

Multilingual Validation and Cross-Cultural Adaptation of European Organization for Research and Treatment of Cancer- Quality of Life Questionnaire 30-Item Core Version (EORTC-QLQ-C30): An Update

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Abstract

The European Organization for Research and Treatment of Cancer- Quality of Life Questionnaire 30-Item Core Version (EORTC-QLQ-C30) is globally regarded as a gold-standard self-reported evaluation tool for Health-related quality of life (HRQoL) for use in cancer practice, education, research and administration. The objective of this review article was to address its applicability in various languages through studies on cross-cultural adaptation and translation-validation. There were 19 studies found on 13 languages (Chinese=4; Turkish=3; Taiwan Chinese=2; other ten languages=1 each), all of them reporting acceptable reliability, validity and responsiveness for the translated versions of EORTC-QLQ-C30 for evaluating HRQoL in cancer patients in a variety of settings and situations. There is need for validating EORTC-QLQ-C30 questionnaire into Indian languages to facilitate its routine use in oncology and palliative care settings.

Keywords: Oncological evaluation; Quality of life; Psychooncology; EORTC-QLQ-C30.

The European Organization for Research and Treatment of Cancer- Quality of Life Questionnaire 30-Item Core Version (EORTC-QLQ-C30) is globally regarded as a gold-standard self-reported evaluation tool for Health-related quality of life (HRQoL) for use in cancer practice, education, research and administration. The objective of this review article was to address its applicability in various languages through studies on cross-cultural adaptation and translation-validation.

Chinese

Cheng *et al*[1] administered the EORTC QLQ-C30 (version 3.0) at three time points: T1, the first or the second day that patients were hospitalized after the brain tumor suspected or diagnosed by MRI or CT; T2, 1 to 2 days after T1, (T1 and T2 were both before surgery); T3, the day before discharge. The authors found that Cronbach's alpha coefficients for multi-item scales were greater than 0.70 and most of the item-scale correlation coefficients met the standards of convergent and discriminant validity, except for the cognitive functioning scale.

Wan *et al*[2] used the simplified Chinese version of the QLQ-C30 on 600 patients with five types of cancer: lung, breast, head and neck, colorectal, and stomach, and found good construct validity with the alpha coefficients for all domains >0.7 except for cognitive functioning; and test-retest reliability coefficients for most domains >0.80 except for appetite loss and diarrhea.

Zhao and Kanda[3] studied 191 gynecological cancer patients including gestational trophoblastic disease patients (n = 68), ovarian cancer patients (n = 105), and other types of gynecological cancer patients (n = 18) and found that all item-subscale correlation coefficients exceeded the criterion of item-convergent validity except item 1, 5, 20, and 25, and all items correlated

significantly higher with their own subscale than with other subscales except item 1, 20, and 25. The correlation coefficients among all subscales were significant but modest, with seven out of nine subscales meeting the minimal standards of reliability.

Zhao and Kanda[4] studied 143 patients with breast, gynecological, or lung cancer in six hospitals in China, and found that Cronbach's alpha coefficients for multi-item scales were greater than 0.70 before and during treatment, except for the cognitive functioning scale. Most of the item-scale correlation coefficients met the standards of convergent and discriminant validity. All scales and items were found to exhibit good reproducibility, criterion-related validity, and construct validity.

English

Luo *et al*[5] studied a heterogeneous sample of 57 cancer patients and found that Spearman's correlations between the QLQ-C30 and SF-36 scales ranged from 0.35 to 0.67, with Cronbach's alpha ranging from 0.19 for the cognitive functioning scale to 0.91 for the global QoL scale.

Greek

Kontodimopoulos *et al*[6] studied 105 female breast cancer patients to assess construct validity and internal consistency reliability of the Greek EORTC QLQ-C30 and found, item convergence rate was 92% and discrimination rate was 87%. Cronbach's alpha for all subscales was >0.70 except for cognitive functioning. Correlation with SF-36 ranged from 0.25 to 0.64,

Indonesian

Perwitasari *et al*[7] studied 128 cancer patients undergoing cisplatin chemotherapy regimen and found internal consistency with values of >0.70. All items in the questionnaire met the criteria of convergent and discriminant validity, except for item 5. Moderate

correlations were observed with SF-36 Indonesian version.

Iranian (Persian)

Montazeri *et al*[8] studied 168 breast cancer patients and found Cronbach's alpha for multi-item scales ranged from 0.48 to 0.95 at baseline and from 0.52 to 0.98 at follow-up. Fair to good inter-scale correlations and all functioning and symptom scales were found to discriminate between subgroups of patients differing in clinical status as defined by their performance status and disease stage.

