Making the EORTC QLQ-C30 interactive: development and validation of CAT for EORTC QLQ-C30 dimensions

- project updates

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## Status of the CAT-project Sep ‘13

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<th>Expert interviews</th>
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General paper: 1 (MAPI)
1. Petersen et al. (2010). Development of CAT for the EORTC QLQ-C30 dimensions - General approach and initial results for PF. EJC 46, 1352-1358


4. Petersen et al (2012). The EORTC computer-adaptive tests (CATs) measuring physical functioning and fatigue exhibited high levels of measurement precision and efficiency. JCE 66(3), 330-339

5. Petersen et al. (2013). Psychometric evaluation of the EORTC CAT fatigue item pool. QLR, Epub ahead of print

Publications, being drafted

7. Gamper et al. The EORTC Emotional Functioning computer adaptive test (CAT): phase I-III of a cross-cultural item bank development – reviewed, revised, and resubmitted

8. Petersen et al. Development of an item bank for computerized adaptive test (CAT) measurement of pain – reviewed, being revised

9. Petersen et al. Psychometric evaluation of the EORTC CAT emotional functioning item pool – 1st version drafted, co-author commenting

10. Holst et al. Development of a lack of appetite item bank for computer-adaptive testing (CAT) – being drafted

11. Gamper et al. The EORTC Role functioning computer adaptive test (CAT) – being drafted

12. Petersen et al. Development of an item bank for computerized adaptive test (CAT) measurement of dyspnoea – being drafted

13. Young et al. Development of an item bank for computerized adaptive test (CAT) measurement of social functioning – being drafted
CAT- validation project
Aim of the validation project

• To implement, test, and validate the EORTC CAT instrument using web-based administration

• Consists of two parts:
  - A feasibility study to investigate the acceptability, optimal design and logistics of CAT administration
  - A field study (main study) to test the validity of the EORTC CAT, particularly the measurement precision of the CAT compared to the QLQ-C30
Feasibility study

- Test the administration of the EORTC CAT in 7-10 centres each with min. 10 cancer patients, and a total N=100

Currently there are centres involved in the project from:

- Australia
- Austria
- Denmark
- Germany
- Italy
- the Netherlands
- Poland
- Taiwan
- Turkey
- UK
Feasibility study

• Test the administration of the EORTC CAT in 7-10 centres each with min. 10 cancer patients, and a total N=100

• Obtain local approvals, test, adjust, and correct software and field study design

• Patients are tested as planned for the field study: #items in C30 scale + 4 (5-9 items per dim) using CAT + QLQ-C30 items not used in CAT

• Afterwards patients are interviewed regarding the experience, should anything be changed?

• Time-frame: appr. 1 year, starting now! Currently translating items and protocol for ethical approval
Field study

• Evaluate the measurement precision by investigating:
  - sensitivity using known groups comparisons
  - Responsiveness, i.e. ability to detect expected changes over time

• Same centres as in feasibility study

• At least 100 cancer patients from each centre and total N=1,000

• Mixed sample: Both genders, different age groups, cancer sites, cancer stages etc.

• Time-frame: appr. 2 years, starting when feasibility study is completed
Field study design

- Two CAT-measurements, before (baseline) and after chemotherapy

- Some centres will have two baseline assessments to evaluate test-retest reliability
Field study analyses

• Evaluate CAT performance:
  - Time used, item usage, precision of different length CAT,…

• Sensitivity analyses:
  - Relative validity (RV) of CAT compared to QLQ-C30 scales when comparing groups expected to differ (e.g. stage III+IV vs. I+II)

• Responsiveness:
  - RV based on scores before and after treatment

• Test-retest reliability:
  - Comparing the two baseline assessments. Mean differences, ICC, correlation etc.
Software, the “CAT-engine”

• The CAT-engine is the program handling all computation within the CAT:
  - Item selection - what item should be asked next?
  - Stopping criteria - When should a CAT session stop?
  - All estimations - IRT (scale) scores, information,…
  - Ensures all imposed requirements/restrictions for a CAT are fulfilled

• CAT-engine does not have a graphical interface to present items etc. Another program should handle this
Software, structure

- CAT-engine running on own server
- CAT setting (once). Request for next item
- Info on item to ask next or stop
- Program for presenting and collecting questionnaire data (e.g. CHES running on own server)
- Present item e.g. on web-page
- Response to item
- Logs in
- Patient with internet access using any device

pro-cat.dk/CatValTest/
Thank you!

Any comments/questions to the projects please contact us:

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