

**Brief Methodological Report**

# Translation and Validation of the 10-Item FAMCARE Scale to Assess Satisfaction of Family Caregivers With Care Given to Cancer Patients



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**Abstract**

**Context.** Family satisfaction with care is an important quality indicator in palliative care.

**Objectives.** This study aimed to translate and validate the 10-item Family Satisfaction with End-of-Life Care (FAMCARE) tool.

**Methods.** Family caregivers of patients with advanced cancer were recruited. FAMCARE was translated from English to Chinese using a forward and backward translation process. Chinese-speaking caregivers were interviewed with the preliminary Chinese FAMCARE, and phrasing was edited to ensure clarity of the items. Subsequently, a baseline and follow-up survey in English and the finalized Chinese version were performed to assess psychometric properties. Cronbach's alpha ( $\alpha$ ) and intraclass correlation coefficient were used for internal consistency and test-retest reliability, respectively. Validity was assessed with Spearman's correlation coefficient ( $r$ ). The Comprehensive Needs Assessment Tool-Caregiver (CNAT-C) and a one-item assessment by caregivers regarding "good-care" acted as a validity criterion. Pooled analysis of both languages and language-specific analyses were performed.

**Results.** There were 259 participants; 134 and 125 participants filled in the English and Chinese versions, respectively. Pooled analysis showed that the intraclass correlation coefficient of FAMCARE was 0.95;  $\alpha$  was 0.91. There was a moderate positive correlation between the total FAMCARE scores and "good-care" ( $r = 0.54$ ) and a moderate negative correlation between the total FAMCARE score and the CNAT-C "Healthcare Staff" domain ( $r = 0.41$ ). There was a weak negative correlation between the total FAMCARE score and the CNAT-C domain of "family and social support" ( $r = -0.13$ ). Language-specific analyses revealed similar results regarding FAMCARE's psychometric properties.

**Conclusion.** FAMCARE showed good reliability and validity. *J Pain Symptom Manage* 2019;58:878–885. © 2019 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

**Key Words**

FAMCARE, satisfaction, translation, validation, caregivers, cancer

**Introduction**

As the palliative medicine specialty continues to endeavor to improve the quality of life of patients and their families, family satisfaction with care remains an important quality indicator.<sup>1–3</sup>

Studies have conceptualized satisfaction with care as including domains such as coordination of care, symptom management, communication, and emotional support.<sup>4–7</sup>

The Family Satisfaction with End-of-Life Care (FAMCARE) tool is a 20-item scale developed to measure

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family caregiver satisfaction with the care of patients with advanced cancer.<sup>8</sup> FAMCARE is widely used and has good validity and reliability. Since its development, other versions have been developed in English and other languages.<sup>9–14</sup>

Specifically, FAMCARE-2 is a 17-item questionnaire developed for use in the outpatient setting; items were reworded to assess “team-based care” and “symptom management”.<sup>9</sup> FAMCARE-6 has six items and is adapted for use in oncology.<sup>10</sup> Two patient versions were developed (13 and 16 items) to assess patient satisfaction.<sup>13,14</sup>

Ornstein and colleagues developed two brief FAMCARE scales (10 and five items) with fewer response categories to reduce respondent burden.<sup>15–17</sup> Both scales are unidimensional, although the 10-item FAMCARE scale was shown to have higher reliability (0.94) than the 5-item FAMCARE scale (0.84).<sup>16</sup> Ornstein demonstrated that a brief scale was useful for assessment of family satisfaction with care across different sociodemographic strata, with no compromise of validity and reliability.<sup>17</sup>

Because measurement tools developed in one setting may not be readily usable in another cultural, social and medical care setting, the study team aimed to validate the short 10-item FAMCARE scale in English. Furthermore, Singapore is a multiethnic society. Out of all residents aged 25 years and older, 92% of the population can speak either English or Mandarin (Chinese), of which 68% are literate in English (either monolingual or multilingual) and 24% are literate only in Chinese.<sup>18</sup> Thus, the study team aimed also to translate and validate the 10-item FAMCARE in Chinese because the availability of a Chinese version of FAMCARE would ensure that a substantially larger proportion of the population can be covered.

