

**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
- Advantages include: increased precision, adaptation to each study/person, immediate calculation and presentation of results
- 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	Ongoing
PA	Completed	Completed	Completed	Completed	Start Oct
AP	Completed	Completed	Completed	Ongoing	
DY	Completed	Completed	Completed	Ongoing	
SL	Completed	Completed	Completed	Ongoing	
EF	Completed	Completed	Start Oct		
RF	Completed	Completed	Start Oct		
CO	Completed	Completed	Start Nov		
SF	Completed	Ongoing			
NV	Ongoing				
CF,FI,DI	Ongoing				

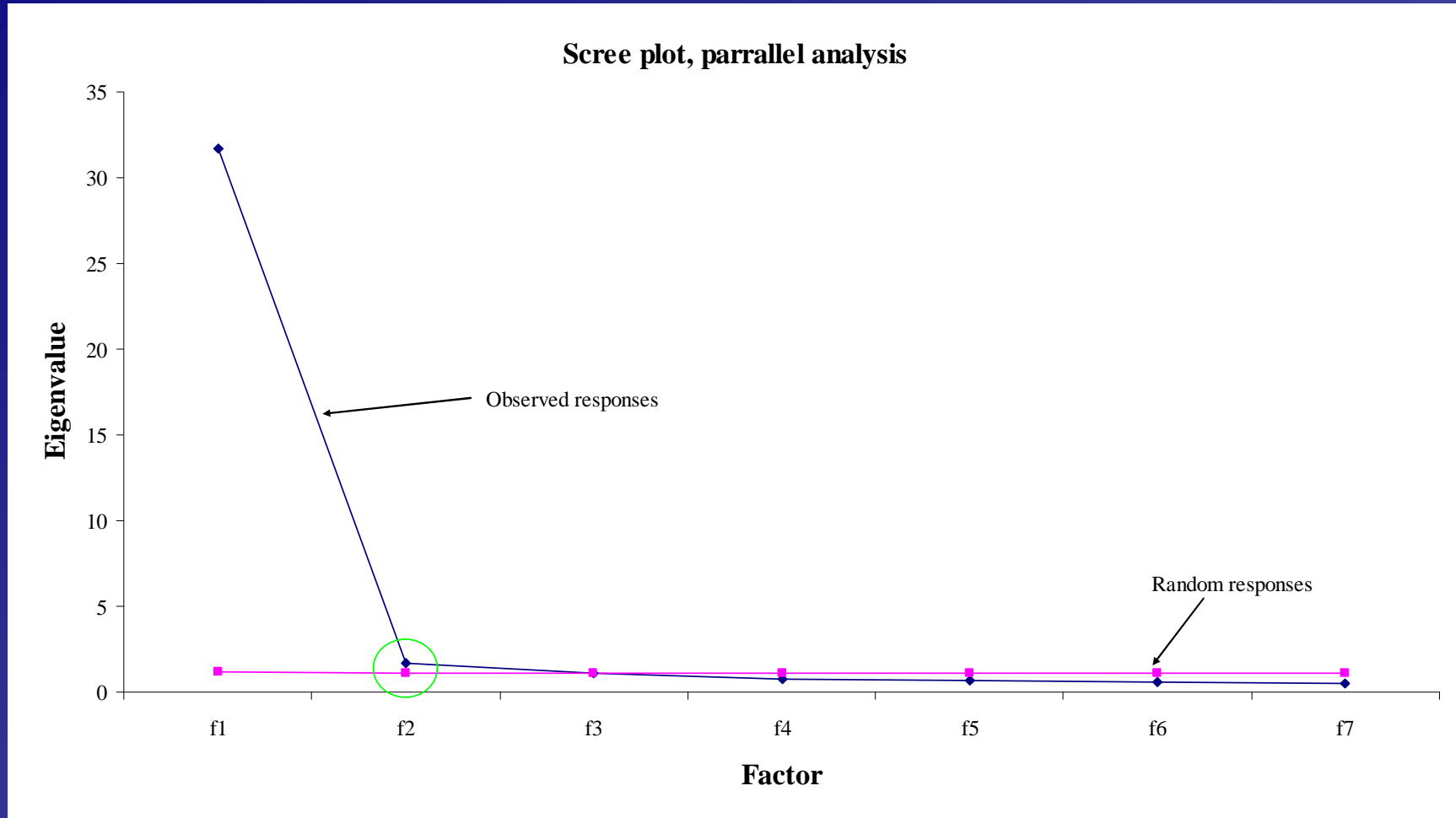
# FA analyses (preliminary results)

- In all, 588 FA items identified in the literature
- Of these, 346 deemed relevant for EORTC FA measurement
- 199 items deleted because of redundancy or misfit to EORTC item style
- Based on the remaining items, 65 new candidate FA items were developed
- Based on expert and patient input these were reduced to 44 candidate items (incl. the 3 C30 FA items)
- Collected 1321 responses from Australia, Austria, Denmark, France, Germany, the Netherlands, Spain & UK