Japanese

Kobayashi *et al*[9] studied 105 lung cancer patients and found that the Japanese QLQ-C30 has a weak scale of role functioning in terms of item discriminative validity and a weak scale of cognitive functioning in items of discriminative validity and internal consistency.

Korean

Yun *et al*[10] studied 170 patients and found that all scales met multidimensional conceptualization criteria, in terms of convergence and discrimination validity. Cronbach's alpha coefficients for eight multiple-item scales were greater than 0.70, with the exception of cognitive functioning. Good interscale correlations were observed, with physical and emotional functioning being explanatory variables for the global quality-of-life (QOL) scale.

Polish

Tomaszewski *et al*[11] studied 98 patients with esophagi-gastric cancer and found that Polish version of the EORTC QLQ-C30 was a reliable and valid tool for measuring health-related quality of life.

Spanish (Mexican)

Cerezo *et al*[12] studied 234 Mexican

women with breast cancer and found adequate Convergent and divergent validity, Cronbach's alpha of all multi-item scales showed values ≥ 0.7 except for Cognitive functioning subscale, and patients with early stages had better functional scores and lower symptoms scores than patients with chronic/advanced stages.

Sinhala

Jayasekara *et al*[13] studied 489 pre-treatment and 343 during-treatment cancer patients and their findings supported the scale structure of the QLQ-C30, with the exception of the cognitive functioning scale, moderate interscale correlations and good discriminative properties.

Taiwan Chinese

Chie *et al*[14] studied 51 lung cancer patients undergoing active chemotherapy and 48 such patients undergoing follow-up and found that the intraclass correlation between test and retest ranged from 0.46 to 0.85 for the QLQ-C30. The kappa coefficients between test and retest ranged from 0.51 to 0.73 for single items of the QLQ-C30. The Cronbach's alpha coefficients were ≥ 0.70 for all scales apart from that of cognitive functioning. The correlation coefficients between indices measuring similar dimensions of the EORTC QLQ-C30 and the SF-36 questionnaires ranged from 0.43 to 0.73.

Chie *et al*[15] studied 35 breast cancer patients under active treatment and 54 under follow-up and found that the intraclass correlation coefficient was moderate to high in the follow-up group. The Cronbach's alpha coefficients of most scales were ≥ 0.70 except that of physical functioning, cognitive functioning, and arm symptoms. Correlations of scales measuring similar dimensions of the EORTC QLQ-C30 and the SF-36 were moderate.

Thai

Silpakit *et al*[16] studied 310 cancer patients

and found that "Cronbach's alpha coefficients of the six scales were above 0.7, except for cognitive and social function scales. All test-retest reliability coefficients were high. Multi trait scaling analysis showed that all item-scale correlation coefficients met the standards of convergent and discriminant validity. Most scales and items could discriminate between subgroups of patients with different clinical status assessed with the Eastern Cooperative Oncology Group (ECOG) scale."

Turkish

Guzelant *et al*[17] studied 202 lung cancer patients and found that all the subscales met the minimal standards of reliability (Cronbach's alpha ≥ 0.70), and only the role functioning scale differed among the three disease stages of patients (local, locoregional and metastatic). "All interscale correlations were present, with the strongest correlations found among the physical functioning, role functioning and fatigue scales. Social functioning was closely related with physical, role, emotional and cognitive functioning. The weakest correlations were between nausea/vomiting and the other scales. Global quality of life (QOL) was substantially correlated with most of the scales except cognitive functioning."

Hoopman *et al*[18] studied 90 Turkish and 79 Moroccan patients and found strong convergent validity for all multi-item scales, high internal consistency except for cognitive functioning, good discriminant validity to distinguish clearly between subgroups formed on the basis of performance status and comorbidity, and was moderately responsive to change over time in performance status.

Demirci *et al*[19] studied 127 breast cancer patients undergoing radiotherapy and found that six of the 8 multi-item scales of QLQ-C30 had a high reliability where physical functioning and pain scores were less reliable. The most determinative subscales of QLQ-C30 on global health were emotional functioning followed by fatigue, role functioning and appetite loss.

There were 19 studies found on 13 languages (Chinese=4; Turkish=3; Taiwan Chinese=2; other ten languages=1 each), all of them reporting acceptable reliability, validity and responsiveness for the translated versions of EORTC-QLQ-C30 for evaluating HRQoL in cancer patients in a variety of settings and situations. There is need for validating EORTC-QLQ-C30 questionnaire into Indian languages to facilitate its routine use in oncology and palliative care settings.

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