## Methods

### Study Setting

The National Cancer Centre Singapore is the largest public provider of cancer care in Singapore, with 154,173 outpatient clinic consultations in the 2018 financial year.<sup>19</sup> Patients with cancer who require inpatient care are admitted to Singapore General Hospital. This study was carried out in the National Cancer Centre Singapore and Singapore General Hospital.

### Questionnaire Translation

Permission was sought to translate the 10-item FAMCARE scale from English to Chinese and subsequently validate the scale in both English and Chinese.<sup>16</sup> Guidelines for translation and transcultural adaptation were followed.<sup>11,12,20</sup> Specifically, two native Chinese speakers who were also fluent in English

produced independently two forward translations of the English scale to Chinese. The two forward translations were then synthesized into one version by the study team. The synthesized version of the translated scale was then back translated independently into English by two native English speakers who were also fluent in Chinese.

The forward translated Chinese version and the backward translated English version of the scale were reviewed by a multidisciplinary group for accuracy and readability. Members included health-care professionals with experience in the care of patients with advanced cancer, including a palliative care physician, palliative care nurse, medical social worker, and a researcher experienced in patient-reported outcomes. A preliminary version of the 10-item Chinese FAMCARE was produced.

### Clarification Phase for the Preliminary Chinese FAMCARE Survey

The preliminary 10-item Chinese FAMCARE questionnaire was administered by a trained research coordinator to family caregivers to seek feedback on the clarity of phrasing of the items. Based on their feedback, the items in the Chinese FAMCARE survey were rephrased, after which more caregivers were recruited to seek feedback. This process of administering the questionnaire to caregivers and seeking feedback was repeated until no further issues were detected. This version was then used as the final 10-item Chinese FAMCARE scale for validation (Online [Appendix I](#)).

**Inclusion Criteria.** A caregiver was defined as “the individual identified by the patient as the person most involved in the care of the patient.”<sup>21</sup> A family caregiver was the family member who was taking direct care of the patient’s day-to-day and health care needs, ensuring provision of care to meet the needs, or the patient’s health-care decision-maker.

Participants had to be aged 21 years or older, able to communicate in Mandarin, aware of the patient’s diagnosis (stage 3 or 4 cancer), and willing to give informed consent.

**Exclusion Criteria.** Caregivers in the bereavement stage were excluded.

**Recruitment.** Purposive sampling was carried out so that recruited caregivers were well distributed in terms of age and education level. They were approached when they accompanied patients at the study site.

### Questionnaire Validation

**Inclusion Criteria.** Participants had to be able to communicate in either English or Mandarin. The inclusion criteria were otherwise the same as those for the

“clarification phase.” Bilingual participants were allowed to choose the language they felt most comfortable with. Only one caregiver was recruited per patient.

*Exclusion Criteria.* Caregivers in the bereavement stage were excluded.

*Recruitment.* Caregivers were approached when they accompanied patients at the study site.

*Study Design and Measurements.* The study comprised a baseline and follow-up survey. The baseline survey included 1) the patient’s and caregiver’s demographics; 2) the patient’s oncological diagnosis, functional status (Eastern Cooperative Oncology Group Performance Status);<sup>22</sup> and 3) the 10-item FAMCARE scale, the Comprehensive Needs Assessment Tool—Caregivers (CNAT-C), and a question asking caregivers to give an overall assessment of whether “they have received good care from the health-care team” (good-care). The “good-care” question was part of the yearly patient experience surveys performed by the Ministry of Health Singapore.<sup>23</sup> Caregivers were also allowed to share unstructured feedback regarding their experience while their loved one (patient) was receiving health care.

CNAT-C is a 41-item scale assessing needs of caregivers in domains such as the caregiver’s physical health and psychological problems; family and social support; health-care staff care delivery; information giving; religious and spiritual support; hospital facilities and services; and practical support.<sup>24</sup> A higher score on CNAT-C indicates a higher level of unmet need; therefore, a higher score on CNAT-C could correlate to lower satisfaction scores on FAMCARE.