# FA factor analyses

- EFA:
  - First factor explained 74% of variation, 2nd factor explained 4%
  - Eigenvalues were 31.7, 1.7, 1.1

# FA factor analyses



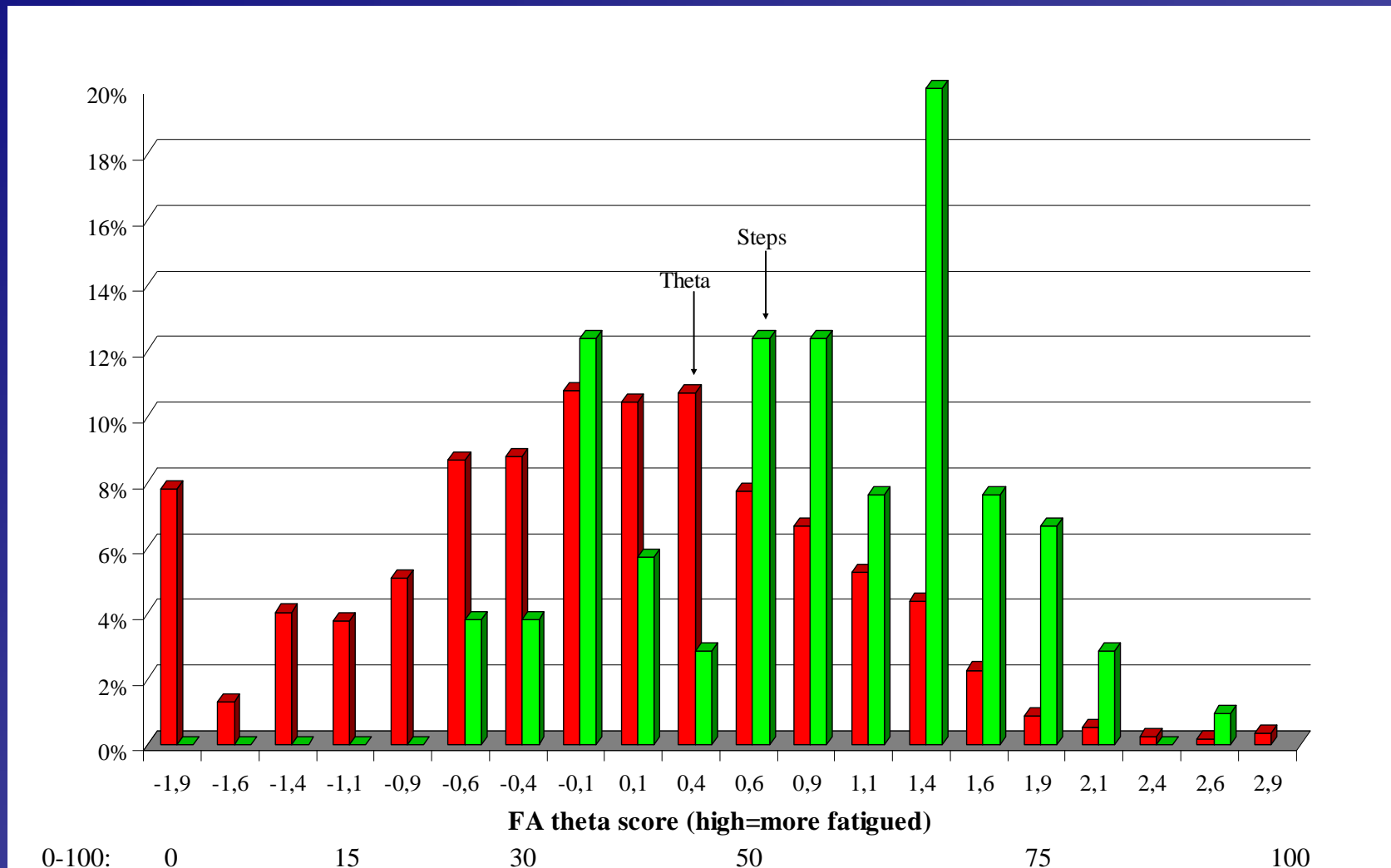
# FA factor analyses

- EFA:
  - First factor explained 74% of variation, 2nd factor explained 4%
  - Eigenvalues were 31.7, 1.7, 1.1
  - One factor solution including most (but probably not all) items seemed plausible
- CFA confirmed EFA:
  - One factor solution including all items: RMSEA=0.130 & CFI=0.89
  - Deleted 7 items (kept 37): RMSEA=0.098 & CFI=0.92

