RESEARCH



Cross-cultural adaptation and validation of the Chinese version of the quality of communication questionnaire

Jacqueline K. Yuen^{1,2*}, Helen Y. L. Chan³, Tracy W. T. Chen⁴, Steven T. Chu¹, Annie O. L. Kwok⁵, Doris Y. P. Leung⁶, Harinder S. Gill⁷, Kwok-wai Tsang⁸, Doris M. W. Tse⁵, Desmond Y. H. Yap⁹, Terence Yip¹⁰ and Robert M. Arnold¹¹

Abstract

Background Effective clinician-patient communication is essential for delivering quality end-of-life care. However, there are no validated measures to assess the quality of end-of-life communication for Chinese patients.

Methods This study aims to cross-culturally adapt and validate the patient-reported Quality of Communication Questionnaire (QOC) for Chinese speaking patients. The QOC was translated and adapted using a standardized methodology consisting of forward translations, backward translations, expert panel review, and testing with patients. We conducted a cross-sectional study to perform principal component, content validity, internal consistency, convergent and discriminant validity analyses of the 16-item Chinese QOC (C-QOC). Subjects were Chinese-speaking advanced cancer (n=82) and advanced chronic kidney disease (n=68) patients attending outpatient clinics in five hospitals or receiving home-based palliative care in Hong Kong.

Results The content validity of the C-QOC was established by an expert panel. The C-QOC has a 3-component structure (general communication skills, communication about illness trajectory, and end-of-life care planning subscales) and demonstrated good internal consistency (Cronbach's $\alpha = 0.88$; subscales 0.84–0.90). Convergent validity was supported by positive association between C-QOC score and overall clinician communication quality (r=0.47, p < 0.001) and clinician comfort in discussing dying (r=0.63, p < 0.001). Discriminant validity was demonstrated by the stronger association between overall clinician communication quality, compared to the other two subscales.

Conclusions The C-QOC is a valid, reliable, and culturally relevant instrument for evaluating the quality of clinician end-of-life care communication by Chinese patients with advanced cancer and chronic kidney disease.

Keywords Terminal care, Health communication, Questionnaires, Cancer, Chronic kidney disease, Patients, Validation study, Psychometric

*Correspondence: Jacqueline K. Yuen jkyuen@hku.hk

Full list of author information is available at the end of the article



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by-nc-nd/4.0/.

Introduction

Effective clinician-patient communication is important for providing quality end-of-life care. High-quality endof-life care communication facilitates goal-concordant care, enhances patients' quality of life, and improves satisfaction with care among patients and their families [1-2]. However, such communication is frequently hindered by patient and clinician discomfort with discussions about dying, challenges in prognostication, time constraints, and clinicians' insufficient training in communication skills [3, 4, 5].

Patients with serious illnesses frequently report that conversations with clinicians fail to satisfy their information needs or adequately address fears and concerns about dying [6, 7]. Cultural factors further shape preferences for end-of-life communication. Within Chinese cultural contexts, where Confucian traditions emphasize family harmony, patients often prefer family involvement in end-of-life decisions, and family interests may supersede individual autonomy [4, 8, 9].

Assessing the quality of clinicians' communication in end-of-life care is critical for monitoring current practices and evaluating interventions aimed at improving patient-provider communication. While various tools have been developed to assess clinical communication broadly [10, 11, 12, 13], evaluating communication in end-of-life contexts necessitates an instrument that addresses the specific communication needs of patients nearing the end of life and align with the cultural context. Currently, no validated measures exist to evaluate clinician end-of-life care communication for Chinesespeaking populations, highlighting a critical gap in both research and practice.

The Quality of Communication Questionnaire (QOC) is a patient-reported measure originally developed in the United States to assess physician communication about end-of-life care, grounded in empirical research identifying aspects of clinician communication valued by seriously ill patients [14, 15, 16, 17]. The original instrument has demonstrated good internal consistency and construct validity, leading to subsequent cultural adaptations for Portuguese, Italian, and Korean populations [18, 19, 20, 21]. The QOC has been widely used in studies involving patients with life-limiting illnesses, including advanced chronic obstructive pulmonary disease (COPD), chronic heart failure, chronic kidney disease (CKD), and multiple sclerosis [22, 23, 24, 25].

In this study, we aimed to translate and cross-culturally adapt the QOC for Chinese-speaking patients and evaluate the structural validity and psychometric properties of the Chinese version of QOC (C-QOC). Our goal was to establish its utility as a patient-centered measure of end-of-life care communication for Chinese-speaking patients with advanced CKD and cancer. Our focus on these populations was twofold. First, clinicians caring for these patients more routinely engage in end-of-life discussions in our setting. Second, as these patient groups follow distinct disease trajectories (progressive organ failure versus oncological decline), validating the C-QOC across both cohorts may support its broader applicability in diverse clinical settings.

Methods

Translation and cross-cultural adaptation of the QOC

The original QOC consisted of 17 questions rated on a numerical rating scale (0-10) and has two subscales, general communication skills and end-of-life care communication. With permission from the original QOC developers, cross-cultural adaptation of the QOC for Chinese-speaking patients was performed in accordance with the guidelines proposed by Beaton et al. (Fig. 1) [26]. Initially, two bilingual researchers independently translated the QOC into Chinese. The two translators and a research team member then produced a synthesized version. Next, the synthesized version was back-translated to English by two other translators without knowledge of the original version. All versions were submitted to an expert panel comprising of two palliative care specialists, a palliative care nurse, a geriatrician, a professor of methodology with expertise in end-of-life care, and the four translators. Each panel member rated the items of the synthesized translated version on four criteria: semantic equivalence (Do the words mean the same thing?), conceptual equivalence (Do the words hold similar conceptual meaning in this culture?), clarity (How clear is the wording?), and relevance (How relevant is the item to what the tool is measuring in this culture/setting?). The panel made recommendations on item revisions, discussed and reached consensus on any discrepancies, and developed a prefinal 18-item version of the questionnaire.