*Follow-up Survey (Test-Retest Reliability).* The follow-up survey consisted of a question asking caregivers to self-report if there had been a change in the patient’s medical condition (yes or no) and the 10-item FAMCARE survey.

Participants who completed the follow-up survey within two to 14 days after the baseline survey were included in the test-retest reliability analysis.<sup>25</sup> To ensure that the caregiver’s views on care were stable and therefore suitable for test-retest analysis, only caregivers whose loved ones did not pass away during the follow-up period and reported no change in the patient’s medical condition were included in the analysis. The follow-up survey was administered either at the study site or by postal mail with a self-paid envelope, according to the caregiver’s preference.

### *Statistical Plan*

Participant characteristics and major variables were summarized by descriptive statistics. Pooled analysis

of both languages and language-specific analyses were performed.

The internal consistency of FAMCARE was examined with the Cronbach’s  $\alpha$ . Test-retest reliability was assessed using the intraclass correlation coefficient. Spearman’s correlation test ( $r$ ) was used for validity assessment.

CNAT-C and its domains and “good-care” were used as validity criteria for comparison with the total FAMCARE scores.

For the purposes of convergent validity, the authors hypothesized that the total CNAT-C score and related domains on CNAT-C (such as health-care staff care delivery) would have a moderate-strength, negative correlation with FAMCARE. There would also be a moderate-strength, positive correlation between “good-care” and FAMCARE.

For the purposes of divergent validity, we hypothesized that there would be a weak negative correlation between unrelated domains on CNAT-C (such as family and social support) and FAMCARE.

*Scoring of FAMCARE, CNAT-C, and “Good-Care”.* Among the FAMCARE items, “dissatisfied” was scored as 0, “satisfied” as 1, and “very satisfied” as 2.<sup>16</sup>

For CNAT-C, each item was scored from 0 to 3. “Zero” indicated no need, “1” indicated low needs, “2” indicated moderate need, and “3” indicated high need. CNAT-C contained seven domains. Domain scores on CNAT-C were calculated by averaging the score for each domain with subsequent linear transformation to a scale of 0 to 100 (as per the original developers).<sup>24,26</sup>

Regarding “good-care”, “not at all” was coded “0”, “a little bit” coded “1”, “somewhat” coded “2”, “quite a bit” coded “3”, and “very much” coded “4”.

*Sample Size Calculation.* To establish convergent validity, a sample size of 117 per language was needed to detect a Spearman’s correlation coefficient of 0.3 between the total FAMCARE score and CNAT-C, with 90% power at 5% two-sided type 1 error. This result is based on the power-by-simulation approach, with 1000 Monte Carlo samples from the bivariate normal distribution, implemented by the PASS13 Software (NCSS 2014).<sup>27</sup> We targeted a sample size of 120 per language to allow for missing values.

## **Results**

### *Clarification Phase*

Twelve participants were recruited. The mean age was 56.8 years (standard deviation [SD]: 11.6) and 66.7% were female. All participants were ethnic Chinese, and there was a range of educational backgrounds. Two items, “Doctor’s attention to patient’s

