removing items, 12 to 14, the highest Cronbach's alpha was 0.311; even by reverse processing items 12 to 14, the obtained Cronbach's are all  $< 0.3$ , indicating that items 12 to 14 need to be eliminated, and other items should be supplemented to improve the reliability coefficient of the action dimension. Analyze the Cronbach's  $\alpha$  of each item; if any item is deleted from the C-CIDKQ, the total Cronbach's  $\alpha$  range is 0.75 - 0.80, similar to the CIDKQ (0.77 - 0.80). The overall internal consistency of the scale had little effect.

Modification and addition of items in the action dimension, such as cognitive stimulation (discussing family life, family photos, memories, etc.) (Mitchell et al., 2017), directional speech (Munro et al., 2017), assisting patient activities (Bersaneti & Whitaker, 2022), learning knowledge about prevention and control of ICU delirium (Krewulak et al., 2020). These families can participate in non-drug interventions.

#### 4.3. Analysis of the Results of the Scale

The survey results of general information show that the main family caregivers are parents, children and couples, accounting for 77.6% and 60.2% in the Krewulak, Karla D's survey, indicating that family members are the main caregivers of domestic and foreign patients (Wang et al., 2018). 47.2% have a high school education or above, which is lower than 63.9% in the Krewulak, Karla D survey,

indicating that the education level of family caregivers in China is lower than that in the United States. The female caregivers were only 5.6% higher than the males, similar to the results of domestic caregivers-related studies (Li, 2018; Wang et al., 2018). In the Krewulak, Karla D survey, the females were 22.8% higher than the males, indicating little gender difference in the role of illuminators in China. The scale score was  $15 \pm 3.7$  higher than that of  $14.2 \pm 3.4$  in the Krewulak, Karla D survey. The possible reason was that most family members did not know about delirium in the pre-investigation stage. Therefore, the header description of the scale in this study contains a general definition; it also shows that there is less investigation and training on delirium knowledge among patient caregivers in mainland China. This study shows that family caregivers are very willing to participate in preventing and controlling patients' delirium, which is similar to the results of foreign studies (Smithburger, Korenoski, Alexander, & Kane-Gill, 2017; McKenzie & Joy, 2020). During the pre-investigation period, most of the family members wanted to know more about delirium, so during the formal investigation period, each family caregiver obtained an electronic version of delirium-related education materials after the investigation.

In the risk factor dimension, married patients (compared to unmarried patients) scored lower. After the consultation, married patients had greater family pressure because they assumed more social roles and tasks than unmarried patients, such as raising children and buying a house, Etc. For the education above high school, 75.7% were considered protective factors in this study, which was higher than the survey of Krewulak, Karla D's (51.3%), indicating that family caregivers in China are more aware of the power brought by knowledge. In the action dimension, the correct score of "Wait 24 hours to see if the patient gets better" is only 25.7%, which is 95.33% compared to "nothing is good" the two sentences have the same meaning. However, the results are very different, indicating the item itself described and explained is inaccurate, leading to ambiguity. "Let the patient sleep during the day to promote recovery" accounted for 42.52% of the correct answers, while for the other items, caregivers believed that it was beneficial to the patient, so the scores were high, indicating that the patient's family was very active and willing to bring beneficial intervention to the patient. However, they do not understand delirium and will not be able to intervene in a targeted manner actively. Therefore, this study suggests that it is necessary to strengthen the education on delirium among family members in China, so that family members can correctly and effectively participate in preventing and controlling delirium. In the symptom dimension, most family members pointed out that they did not understand delirium in the filling process. They mainly confused the gradual long-term and sudden short-term judgments, and it was difficult to make judgments. However, the results were similar to the original author's results; for most people, as long as mental confusion can be considered delirium, resulting in mainly yes answers. It shows that the patient's family caregivers lack valid cognition of delirium symptoms, and the intervention behaviour cannot be targeted. However, the good news is that the overall perception

of danger, active participation in beneficial actions, and vigilance against mental confusion among family caregivers are good.

For risk factors, family members can be identified and predicted early. The guidelines recommend signing the informed consent form for delirium before surgery, which is beneficial to the participation of patients' family members. For targeted interventions, strengthen clinical education, increase caregivers' knowledge, and improve the implementation rate of non-drug delirium prevention and control measures. For symptom judgment, improve sensitivity and intervene as early as possible. ICU nurses assessing the knowledge level of family caregivers and educating family caregivers according to their knowledge gaps are essential steps for them to cooperate to prevent and deal with delirium effectively.

## 5. Strengths and Limitations of This Study

It is the first translation and cultural adjustment of CIDKQ in mainland China. Delirium knowledge education for family caregivers of ICU patients, a clearer understanding of delirium, and basic knowledge for participating in the prevention and control of delirium. It is a cross-sectional survey, only in one tertiary first-class general university hospital. The pre-survey suggests that most family caregivers of ICU patients do not know "delirium", so a simple explanation of delirium is given at the beginning of the scale, which may lead to a higher score than they are. The reliability and validity of the action dimension of C-CIDKQ are relatively low.

## 6. Conclusion

Overall, the C-CIDKQ is an effective tool for measuring delirium knowledge in family caregivers of ICU patients. It can be compared with relevant foreign studies and academic exchanges because there is no relevant research on assessing and educating delirium knowledge in family caregivers of ICU patients in mainland China. Promoting this scale can help ICU nurses and researchers in mainland China to increase the demand for assessment and education of delirium among family caregivers of ICU patients, thereby improving the prevention and control of delirium in ICU patients. However, the C-CIDKQ's reliability and validity of the action dimension need to be further improved to improve the quality and effectiveness of the research.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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