The prefinal version was pilot tested with 10 advanced cancer patients. The pilot testing confirmed that all scale instructions, questions, and response options were understood by the patients. The prefinal version and synthesized translation were then submitted to the original QOC developers for comment and approval.

Item revision

As the C-QOC is intended to assess doctor and nurse communication, the word "doctor" in the original QOC was modified to the Chinese term for "healthcare provider" ("醫護人員"). Additionally, given there is no equivalent term for "loved ones" in Chinese in items 3 and 13, the original developer suggested that the Chinese term for "relatives" ("親屬") would more closely reflect the intended meaning of the term. The C-QOC also included the addition of a new item recommended by the expert panel "Talking to you about the trajectory of your illness"



Fig. 1 Flowchart of the translation and cross-cultural adaptation of the Quality of Communication Questionnaire. QOC: Quality of communication

given the importance of explaining the illness trajectory in end-of-life care communication. The panel did not propose additional changes to the items to align with the Chinese cultural context.

Participants and settings

Adult patients ≥ 18 years of age were eligible if they were Chinese-speaking and identified by their clinician as having a diagnosis of advanced cancer or advanced CKD and with whom end-of-life care was discussed. Patients who lacked decision-making capacity as indicated by their clinician were excluded. This study was approved by the Institutional Review Board of The University of Hong Kong/Hospital Authority Hong Kong West Cluster and Hospital Authority Kowloon West Cluster.

A cross-sectional survey was conducted. Participants were recruited from May 2020 to May 2023, with intermittent periods when recruitment was halted due to the COVID-19 pandemic in Hong Kong. Written informed consent was obtained from all participants. The target sample size was between 90 and 180 subjects based on the recommended minimum of 5 to 10 subjects per item for factor analysis [27, 28].

Research staff recruited advanced cancer patients attending an integrated hematology-oncology/palliative care clinic or a stand-alone palliative care outpatient clinic in two public hospitals or receiving home-based palliative care. Advanced CKD patients were recruited from nephrology outpatient clinics in three public hospitals. The participants were interviewed in-person immediately after the clinic consultation or home visit or by telephone within one week after the visit.

Instruments and variable

Chinese version of quality of communication questionnaire (C-QOC) The C-QOC consisted of 18 items. Participants rated the communication of the doctor or nurse from their most recent encounter for each item on a scale of 0-10 (with 0 indicating "the very worst" and 10 indicating "the very best"). Patients were given two additional response options, "Didn't do" (if the provider did not demonstrate the item), or "Don't know" (if unsure of how to rate the provider on a particular item).

Communication items Two communication items were included for validation analyses: "Overall, how would you rate this healthcare provider's communication with you?" and "How comfortable do you feel your healthcare provider is talking about dying?", both on a scale from 0 to 10.

Patient-related variables We surveyed patients on their demographic information, self-perceived health status, who accompanied them at the consultation, and whether they had knowledge of and completed advance directives.

We surveyed clinicians on the patient's estimated life expectancy and performance status using Eastern Cooperative Oncology Group (ECOG) Score [29].

Information preference We surveyed patients on an item from the Information Styles Questionnaire related to their preference on the type of health-related information desired from clinicians ('only sufficient to care for myself', 'only good news,' 'all information good or bad.') [30].

Content validity

We assessed the content validity of the C-QOC by averaging ratings from five content experts across four criteria: semantic equivalence, conceptual equivalence, clarity, and relevance. The item-content validity index (I-CVI) was computed as the percentage of experts rating each item as *"relevant"* or *"very relevant."* The scale-level content validity index (S-CVI) was calculated as the average of I-CVIs across all items [31]. An S-CVI of 1 (indicating unanimous agreement) is considered the threshold for adequacy for a panel of three to five experts [32].

Statistical analysis

Descriptive statistics were used to summarize participants' characteristics. For validation analyses, two items (items 3 & 13) addressing clinician communication with family members were excluded, mirroring the approach used in the original QOC validation study. These items were considered inapplicable to patients attending consultations alone or without family/friend involvement. Original item means were calculated after removing responses with missing values. Transformed item means were calculated by first removing missing values and imputing a score of 0 for any "Didn't do" responses, consistent with the original scale validation protocol. The C-QOC summary score (range: 0-100) was calculated by totalling the scores for all items, dividing by the total number of items, and multiplying by 100.

Principal component analysis (PCA) was performed to explore the measurement structure of the C-QOC items. To determine the adequacy of the data for PCA, we assessed whether the Kaiser-Meyer-Olkin (KMO) value was > 0.80 and Bartlett's Test of Sphericity yielded a significant result (p < 0.05) [33, 34]. Missing data were processed by listwise deletion. Sensitivity analyses were performed by repeating PCA with three alternative missing data approaches: median imputation, individual mean imputation, and multiple imputation.

We employed parallel analyses to determine the number of factors to extract. Oblimin rotation was applied since the factors were assumed to correlate. Items with factor loadings ≥ 0.4 were retained as indicators of adequate item-factor associations [35]. The cancer and CKD patient samples were initially analysed separately. As both groups yielded a similar factor structure, the datasets were combined for subsequent analyses to enhance analytical power. To determine whether omission of the two family communication items (3 and 13) may have affected the component structure, PCA was repeated in the subgroup of patients accompanied by family/friends.

Internal consistency was assessed using Cronbach's α for the overall scale and each subscale, with coefficients ≥ 0.70 indicating good internal consistency [27]. To determine the performance of each item, we calculated item-total correlations, where values of ≥ 0.30 were considered satisfactory [27].