Table 1  
Participant Characteristics

Characteristics	Mean (SD) or <i>N</i> (%) <sup>a</sup>		
	All ( <i>N</i> = 259)	English ( <i>N</i> = 134)	Chinese ( <i>N</i> = 125)
Age	51.4 (14.7)	49.5 (14.4)	53.5 (14.7)
Gender			
Male	99 (38.2)	53 (40.0)	46 (36.8)
Female	160 (61.8)	81 (60.0)	79 (63.2)
Ethnicity			
Chinese	217 (83.8)	93 (69.4)	124 (99.2)
Malay	21 (8.1)	21 (15.7)	0 (0.0)
Indian	14 (5.4)	14 (10.4)	0 (0.0)
Others	7 (2.7)	6 (4.4)	1 (0.8)
Marital status			
Married	198 (76.4)	104 (77.6)	94 (75.2)
Single	50 (19.3)	24 (17.9)	26 (20.8)
Divorced/separated	9 (3.5)	5 (3.7)	4 (3.2)
Widowed	2 (0.8)	1 (0.7)	1 (0.8)
Educational status			
Primary or below	32 (12.4)	5 (3.7)	27 (21.6)
Secondary	78 (30.1)	33 (24.6)	45 (36.0)
Post-Secondary	149 (57.5)	96 (71.6)	53 (42.4)
Relationship with patient			
Spouse	107 (41.3)	52 (38.8)	55 (44.0)
Parent	5 (1.9)	1 (0.8)	4 (3.2)
Child	113 (43.6)	60 (44.4)	53 (42.4)
Siblings	12 (4.6)	6 (4.4)	6 (4.8)
Other relatives	22 (8.5)	15 (11.1)	7 (5.6)
Hours caregiving per week	35.6 (42.9)	34.1 (40.8)	37 (45.2)
Caregiving role			
Only caregiver	66 (26.4)	32 (24.8)	34 (28.1)
Primary caregiver	68 (27.2)	32 (24.8)	36 (29.8)
One of the few	116 (46.4)	65 (50.4)	51 (42.1)
Recruitment setting			
Inpatient (SGH)	137 (52.9)	67 (50.0)	70 (56.0)
Outpatient (NCCS)	122 (47.1)	67 (50.0)	55 (44.0)
Mode of administration			
Interviewer administration	39 (15.1)	7 (5.2)	32 (25.6)
Self-completed	194 (74.9)	117 (87.3)	77 (61.6)
Interviewer assisted	26 (10.0)	10 (7.5)	16 (12.8)
Patient oncological diagnosis			
Breast	31 (12.0)	21 (15.7)	10 (8.0)
Female genitourinary	11 (4.2)	4 (3.0)	7 (5.6)
Gastrointestinal	89 (34.4)	42 (31.3)	47 (37.6)
Head and neck	15 (5.8)	7 (5.2)	8 (6.4)
Hepatobiliary	22 (8.5)	11 (8.2)	11 (8.8)
Male genitourinary	25 (9.7)	16 (11.9)	9 (7.2)
Others <sup>b</sup>	13 (5.0)	3 (2.2)	10 (8.0)
Respiratory tract	53 (20.5)	30 (22.4)	23 (18.4)
Patient performance status (ECOG)			
0: Without symptoms	58 (22.5)	27 (20.1)	31 (25.0)
1: Fully ambulatory	106 (41.1)	57 (42.5)	49 (39.5)
2: In bed less than 50% of the day	24 (9.3)	10 (7.5)	14 (11.3)
3: In bed more than 50% of the day	58 (22.5)	33 (24.6)	25 (20.2)
4: Bedridden	12 (4.7)	7 (5.2)	5 (4.0)
Financial status of patient			
Nonresident	3 (1.2)	3 (2.2)	0 (0)
Private	26 (10.0)	15 (11.2)	11 (8.8)
Subsidized	230 (88.8)	116 (86.6)	114 (91.2)

SD = standard deviation; SGH = Singapore General Hospital; NCCS = National Cancer Centre Singapore; ECOG = Eastern Cooperative Oncology Group.

<sup>a</sup>Mean and standard deviation (SD) for continuous variable, frequency (*N*), and percent for categorical variables.

<sup>b</sup>Others include oncological diagnoses such as lymphoma, connective and soft-tissue disease, skin.

description of symptoms” and “coordination of care”, were modified in the Chinese version to improve clarity (Online Appendix II).

*Questionnaire Validation*

*Participant Characteristics.* There were 259 participants, of which 134 and 125 participants, respectively, answered the English and Chinese version of the FAMCARE survey. The demographic and health characteristics of the caregivers and patients are shown in Table 1.

Chinese-speaking participants were older, predominantly Chinese in ethnicity, more likely to have secondary school education or less, and more likely to have “interviewer administration.”