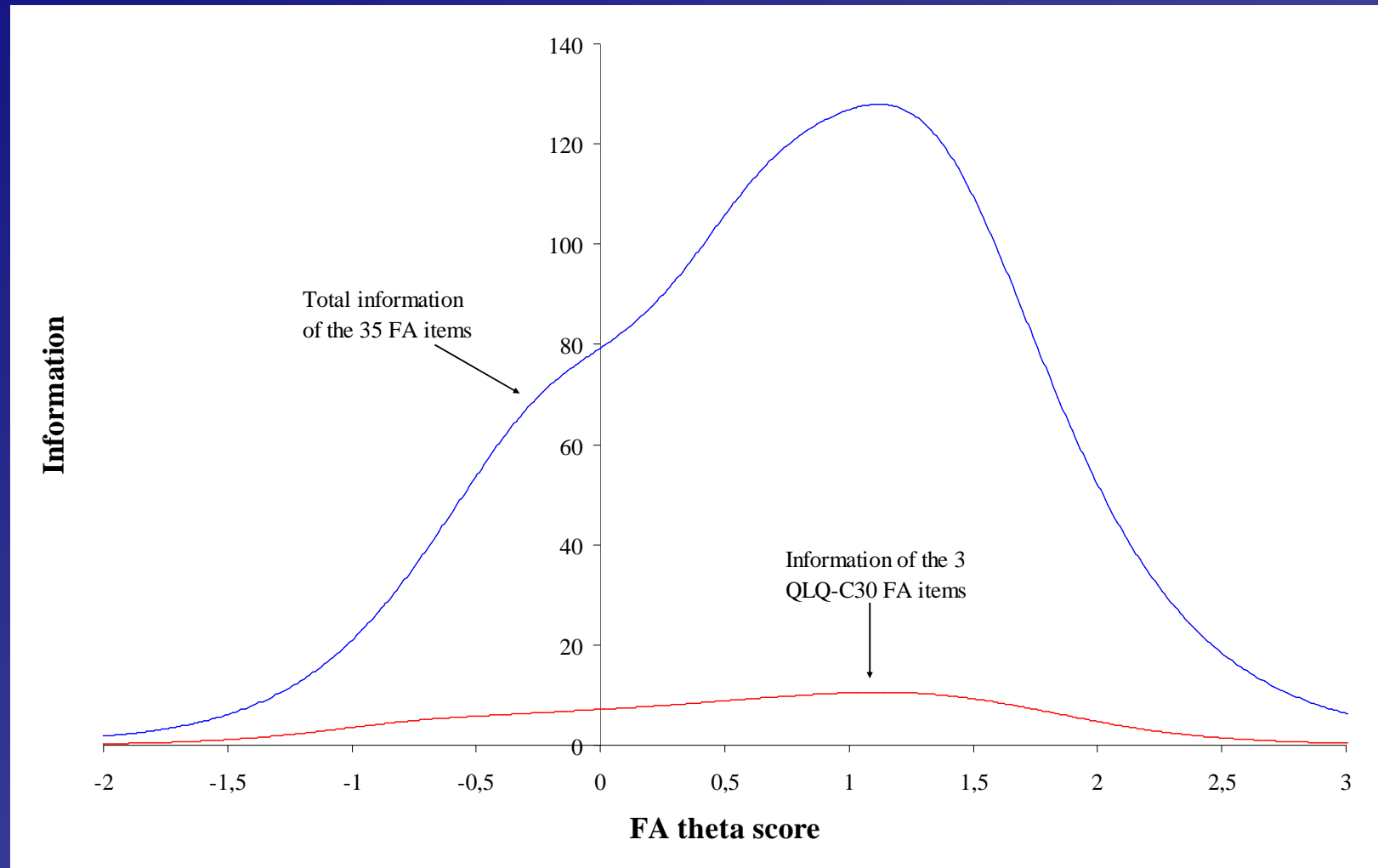
# FA IRT analyses

- Estimated 1-dim IRT model (GPCM)
- Two items deleted because of poor fit to model
- Remaining 35-item model had good fit and good coverage of most fatigue levels:

# Distribution of FA scores and step parameters in item pool



# Information of the FA item pool



# FA DIF analyses

- Investigated for DIF for the 35 items using logistic regression with regard to:
  - Gender, age, country, cancer site, stage, treatment, cohabitation, education, work
- 24 items showed country DIF. Few (0-3) significant DIF for the other variables
- Country DIF often difficult to interpret.
- Possible effect of DIF will be investigated

# Example of DIF

- Item 1 “Have you found talking exhausting?” showed DIF regarding cancer site
- Head & neck patients reported significantly more problems for this item than other patients:

Mean scores	H&N	Other pts
Sum of other items	22	27

# Example of DIF

- Item 1 “Have you found talking exhausting?” showed DIF regarding cancer site
- Head & neck patients reported significantly more problems for this item than other patients:

Mean scores	H&N	Other pts
Sum of other items	22	27
Item 1	26	11

- Item 1 poor fit for H&N. **Item may measure something else than FA for H&N**

# 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. Development of CAT for the EORTC QLQ-C30 PF dimension. Submitted to QLR, reviewed, being revised for resubmission
- Giesinger et al. Cross-cultural development of an item list for CAT of fatigue in oncological patients. First draft written

# Potential next publications

- Development of CAT for the EORTC fatigue dimension (Giesinger/Petersen et al.)
- Simulation of the CAT measurement properties (Petersen et al.)
- Patient evaluations of the EORTC CAT program (Petersen et al.)

# Thank you!

Any comments/questions to  
the project please contact us:

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