To test the associations between the C-QOC and other questionnaire items, we used Spearman correlations for ordinal variables and Kruskal-Wallis test for categorical variables. Convergent validity was evaluated by examining hypothesized positive associations between the C-QOC and measures of overall clinician communication quality and comfort in discussing dying.

Discriminant validity was assessed through knowngroup validation, testing whether overall clinician communication quality correlated most strongly with the general communication skills subscale, as in the original QOC. We also assessed whether there was a lack of association between the C-QOC with patient information preference, an unrelated construct.

Data analyses were performed using IBM SPSS (version 26.0), with a two-sided significance level set at p < 0.05.

Results

Participant characteristics

One hundred fifty patients enrolled, including 82 cancer patients (93% participation rate) and 68 CKD patients (97% participation rate). Baseline characteristics are shown in Table 1.

Mean age of the cancer sample was 75.5 and 56% were female. Fifty-eight (71%) were diagnosed with solid organ malignancies and 24 (29%) with hematological malignancies. Over 90% had a prognosis of less than a year and 9% had completed an advance directive. Mean age of the CKD sample was 72.0 and 24% were female. 62% had a prognosis of less than a year and none had completed an advance directive. Only about half in both samples reported prior knowledge of advance directives. The majority of patients attended the consultation accompanied by a family member.

Content validity

The C-QOC demonstrated excellent content validity. Average scale rating of semantic equivalence was 3.94 (individual item ratings: 3.8-4.0) out of a maximum of 4, and clarity had an average rating of 4.0 (all items rated 4.0). For cultural validity, conceptual equivalence and relevance both scored 3.97 (individual item ratings: 3.8-4.0). Both I-CVI and S-CVI achieved full scores of 1.

Item descriptive

A total of 162 C-QOC surveys were included in the validation analyses, with 12 patients completing evaluations for two distinct clinicians. The mean administration time for the C-QOC was 7.4 min (SD = 3.63). Table 2 presents the 16-item C-QOC item scores and summary score. Transformed item means ranged from 2.91 to 9.15 and mean C-QOC summary score was 61.3 (SD = 21.9). Four items were marked as "Didn't do" by over half of participants: "Talking to you about how long you might have to live", "Talking to you about what dying might be like," "Asking about the things in life that are important to you," and "Asking about your spiritual or religious beliefs."

Factor structure

PCA revealed a robust three-component structure (Table 3). The KMO value was 0.803, and Bartlett's Test of Sphericity confirmed suitability for factor analysis (χ^2 = 1607.02, *p* < 0.001). The three-component structure was consistent across cancer, CKD, and combined samples:

Component 1: General communication skills (6 items): Focused on general communication skills for effective end-of-life care communication.

Component 2: Communication about illness trajectory (4 items): Addressed information-sharing of illness trajectory/prognosis and emotional exploration.

Component 3: End-of-life care planning (6 items): Encompassed discussions of dying, values exploration, and shared decision-making.

In the combined sample, the three components accounted for 64.6%, 68.3%, and 65.1% of variance in the 16 items, respectively. Sensitivity analyses (using median imputation, individual mean substitution, and multiple imputation) and subgroup analysis (patients accompanied by family/friends) consistently replicated the same component structure (Supplementary Tables 1–4). The item, *"Talking about what dying might be like"* showed cross-loadings (>0.40) on components 2 and 3, but was retained in component 3 due to stronger loadings across all samples.

Comparing subscale performance for the combined sample, the general communication skills subscale has the highest mean (8.82; SD = 1.3), followed by communication about illness trajectory (4.82; SD = 3.37) and end-of-life care planning (3.83; SD = 3.63).

Table 1 Baseline characteristics of participants

	Cancer	CKD	Overall
	(n=82)	(n=68)	(<i>n</i> = 150)
Age (mean, SD)	75.5 (14.4)	72.0 (12.6)	73.9 (13.7)
Female (n, %)	46 (56%)	16 (24%)	62 (41%)
Marital status (n, %)			
Single	8 (9.8%)	5 (7.4%)	13 (8.7%)
Married	38 (46%)	41 (60%)	79 (53%)
Divorced/Separated	10 (12%)	8 (12%)	18 (12%)
Widowed	26 (32%)	14 (21%)	40 (27%)
Education (n, %)			
None	15 (19%)	5 (7.4%)	20 (14%)
Primary	29 (36%)	37 (54%)	66 (45%)
Secondary	31 (39%)	16 (24%)	47 (32%)
Tertiary	5 (6.3%)	10 (15%)	15 (10%)
Religion (n, %)			
No religion	47 (57%)	53 (78%)	100 (67%)
Buddhism	15 (18%)	4 (5.9%)	19 (13%)
Christianity	13 (16%)	9 (13%)	22 (15%)
Others	7 (8.5%)	2 (2.9%)	9 (6.0%)
ECOG Performance Status (n, %)			
Grade 0	5 (7.5%)	18 (32%)	23 (19%)
Grade 1	13 (19%)	15 (27%)	28 (23%)
Grade 2	21 (31%)	14 (25%)	35 (28%)
Grade 3	19 (28%)	9 (16%)	28 (23%)
Grade 4	9 (13%)	0 (0%)	9 (7.3%)
Prognosis			
Days to weeks	6 (9.2%)	7 (12%)	13 (11%)
Months to 1 Year	54 (83%)	35 (61%)	89 (73%)
> 1 Year	5 (7.7%)	15 (26%)	20 (16%)
Self-perceived health status (n, %)			
Extremely good	1 (1.3%)	0 (0%)	1 (0.7%)
Very good	7 (9.2%)	8 (12%)	15 (10%)
Good	13 (17%)	14 (21%)	27 (19%)
So-so	35 (46%)	36 (53%)	71 (49%)
Poor	20 (26%)	10 (15%)	30 (21%)
Advance directives (n, %)			
Knowledge of	39.3 (50)	29.9 (51)	101 (67.3%)
Completed	8.6 (7)	0 (0)	7 (4.7%)
Type of information desired (n, %)			
Want all information (good or bad)	54 (71%)	47 (71%)	101 (71%)
Only information that allow me to care for myself	11 (14%)	9 (14%)	20 (14%)
Only good news	8 (11%)	9 (14%)	17 (12%)
Who accompanied the patient			
Patient alone	12 (17%)	7 (12%)	19 (15%)
Family	53 (76%)	49 (83%)	102 (79%)
Friend	2 (2.9%)	1 (1.7%)	3 (2.3%)
Others	3 (4.3%)	2 (3.4%)	5 (3.9%)

