

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

**- project update**

Morten Aa. Petersen & Mogens Groenvold

# 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	Completed	Start Sep
DY	Completed	Completed	Completed	Completed	Start Sep
SL	Completed	Completed	Completed	Completed	Start Sep
EF	Completed	Completed	Completed	Ongoing	
RF	Completed	Completed	Completed	Ongoing	
SF	Completed	Completed	Completed	Start Oct	
CO	Completed	Completed	Completed	Start Oct	
CF,FI	Completed	Ongoing			
NV,DI	Ongoing				

# Measurement properties of PF & FA CATs

- Aim:
  - 1) Assess the measurement precision/efficiency of the PF & FA CATs
  - 2) Assess power/reduction in sample size requirements using the CATs compared to QLQ-C30

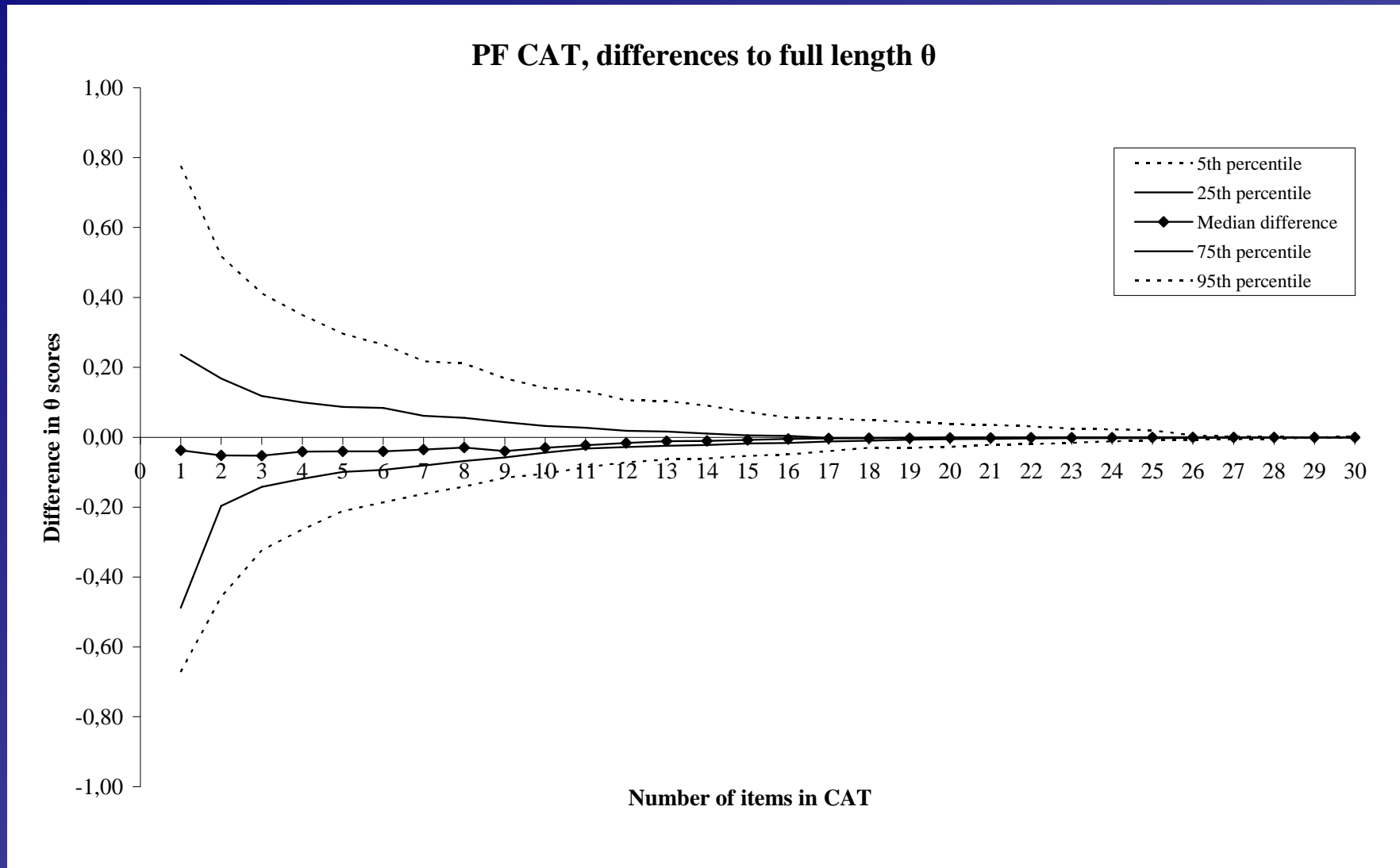
# Data

- PF:
  - 31 items
  - 1,176 patient responses from six countries
- FA:
  - 34 items
  - 1,321 patient responses from eight countries