*Descriptive summary of 10-item FAMCARE scores, CNAT-C scores, and “good-care” scores.* The mean (SD) and floor and ceiling percentages of FAMCARE are shown in Table 2. The mean total FAMCARE scores were 12.90 (4.59), 13.37 (4.93), and 12.40 (4.14) for all, English-, and Chinese-speaking participants, respectively. There was no serious floor effect; only one item (item 4) produced more than 10% of the participants scoring the lowest point of 0. Most items had a considerable ceiling effect, ranging from 27.2% to 47.0%, scoring it a maximum satisfaction score of 2. Nonetheless, the 10-item FAMCARE total score had only a mild floor effect (0.8%) and ceiling effect (15.6%).

The mean (SD) of CNAT-C total scores was 16.80 (19.1), 19.09 (20.14), and 14.27 (17.64) for all, English-, and Chinese-speaking participants, respectively. The total and subdomain means (SD) are reported in Table 3.

The means (SD) of “good-care” scores were 3.11 (0.79), 3.14 (0.91), and 3.08 (0.63) for all, English-, and Chinese-speaking participants.

*Reliability Analysis.* FAMCARE showed good internal consistency ( $\alpha$  ranging from 0.93 to 0.96) across all, English-, and Chinese-speaking participants.

In test-retest reliability, 97 participants (48 English-speaking and 49 Chinese-speaking participants, respectively) completed the follow-up survey within two to 14 days and reported no change in the patient’s condition. The mean (SD) time in between assessments was 4.18 (2.56) days. The intra-class coefficient was 0.91 to 0.92 across all, English-, and Chinese-speaking participants (Table 4).

*Validity analysis (correlation results among FAMCARE, CNAT-C, and “good-care”).* Table 5 describes the degree of correlation (r) of the total FAMCARE score with the CNAT-C total score, CNAT-C domains, and

Table 2  
Descriptive Summary of FAMCARE Scores

FAMCARE Scale	Item	Description	All Participants						English			Chinese		
			Mean (SD)	% Floor	% Ceiling	Mean (SD)	% Floor	% Ceiling	Mean (SD)	% Floor	% Ceiling	Mean (SD)	% Floor	% Ceiling
	1	Doctor’s attention to patient’s description of symptoms	1.40 (0.54)	2.7	43.0	1.45 (0.54)	2.3	47.0	1.35 (0.54)	3.2	38.7			
	2	Availability of doctors to the family	1.28 (0.56)	5.5	33.3	1.36 (0.56)	3.8	39.7	1.19 (0.55)	7.3	26.6			
	3	Coordination of care	1.32 (0.56)	4.7	36.6	1.35 (0.61)	6.8	42.1	1.28 (0.50)	2.4	30.6			
	4	Time required to make diagnosis	1.16 (0.60)	11.3	27.2	1.22 (0.62)	10.5	32.3	1.10 (0.58)	12.1	21.8			
	5	The way the family is included in treatment and care decisions	1.32 (0.51)	2.3	33.9	1.36 (0.56)	3.8	39.8	1.27 (0.46)	0.8	27.4			
	6	Information given about how to manage the patient’s pain	1.27 (0.54)	4.7	31.4	1.31 (0.57)	5.3	36.4	1.22 (0.51)	4.1	26.0			
	7	Information given about the patient’s tests	1.30 (0.56)	5.4	35.0	1.32 (0.62)	8.3	40.6	1.27 (0.50)	2.4	29.0			
	8	How thoroughly the doctor assesses the patient’s symptoms	1.32 (0.56)	4.7	36.6	1.36 (0.58)	5.3	41.4	1.27 (0.53)	4.0	31.5			
	9	The way tests and treatments are followed up by the doctor	1.35 (0.56)	4.3	39.7	1.40 (0.59)	5.3	45.1	1.31 (0.53)	3.2	33.9			
	10	Availability of the doctor to the patient	1.22 (0.58)	8.2	30.6	1.29 (0.60)	7.6	36.4	1.15 (0.56)	8.9	24.4			
FAMCARE Total	Sum of 10 items	Total score (FAMCARE total)	12.90 (4.59)	0.8	15.6	13.37 (4.93)	0.0	19.5	12.40 (4.14)	0.8	11.3			

FAMCARE = Family Satisfaction with End-of-Life Care tool; SD = standard deviation.