CKD, Chronic kidney disease; SD, standard deviation; ECOG, Eastern Cooperative Oncology Group (ECOG) Performance Status

Reliability

The C-QOC demonstrated good internal consistency (Table 4). Cronbach's α was 0.884 for the overall scale. For the general communication skills, communication about illness trajectory, and end-of-life care planning subscales,

Cronbach's α was 0.894, 0.842, and 0.884, respectively. Item-total correlations were strong (0.40–0.69) for 13 items and moderate (0.30–0.39) for the remaining 3 items. Cronbach's α remained stable (0.855 to 0.871) when individual items were sequentially removed.

Table 2 Item descriptive for combined Cancer and CKD patient samples (N=162)

C-QOC Item	# Didn't do (%)	# Missing (%)	Original Mean (SD)	Trans- formed Mean (SD)
Q1. Using words that you understand	1 (0.63%)	0 (0.00%)	8.74 (1.72)	8.73 (1.72)
Q2. Looking you in the eye	1 (0.63%)	7 (4.38%)	8.84 (1.67)	8.77 (1.8)
Q3. Answering all your questions about your illness and treatment	2 (1.25%)	7 (4.38%)	8.85 (1.7)	8.74 (1.96)
Q4. Listening to what you have to say	1 (0.63%)	3 (1.88%)	9.15 (1.26)	9.09 (1.45)
Q5. Caring about you as a person	1 (0.63%)	0 (0.00%)	9.16 (1.27)	9.15 (1.27)
Q6. Giving you his or her full attention	3 (1.88%)	2 (1.25%)	9.12 (1.29)	8.94 (1.79)
Q7. Talking with you about your feelings concerning the possibility that you might get sicker	43 (26.88%)	6 (3.75%)	8.86 (2.08)	6.41 (4.34)
Q8. Talking to you about the details concerning the possibility that you might get sicker	46 (28.75%)	6 (3.75%)	8.94 (1.88)	6.29 (4.38)
Q9. Talking to you about the trajectory of your illness	63 (39.38%)	6 (3.75%)	8.84 (2.07)	5.26 (4.63)
Q10. Talking to you about how long you might have to live	100 (62.50%)	6 (3.75%)	8.09 (3.13)	2.91 (4.31)
Q11. Talking to you about what dying might be like	93 (58.13%)	7 (4.38%)	7.97 (3.26)	3.19 (4.42)
Q12. Involving you in the decisions about the treatments that you want if you get too sick to speak for yourself	76 (47.50%)	8 (5.00%)	8.29 (2.56)	4.20 (4.53)
Q13. Asking about the things in life that are important to you	88 (55.00%)	3 (1.88%)	8.14 (2.87)	3.64 (4.48)
Q14. Respecting the things in your life that are important to you	78 (48.75%)	3 (1.88%)	8.39 (2.58)	4.28 (4.59)
Q15. Asking about your spiritual or religious beliefs	85 (53.13%)	7 (4.38%)	8.29 (2.88)	3.75 (4.56)
Q16. Respecting your spiritual or religious beliefs	79 (49.38%)	9 (5.63%)	8.35 (2.82)	4.04 (4.61)
C-QOC summary score	/	/	80.89 (23.41)	61.25 (21.86)

Note: CKD: chronic kidney disease; C-QOC, Chinese version of Quality of Communication questionnaire. Transformed mean refers to the mean after substituting 0 for items rated "Didn't do"

Convergent and discriminant validity

Convergent validity of the C-QOC was supported by significant positive correlations between C-QOC summary scores and both *overall clinician communication quality* ($\rho = 0.467$, p < 0.001) and *clinician comfort in discussing dying* ($\rho = 0.634$, p < 0.001) (Table 5).

Discriminant validity was evidenced by stronger association between *overall clinician communication quality* and general communication skills subscale (ρ = 0.73, p < 0.001) compared with communication about illness trajectory (ρ = 0.411, p < 0.001) and end-of-life care planning (ρ = 0.226, p = 0.004). As hypothesized, the C-QOC showed no significant association with unrelated measures such as patient information preferences.

Discussion

This study describes the cross-cultural adaptation process of the QOC for Chinese-speaking patients and evaluates the psychometric properties of the 16-item C-QOC.

The expert panel confirmed the clarity and cultural relevance of all items for end-of-life care communication in Chinese populations. Minimal revisions were required beyond adding one item addressing communication on illness trajectory. Patients reported ease of understanding of the tool and the administration time (mean: 7.4 min) was satisfactory.

Divergent factor structure: methodological and cultural considerations

PCA of the 16-item C-QOC revealed a three-component structure (general communication skills, communication about illness trajectory, and end-of-life care planning). This diverges from the two-component structure of the original QOC (general communication skills and end-of-life communication) [17]. While both scales shared the six items in the general communication skills sub-scale, the C-QOC redistributed the end-of-life care communication items into two distinct subscales, reflecting nuanced methodological and cultural differences.

