

**Making the EORTC QLQ-C30
interactive:
development of CAT for EORTC
QLQ-C30 dimensions
- project update**

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Aim of the project

- Develop CAT for the QLQ-C30 dimensions (scales)
- CAT: interactive, individually adapted questionnaire:



Continue until have desired precision/asked desired number of items

- Requires: set of items (item pool) covering the levels and aspects of the dimension

Status of the project

Dim	Lit. search, construct items	Expert interviews	Patient interviews	Data collection	IRT analyses
PF	Completed	Completed	Completed	Completed	Completed
FA	Completed	Completed	Completed	Completed	Completed
PA	Completed	Completed	Completed	Completed	(Completed)
AP	Completed	Completed	Completed	Ongoing	
DY	Completed	Completed	Completed	Ongoing	
SL	Completed	Completed	Completed	Ongoing	
EF	Completed	Completed	Ongoing		
RF	Completed	Completed	Ongoing		
SF	Completed	Completed	Ongoing		
CO	Completed	Completed	Start Mar		
CF,FI	Completed	Start Apr			
NV,DI	Ongoing				

PA analyses (preliminary results)

- In all, 337 PA items identified in the literature
- Of these, 140 items were deemed potentially relevant for EORTC PA measurement
- Many items redundant. Hence, 113 items deleted, leaving 23 “unique” PA items
- Using these as inspiration, 29 new candidate PA items were formulated
- Based on expert and patient input these were reduced to 21 candidate items (incl. the two C30 PA items)
- Collected 1103 responses from Denmark, Italy, Sweden, Taiwan & UK

PA, dimensionality

- EFA:
 - First factor explained 85% of variation (other factors explained $< 5\%$)
 - Only 1st eigenvalue was > 1 (18)
- Fit indices for 1-dim solution (CFA):
 - TLI=0.995, CFI=0.977 (>0.95 is “good”), RMSEA=0.147 (>0.1 is “poor”)
- **Conclusion:** Keep all 21 items, evaluate fit to 1-dim IRT model

PA, IRT analyses

- Problems fitting (credible) IRT model to items
- Evaluations showed several indications of local dependence (item responses more related than can be explained by the model)
- Particularly, the two C30 PA items were highly related, i.e. possibly LD:
 - Poly. corr =0.9, 94% had responded the same or one category lower to q19 “pain interfered” than to q9 “had pain”.

PA, IRT analyses cont.

- Investigated two approaches:
 - Use full sample, combine q9 & q19 into one “super item” (testlet) to remove LD
 - Use reduced sample, drop patients with q9=q19=“not at all” (main reason for LD)
- Both approaches resulted in much more credible, well-fitting models
- Same 16 items could be included in both approaches, however, testlet_{q9,q19} had poor fit in full sample model
- Reduced sample model seemed superior: credible, good fit, q9 & q19 had good fit and did not need to be combined.

PA, DIF analyses

- Investigated for DIF for the 16 items with regard to: Gender, age, country, cancer site, stage, treatment, cohabitation, education, and work
- Generally few findings of DIF, particularly compared to PF and FA
- DIF findings generally did not seem important for estimation of PA score (most pronounced DIF was IT+TW vs. DK+SW+UK for q9!)

PA, preliminary conclusion

- Possible problems with LD, but could seemingly be circumvented by estimating model without $q_9=q_{19}$ ="not at all"
- Results seem to generalise to all patients
- Include 16 PA items (four about intensity, 12 about interference) with good fit
- Maybe use special arrangement for the "no pain" patients, e.g. if respond "not at all" to q_9 & q_{19} then stop.

Publications

- Petersen et al (2010). Development of CAT for the EORTC QLQ-C30 dimensions - General approach and initial results for PF. **Published:** EJC 46, 1352-1358
- Petersen et al (2010). Development of CAT for the EORTC QLQ-C30 PF dimension. **Published:** QLR, Epub ahead of print
- Giesinger et al. Cross-cultural development of an item list for CAT of fatigue in oncological patients. Revised version resubmitted soon to HQLO
- Petersen et al. Psychometric evaluation of the EORTC CAT fatigue item pool. First draft being written

Thank you!

Any comments/questions to
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