Table 3  
Descriptive Summary of CNAT-C Scores—Described by All (English and Chinese), English-Speaking Participants, and Chinese-Speaking Participants

Scale	Item	Description	All: Mean (SD)	English: Mean (SD)	Chinese: Mean (SD)
CNAT-C scores (Subdomains)	Items 1 to 6	Caregiver's physical and psychological problems	12.0 (17.2)	12.7 (19.0)	11.2 (15.0)
	Items 7 to 11	Family and social support	10.2 (17.7)	11.5 (19.9)	8.8 (15.0)
	Items 12 to 19	Health-care staff (doctors and nurses)	16.8 (24.1)	20.1 (26.6)	13.2 (20.5)
	Items 20 to 27	Information and education	23.2 (27.6)	26.6 (28.8)	19.6 (25.8)
	Items 28 to 29	Religious and spiritual support	10.5 (23.1)	11.3 (24.8)	9.5 (21.3)
	Items 30 to 35	Hospital facilities and services	17.0 (23.2)	18.7 (24.1)	15.2 (22.1)
	Items 36 to 41	Practical support	20.3 (25.5)	23.4 (27.6)	16.9 (22.7)
CNAT-C total	Items 1 to 41	Total of all 41 items	16.8 (19.1)	19.09 (20.1)	14.3 (17.6)

CNAT-C = Comprehensive Needs Assessment Tool-Caregivers; SD = standard deviation.

the “good-care” question. There was convergent validity of the FAMCARE total score with the “good-care” question ( $r = 0.51$  to  $0.54$ ) and the CNAT-C domain on “Healthcare Staff” ( $r = -0.41$  to  $-0.43$ ). There was divergent validity of the FAMCARE total score with the CNAT-C domain of “family and social support” ( $r = -0.13$ ).

There was a slight difference in the correlation coefficient among the English FAMCARE total, the Chinese FAMCARE total ( $r = -0.14$  and  $r = -0.26$ , respectively), and the CNAT-C “caregiver’s physical and psychological problems”, but the 95% confidence interval of the difference among the coefficients was large and included zero ( $-0.13$  to  $0.36$ ;  $P = 0.341$ ).

## Discussion

To ensure that a tool originally generated in a single culture is applicable and equivalent in another culture, it is essential to perform cross-cultural validation.<sup>28</sup> To our knowledge, this is the first study that has translated the 10-item FAMCARE survey from English to Chinese and then examined the psychometric properties of both the English and the translated Chinese version. Our study has shown that the 10-item FAMCARE has good reliability and validity.

The 10-item FAMCARE survey was also validated in Japan.<sup>29</sup> The results of our study are similar to those of the Japanese study and the original studies performed in the United States,<sup>15–17,29</sup> where the 10-item FAMCARE survey showed evidence of good reliability and validity. The original 20-item FAMCARE

and FAMCARE-2 surveys were also shown to have good test-retest reliability, similar to our 10-item short-form FAMCARE survey.<sup>11,30</sup>

Our study showed evidence of convergent and divergent validity where the total FAMCARE score showed expected correlation with related and unrelated domains on CNAT-C, respectively. Although the correlation coefficient for convergent validity was only of moderate strength, this might not be unexpected because needs and satisfaction are different constructs. This was also seen in the Japanese study, in which the correlation of satisfaction with caregiver quality of life was only 0.3 but was deemed acceptable for validity assessment.<sup>29</sup>

Pooled analyses of both languages and language-specific analyses revealed similar psychometric results. There was no strong evidence to suggest that the performance of the Chinese and English versions of the scale was different, although future studies should be carried out with larger sample sizes to reexamine the difference between the English and Chinese versions and the CNAT-C.

There was a significant ceiling effect for certain items in the 10-item FAMCARE survey, although the total FAMCARE score did not have a high ceiling effect. A high ceiling effect is not uncommon among satisfaction tools.<sup>31,32</sup> FAMCARE had a low floor effect, which allows for health-care institutions to target dissatisfied caregivers and improve care quality feasibly.<sup>33</sup>

The strengths of this study are that it validated the 10-item FAMCARE survey in both English and Chinese, ensuring accessibility of this scale locally where a significant proportion of caregivers are predominantly Chinese speaking. The demographics of the caregivers recruited in our study were comparable to the demographics of the caregivers in the National Survey of Informal Caregiving Singapore; thus, this tool would be generalizable to the national setting for caregivers in different institutions.<sup>34</sup> Finally, the brevity of the tool allows it to be easily used in the clinical setting.