The structural differences between the C-QOC and original QOC may stem from the following factors: item variation, temporal specificity, and cultural norms. First, differences in item inclusion between the C-QOC and original QOC (16 vs. 13 items, respectively) likely contributed to structural variation. The fewer items in the original QOC compared to C-QOC resulted from two key modifications: (1) the addition of a new item in the C-QOC (*"Talking to you about the trajectory of your ill-ness"*) and (2) the exclusion of two items from the original QOC (*"Respecting things in your life that are important to you"* and *"Respecting your spiritual or religious beliefs"*) that had a high rate of missing values in the U.S. sample but not the Chinese cohort [17].

Another methodological consideration involves temporal specificity in rating the clinicians. In the original QOC, patients evaluated their doctor's communication

C-QOC	Cancer			CKD			Combined		
item	Compo-	Compo-	Compo-	Compo-	Compo-	Compo-	Compo-	Compo-	Com-
	nent 1	nent 2	nent 3	nent 1	nent 2	nent 3	nent 1	nent 2	-od
									nent
									m
1. Using words you understand	0.733	0.130	0.174	0.634	0.122	0.213	0.684	0.122	0.191
2. Looking you in the eye	0.748	0.062	-0.027	0.699	0.131	0.131	0.724	0.074	0.064
3. Answering all your questions about your illness	0.750	0.153	0.071	0.574	0.298	0.057	0.657	0.205	0.082
4. Listening to what you have to say	0.951	0.048	0.022	0.894	0.152	0.031	0.924	0.101	0.029
5. Caring about you as a person	0.943	0.052	0.018	0.932	0.155	060.0	0.935	0.103	0.049
6. Giving full attention	0.666	0.132	0.100	0.884	0.202	0.123	0.735	0.170	0.094
7. Talking about your feelings about getting sicker	0.187	0.770	0.239	0.310	0.790	0.149	0.236	0.790	0.200
8. Talking about details if you got sicker	0.187	0.917	0.181	0.390	0.795	0.046	0.252	0.870	0.110
9. Talking to you about the trajectory of your illness	0.097	0.616	0.206	0.258	0.632	0.228	0.157	0.650	0.185
10. Talk about how long you have to live	0.030	0.426	0.389	0.043	0.668	0.380	0.036	0.553	0.344
11. Talking about what dying might be like	0.016	0.406	0.620	0.023	0.512	0.671	0.025	0.432	0.649
12. Involving you in treatment discussions about your care	0.016	0.210	0.539	0.105	0.338	0.523	0.069	0.187	0.553
13. Ask you about important things in life	0.138	0.194	0.733	0.206	0.109	0.870	0.171	0.121	0.816
14. Respecting important things in your life	0.165	0.278	0.689	0.082	0.112	0.743	0.128	0.178	0.727
15. Asking about spiritual or religious beliefs	0.003	0.045	0.821	0.148	0.121	0.809	0.060	0.100	0.801
16. Respecting your spiritual or religious beliefs	0.043	0.080	0.773	0.080	0.106	0.815	0.053	0.098	0.786
Mean Subscale Score (SD)	8.83 (1.26)	4.33 (3.36)	4.26 (3.53)	8.8 (1.36)	5.47 (3.31)	3.26 (3.72)	8.82 (1.3)	4.82 (3.37)	3.83 (3.63)
Noto: Missing data handlad hu listwisg dalation									(22.2)

Table 3 Principal component analyses for cancer, CKD, and combined samples

ny listw ing uai NOLG. MI

C-QOC, Chinese version of Quality of Communication questionnaire; CKD, chronic kidney disease; SD, standard deviation

Component 1: General Communication Skills, Component 2: Communication about Illness Trajectory, Component 3: End-of-life Care Planning

Table 4 Internal consistency of Chinese version of the quality of communication questionnaire

	Scale Cronbach's Alpha	Scale Mean if Item Deleted	Item-Total Correlation	Cronbach's Alpha if Item Deleted
Component 1: General communication skills	0.894			
1. Using words you understand		90.3	0.44	0.869
2. Looking you in the eye		90.3	0.333	0.871
3. Answering all your questions about your illness		90.3	0.389	0.87
4. Listening to what you have to say		89.0	0.382	0.87
5. Caring about you as a person		89.9	0.4	0.871
6. Giving full attention		89.0	0.402	0.87
Component 2: Communication about illness trajectory	0.842			
7. Talking about your feelings about getting sicker		92.7	0.615	0.859
8. Talking about details if you got sicker		92.7	0.574	0.861
9. Talking to you about the trajectory of your illness		93.8	0.509	0.865
10. Talk about how long you have to live		96.0	0.549	0.862
Component 3: End-of-life care planning	0.884			
11. Talking about what dying might be like		95.8	0.691	0.855
12. Involving you in treatment discussions about your care		94.8	0.51	0.865
13. Ask you about important things in life		95.4	0.673	0.856
14. Respecting important things in your life		94.7	0.632	0.858
15. Asking about spiritual, religious beliefs		95.2	0.609	0.859
16. Respecting your spiritual, religious beliefs		94.9	0.595	0.86

Table 5 Convergent and discriminant validity

	C-QOC Summary score		General skills	ral communication C il		Communication about illness trajectory		End-of-life care planning	
	Spear- man's r	P-value	Spear- man's r	P-value	Spear- man's r	P-value	Spear- man's r	P-value	
Overall quality of clinician communication	.467	< 0.001	.732	< 0.001	.411	< 0.001	.226	0.004	
Clinician comfort in discussing dying	.634	< 0.001	.509	< 0.001	.457	< 0.001	.555	< 0.001	
	Mean	P-value ¹	Mean	P-value ¹	Mean	P-value ¹	Mean	P-value ¹	
Information type preferences		0.504		0.952		0.369		0.749	
Only the necessary	6.08		9.21		5.32		3.21		
Good news only	5.40		8.53		3.80		3.41		
All information	6.04		8.90		5.16		3.75		

¹*P-values* obtained by Kruskal-Wallis Test

C-QOC, Chinese version of Quality of Communication questionnaire

without reference to a specific encounter, potentially reflecting their cumulative impressions across multiple consultations. By contrast, the C-QOC instructed patients to rate their provider's communication based on their most recent clinical interaction. This temporal specificity may have narrowed respondents' focus to the clinician's communication during a single encounter, leading to the emergence of two distinct subscales within end-oflife care communication.

Cultural differences in end-of-life care communication norms between Chinese and U.S. clinicians further contributed to these findings. Compared to the U.S. cohort, the Chinese cohort ratings for some items in Component 2 related to sharing information on illness trajectory were notably higher, while ratings for some items in Component 3 related to patient involvement in decision-making and eliciting patient's values were lower. This pattern aligns with cultural norms shaping clinician-patient dynamics in Chinese cultures.

Wang observed that Chinese patients were more likely than U.S. patients to endorse a doctor-dominant communication style [36]. This is characterized by an authoritative doctor who delivers information on the diagnoses, prognoses, and directs treatment decisions based on the doctor's views with limited input from the patient. Confucian values are aligned with family-centered decisionmaking and clinician authority, which may discourage explicit invitations for patients to share personal preferences, particularly in end-of-life contexts [8, 9, 37, 38, 39]. Additionally, cultural taboos around death may further explain the reluctance to explore end-of-life preferences [4, 37, 38, 39]. Validation of the C-QOC with more diverse patient groups and clinicians is needed to determine the stability of the factor structure of the scale.

Psychometric performance of C-QOC

The C-QOC demonstrated strong internal consistency and validity. Convergent validity was supported by significant correlations with overall clinician communication quality and even stronger association with clinician comfort in discussing dying. The stronger association with clinician comfort in discussing dying highlights the importance of clinician willingness to openly discuss end-of-life care topics with patients for high-quality endof-life care communication.

Global patterns in end-of-life communication

Despite differences in cultural norms around end-of-life care communication, we also found some similarities across cultures. Our finding of lower scores in the illness trajectory communication and end-of-life care planning subscales are consistent with international studies demonstrating clinician reluctance to discuss prognosis, patient's values, and spirituality [18, 19, 20, 21, 22, 23, 40]. This trend- observed in the U.S., the Netherlands, and Brazil- reflect cross-cultural barriers such as fear of causing distress, family preferences for non-disclosure, time constraints, and inadequate training in end-of-life communication [4, 23, 41, 42, 43]. Targeted communication skills training and systems-based changes that promote quality end-of-life care communication could mitigate these challenges.

Strengths and limitations

This study rigorously followed guideline-based translation and cultural adaptation processes, ensuring linguistic validity of the C-QOC. Psychometric evaluation of the C-QOC was conducted in accordance with the COS-MIN guidelines [44]. However, the study only sampled advanced cancer and CKD patients, which may limit the scale's generalizability to a broader patient population. Test-retest reliability and responsiveness to change remained unexamined. Finally, we did not compare patient assessment of clinician communication against observer ratings which could provide a more comprehensive understanding of the scale's validity.

Conclusion

The C-QOC is a valid, reliable, and culturally relevant patient-reported measure of clinician end-of-life care communication for Chinese-speaking patients. Future research should explore its stability, generalizability across diverse populations, and utility in communication training and clinical practice.

Abbreviations

CKD	Chronic kidney disease
COPD	Chronic obstructive pulmonary disease
ECOG	Eastern Cooperative Oncology Group
I-CVI	Item-content validity index

- KMO Kaiser-Meyer-Olkin
- PCA Principal component analysis
- C-QOC Chinese version of Quality of Communication Questionnaire
- S-CVI Scale-level-content validity index

Supplementary Information

The online version contains supplementary material available at https://doi.or g/10.1186/s12904-025-01786-3.

Supplementary Material 1

Acknowledgements

We dedicate this work to the memory of Dr. Randall Curtis, whose visionary work as a clinician, researcher, teacher, and mentor profoundly shaped the field of palliative care. As the original developer of the QOC, Dr. Curtis provided instrumental guidance during the cultural adaptation process of the Chinese QOC. His tireless advocacy for compassionate communication with seriously ill patients and families continues to inspire our efforts. We would like to thank our expert panel members for their invaluable insights and all patients who graciously gave their time to participate in this study.

Author contributions

Study concept and design: JKY, HYLC, RMA. Acquisition of data: JKY, TWTC, STC, AOLK, HSG, KWT, DMT, DYHY, TY. Analysis and interpretation of data: JKY, HYC, STC, DYPL, RMA. Drafting of the manuscript: JKY, STC. Critical revision of the manuscript for important intellectual content: JKY, HYLC, TWTC, STC, AOLK, DYPL, HSG, KWT, DMWT, DYHY, TY, RMA. All authors reviewed and approved the manuscript.

Funding

This work was supported by The University of Hong Kong Faculty Start-up Fund (Grant number 006027001). The funding source had no role in the conduct of the research or preparation of the article.