Table 4  
Internal Consistency (Cronbach’s Alpha,  $\alpha$ ) and Test-Retest Reliability (ICC)

FAMCARE Total	All Participants	English	Chinese
$\alpha$	0.95	0.96	0.93
ICC	0.91	0.92	0.91

ICC = intraclass correlation coefficient; FAMCARE = Family Satisfaction with End-of-Life Care tool.

Table 5  
Correlation Table of FAMCARE With CNAT-C and Good-Care

Measures	FAMCARE Total (All Participants) ( <i>N</i> = 259)	FAMCARE Total (English) ( <i>N</i> = 134)	FAMCARE Total (Chinese) ( <i>N</i> = 125)
	Spearman Correlation ( <i>r</i> )		
CNAT-C: Caregiver's physical and psychological problems	-0.19 <sup>a</sup>	-0.14	-0.26 <sup>a</sup>
CNAT-C: Family and social support	-0.13 <sup>b</sup>	-0.13	-0.13
CNAT-C: Health-care staff (doctors and nurses)	-0.41 <sup>a</sup>	-0.43 <sup>a</sup>	-0.43 <sup>a</sup>
CNAT-C: Information and education	-0.34 <sup>a</sup>	-0.38 <sup>a</sup>	-0.32 <sup>a</sup>
CNAT-C: Religious and spiritual support	-0.22 <sup>a</sup>	-0.23 <sup>b</sup>	-0.21 <sup>b</sup>
CNAT-C: Hospital facilities and services	-0.33 <sup>a</sup>	-0.33 <sup>a</sup>	-0.38 <sup>a</sup>
CNAT-C: Practical support	-0.28 <sup>a</sup>	-0.33 <sup>a</sup>	-0.23 <sup>b</sup>
Total of all items in CNAT-C	-0.36 <sup>a</sup>	-0.39 <sup>a</sup>	-0.35 <sup>a</sup>
Overall assessment of care by caregiver (good-care)	0.54 <sup>a</sup>	0.54 <sup>a</sup>	0.51 <sup>a</sup>

FAMCARE = Family Satisfaction with End-of-Life Care tool; CNAT-C = Comprehensive Needs Assessment Tool-Caregivers.

<sup>a</sup>*P* < 0.01.

<sup>b</sup>*P* < 0.05.

The limitation of this study was that it was performed at a single tertiary institute and that the ability of the 10-item FAMCARE scale to differentiate between caregiver satisfaction at different institutions was not assessed.

## Conclusion

The 10-item FAMCARE is valid and reliable.

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## *Appendix I*

### 10 项简易 FAMCARE 量表

请指明您对您的 \_\_\_\_\_ (亲戚、朋友、其他) 所接受的护理有多满意。对于以下所列出的项目，您是否感到“非常满意”，“满意”，或是“不满意”：

您对以下所列出的项目感到多满意：	非常满意	满意	不满意
1. 医生听病人讲症状时的关注			
2. 家属有多容易得到与医生讨论的机会			
3. 医护人员给予护理的配合			
4. 诊断病症所需要的时间			
5. 家属参与治疗与护理决定的方式			
6. 医护人员提供有关处理病人疼痛的信息			
7. 医护人员提供有关病人检验的信息			
8. 医生如何彻底地检验病人的症状			
9. 医生跟进病情检验和治疗的方式			
10. 病人有多容易得到与医生讨论的机会			

## Appendix II

Original Item (English)	Preliminary Translation (Chinese)	Final Version (Chinese)
Doctor's attention to patient's description of symptoms	医生对于病人描述症状时所给予的关注	医生听病人讲症状时的关注
Coordination of care	护理的协调	医护人员给予护理的配合