Data availability

The data that support the findings of this study are stored confidentially and are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki. This study was approved by the Institutional Review Board of The University of Hong Kong/Hospital Authority Hong Kong West Cluster (Ref no: UW 20–406) and Hospital Authority Kowloon West Cluster (Ref no: KW/EX-21-068). All participants received an information sheet with the study information, and signed a consent form to confirm their voluntary participation.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

¹Division of Geriatrics, School of Clinical Medicine, The University of Hong Kong, Hong Kong SAR, China

²School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China

³School of Nursing, Li Ka Shing Faculty of Medicine, Chinese University of Hong Kong, Hong Kong SAR, China

⁴Haven of Hope Sister Annie Skau Holistic Care Centre, Hong Kong SAR, China

⁵Palliative Care Unit, Department of Medicine and Geriatrics, Caritas Medical Centre, Hong Kong SAR, China

⁶School of Nursing, The Hong Kong Polytechnic University, Hong Kong SAR, China

⁷Division of Haematology-Oncology, Medical Oncology and Haemopoietic Stem Cell Transplantation, School of Clinical Medicine, The University of Hong Kong, Hong Kong SAR, China ⁸Palliative Medical Unit, Grantham Hospital, Hong Kong SAR, China

⁹Division of Nephrology, School of Clinical Medicine, The University of Hong Kong, Hong Kong SAR, China

¹⁰Renal Unit, Tung Wah Hospital, Hong Kong SAR, China

¹¹Department of Geriatrics and Palliative Medicine, Icahn School of Medicine at Mount Sinai, New York, USA

Received: 20 November 2024 / Accepted: 12 May 2025 Published online: 19 May 2025

References

- Houben CHM, Spruit MA, Groenen MTJ, Wouters EFM, Janssen DJA. Efficacy of advance care planning: a systematic review and meta-analysis. J Am Med Dir Assoc. 2014;15:477–89. https://doi.org/10.1016/j.jamda.2014.01.008.
- Bernacki RE, Block SD, American College of Physicians High Value Care Task Force. Communication about serious illness care goals: a review and synthesis of best practices. JAMA Intern Med. 2014;174(12):1994–2003. https://doi.or g/10.1001/jamainternmed.2014.5271.
- Schonfeld TL, Stevens EA, Lampman MA, et al. Assessing challenges in endof-life conversations with elderly patients with multiple morbidities. Am J Hosp Palliat Care. 2012;29(20110825):260–7. https://doi.org/10.1177/1049909 111418778.
- Cheung JTK, Au D, Ip AHF, Chan J, Ng K, Cheung L, Yuen J, Hui E, Lee J, Lo R, Woo J. Barriers to advance care planning: a qualitative study of seriously ill Chinese patients and their families. BMC Palliat Care. 2020;19(1):80. https://do i.org/10.1186/s12904-020-00587-0.
- Hancock K, Clayton JM, Parker SM, et al. Truth-telling in discussing prognosis in advanced life-limiting illnesses: a systematic review. Palliat Med. 2007;21:507–17. https://doi.org/10.1177/0269216307080823.
- Bazargan M, Cobb S, Assari S et al. Preparedness for Serious Illnesses: Impact of Ethnicity, Mistrust, Perceived Discrimination, and Health Communication. *Am J Hosp Palliat Care* 2022; 39: 461–471. 20210903. https://doi.org/10.1177/1 0499091211036885
- Knutzen KE, Sacks OA, Brody-Bizar OC, et al. Actual and missed opportunities for End-of-Life care discussions with oncology patients: A qualitative study. JAMA Netw Open. 2021;4:e2113193. https://doi.org/10.1001/jamanetworkop en.2021.13193.
- Mori M, Chan HYL, Lin CP, et al. Definition and recommendations of advance care planning: A Delphi study in five Asian sectors. Palliat Med. 2025;39:99– 112. https://doi.org/10.1177/02692163241284088.
- Mori M, Morita T. End-of-life decision-making in Asia: A need for in-depth cultural consideration. Palliat Med. 2020;34:NP4–5. https://doi.org/10.1177/02 69216319896932.
- Makoul G. The SEGUE framework for teaching and assessing communication skills. Patient Educ Couns. 2001;45(1):23–34. https://doi.org/10.1016/s0738-39 91(01)00136-7.
- Makoul G, Krupat E, Chang CH. Measuring patient views of physician communication skills: development and testing of the communication assessment tool. Patient Educ Couns. 2007;67(3):333–42. https://doi.org/10.1016/j.p ec.2007.05.005.
- 12. Campbell C, Lockyer J, Laidlaw T, Macleod H. Assessment of a matched-pair instrument to examine doctor-patient communication skills in practising Doctors. Med Educ. 2007;41(2):123–9. https://doi.org/10.1111/j.1365-2929.20 06.02657.x.
- Elwyn G, Hutchings H, Edwards A, Rapport F, Wensing M, Cheung WY, Grol R. The OPTION scale: measuring the extent that clinicians involve patients in decision-making tasks. Health Expect. 2005;8(1):34–42. https://doi.org/10.111 1/j.1369-7625.2004.00311.x.
- Curtis JR, Patrick DL, Caldwell E, et al. The quality of patient-doctor communication about end-of-life care: a study of patients with advanced AIDS and their primary care clinicians. AIDS. 1999;13:1123–31. https://doi.org/10.1097/ 00002030-199906180-00017.
- Wenrich MD, Curtis JR, Shannon SE, et al. Communicating with dying patients within the spectrum of medical care from terminal diagnosis to death. Arch Intern Med. 2001;161:868–74. https://doi.org/10.1001/archinte.161.6.868.
- 16. Curtis JR, Engelberg RA, Wenrich MD et al. Studying communication about end-of-life care during the ICU family conference: development of a

framework. J Crit Care 2002; 17: 147–160. https://doi.org/10.1053/jcrc.2002.35 929

- Engelberg R, Downey L, Curtis JR. Psychometric characteristics of a quality of communication questionnaire assessing communication about end-of-life care. J Palliat Med. 2006;9:1086–98. https://doi.org/10.1089/jpm.2006.9.1086.
- Castanhel FD, Grosseman S. Quality of communication questionnaire for COPD patients receiving palliative care: translation and cross-cultural adaptation for use in Brazil. J Bras Pneumol. 2017;43:357–62. https://doi.org/10.1590/ S1806-37562016000000199.
- Del Castanhel F, Burg L, Nogueira LM, et al. Quality of communication questionnaire for patients hospitalized in intensive and palliative care: validity evidence for use in Brazil. Am J Hosp Palliat Care. 2022;39(20210824):535–41. https://doi.org/10.1177/10499091211041347.
- Jo M, Song MK, Van Riper M, et al. Translation and cultural adaptation of the quality of communication questionnaire for ICU family members in Korea. Heart Lung. 2017;46:458–46320170912. https://doi.org/10.1016/j.hrtlng.2017. 08.002.
- De Panfilis L, Veronese S, Perin M, et al. Italian cross-cultural adaptation of the quality of communication questionnaire and the 4-item advance care planning engagement questionnaire. PLoS ONE. 2023;18:e0282960. https://doi.or g/10.1371/journal.pone.0282960.
- Curtis JR, Engelberg RA, Nielsen EL, et al. Patient-physician communication about end-of-life care for patients with severe COPD. Eur Respir J. 2004;24:200–5. https://doi.org/10.1183/09031936.04.00010104.
- Janssen DJ, Spruit MA, Schols JM et al. Insight into advance care planning for patients on dialysis. J Pain Symptom Manage 2013; 45: 104–113. 20120726. htt ps://doi.org/10.1016/j.jpainsymman.2012.01.010
- Houben CH, Spruit MA, Schols JM, et al. Patient-Clinician communication about End-of-Life care in patients with advanced chronic organ failure during one year. J Pain Symptom Manage. 2015;49:1109–15. https://doi.org/10.1016/ j.jpainsymman.2014.12.008.
- Buecken R, Galushko M, Golla H, et al. Patients feeling severely affected by multiple sclerosis: how do patients want to communicate about end-of-life issues? Patient Educ Couns. 2012;88:318–32420120404. https://doi.org/10.10 16/j.pec.2012.03.010.
- Beaton DE, Bombardier C, Guillemin F, et al. Guidelines for the process of Cross-Cultural adaptation of Self-Report measures. Spine. 2000;25:3186–91. h ttps://doi.org/10.1097/00007632-200012150-00014.
- Nunnally JC, Bernstein IH. Psychometric theory. 3rd ed. New York: McGraw-Hill; 1994.
- Gorsuch RL. Exploratory factor analysis. In: Nesselroade JR, Cattell RB, editors. Handbook of multivariate experimental psychology. 2nd ed. New York: Plenum; 1988. pp. 231–58.
- Conill C, Verger E, Salamero M. Performance status assessment in cancer patients. Cancer. 1990;65:1864–6. https://doi.org/10.1002/1097-0142(199004 15)65:8%3C1864::aid-cncr2820650832%3E3.0.co;2-u.
- Cassileth BR, Zupkis RV, Sutton-Smith K, March V. Information and participation preferences among cancer patients. Ann Intern Med. 1980;92:832-6. http s://doi.org/10.7326/0003-4819-92-6-832. PMID: 7387025.
- Shi J, Mo X, Sun Z. [Content validity index in scale development]. 2012;37:152-5. https://doi.org/10.3969/j.issn.1672-7347.2012.02.007. PMID: 22561427.
- 32. Yusoff MSB. ABC of content validation and content validity index calculation. Educ Med J. 2019;11:49–54. https://doi.org/10.21315/eimj2019.11.2.6.
- Kaiser HF. An index of factorial simplicity. Psychometrika. 1974;39:31–6. https: //doi.org/10.1007/BF02291575.
- Tobias S, Carlson JE. Brief report: Bartlett's test of sphericity and chance findings in factor analysis. Multivar Behav Res. 1969;4:375–7. https://doi.org/10.12 07/s15327906mbr0403_8.
- Costello AB, Osborne J. Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. Practical Assess Res Evaluation. 2005;10:7. https://doi.org/10.7275/jyj1-4868.
- Wang Q. Doctor-patient communication and patient satisfaction: A crosscultural comparative study between China and the US (Doctoral Dissertation). Available from Digital dissertation consortium (UMI No. 3444876).
- Pun JKH, Cheung KM, Chow JCH, et al. Chinese perspective on end-of-life communication: a systematic review. BMJ Support Palliat Care. 2024;14:e30– 7. https://doi.org/10.1136/bmjspcare-2019-002166.
- Pun JKH, Chan EA, Wang S, et al. Health professional-patient communication practices in East Asia: an integrative review of an emerging field of research and practice in Hong Kong, South Korea, Japan, Taiwan, and Mainland China.

Patient Educ Couns. 2018;101:1193–206. https://doi.org/10.1016/j.pec.2018.0 1.018.

- Bowman KW, Singer PA. Chinese seniors' perspectives on end-of-life decisions. Soc Sci Med. 2001;53:455–64. https://doi.org/10.1016/s0277-9536(00)0 0348-8.
- 40. Janssen DJA, Spruit MA, Schols J, et al. A call for high-quality advance care planning in outpatients with severe COPD or chronic heart failure. Chest. 2011;139:1081–8. https://doi.org/10.1378/chest.10-1753.
- Fallowfield LJ, Jenkins VA, Beveridge HA. Truth May hurt but deceit hurts more: communication in palliative care. Palliat Med. 2002;16:297–303. https:// doi.org/10.1191/0269216302pm575oa.
- Baile WF, Lenzi R, Parker PA, et al. Oncologists' attitudes toward and practices in giving bad news: an exploratory study. J Clin Oncol. 2002;20:2189–96. http s://doi.org/10.1200/JCO.2002.08.004.

Page 12 of 12

- Shahidi J. Not telling the truth: circumstances leading to concealment of diagnosis and prognosis from cancer patients. Eur J Cancer Care (Engl). 2010;19:589–59320091203. https://doi.org/10.1111/j.1365-2354.2009.01100.x.
- 44. Gagnier JJ, Lai J, Mokkink LB, Terwee CB. COSMIN reporting guideline for studies on measurement properties of patient-reported outcome measures. Qual Life Res. 2021;30:2197–218. https://doi.org/10.1007/s11136-021-0282 2-4.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.