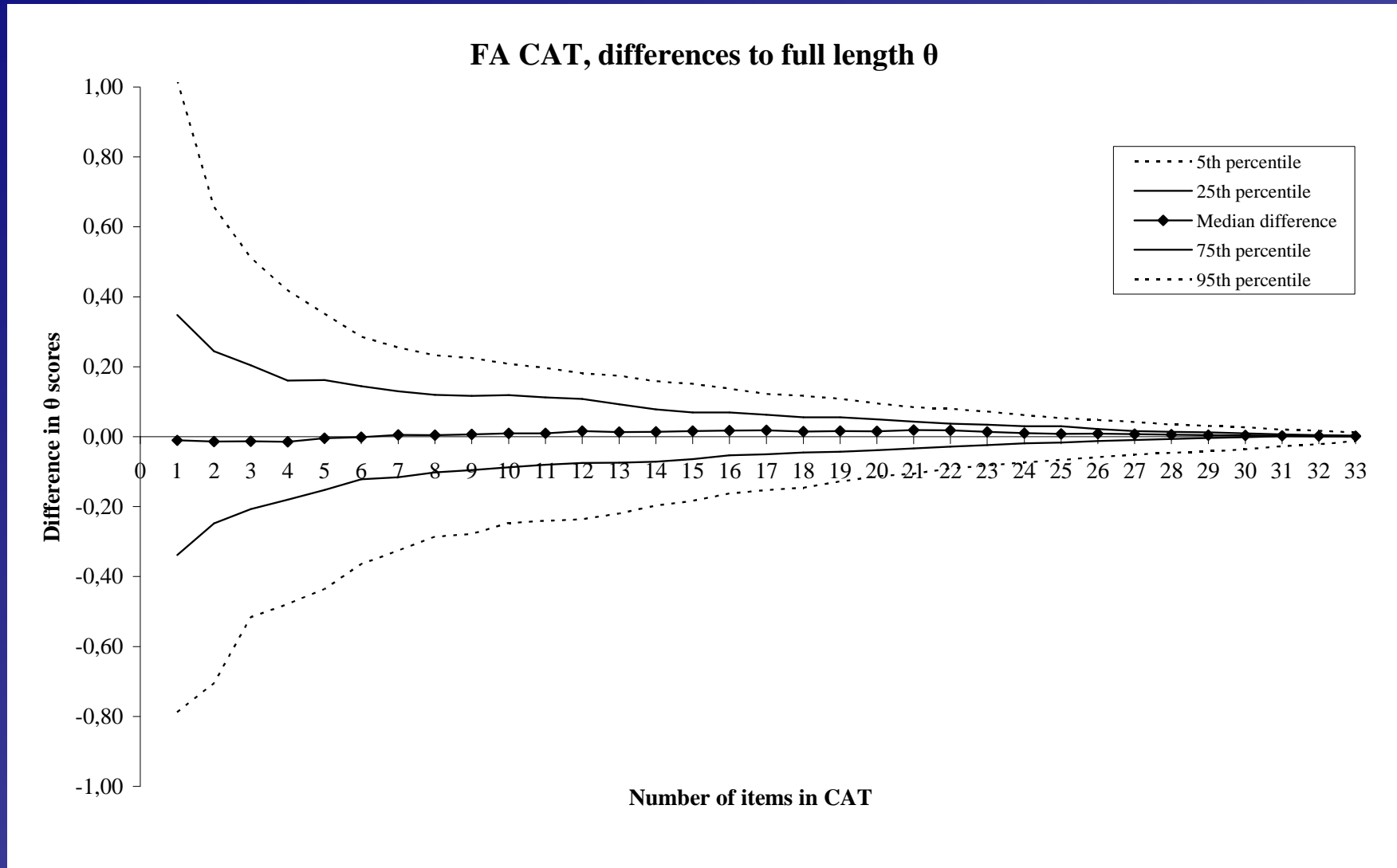
# Precision

- Simulated CATs asking 1, 2, ..., all-1 items using collected responses
- Compared CAT scores with scores obtained using all items
- Results:

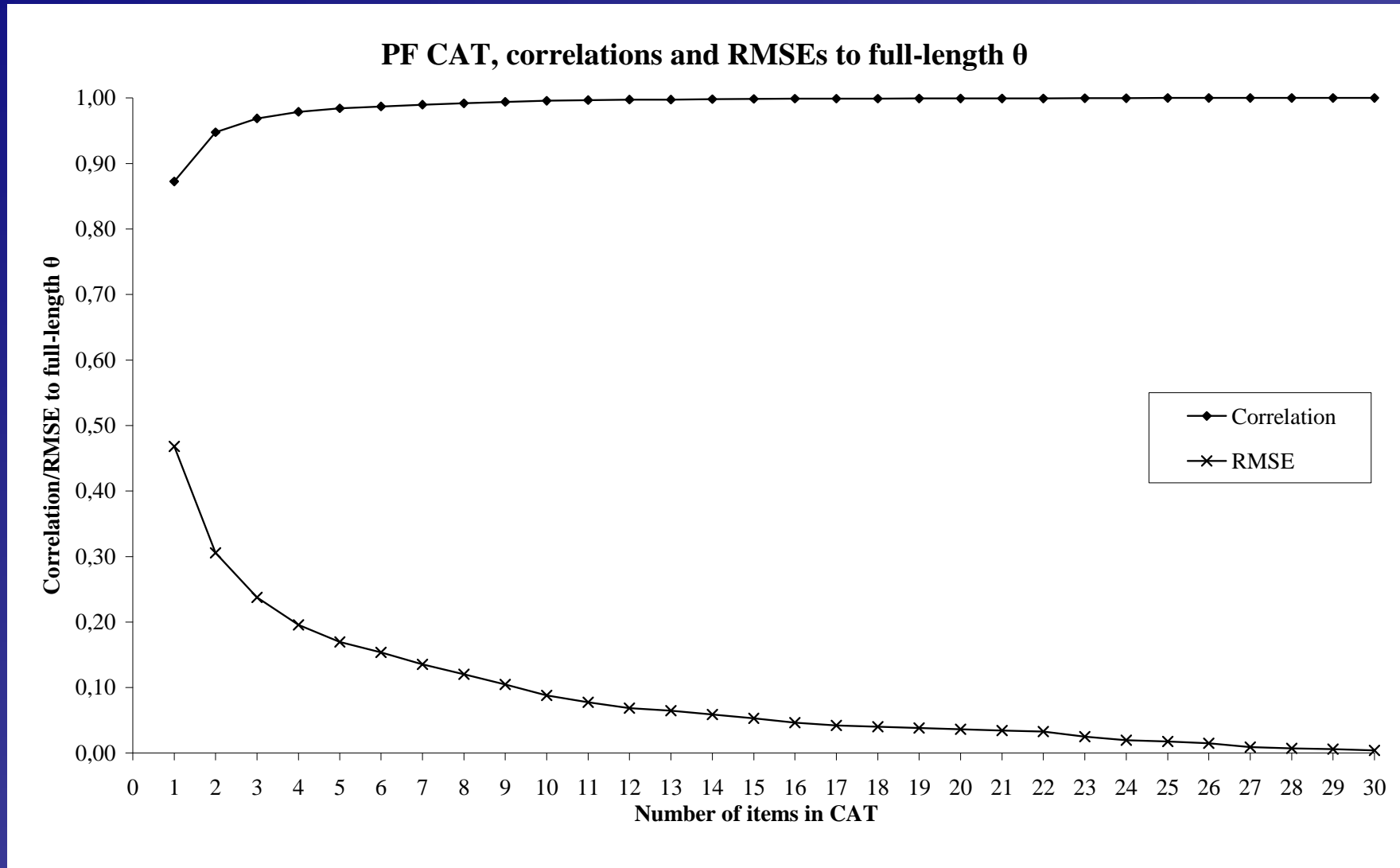
# Precision



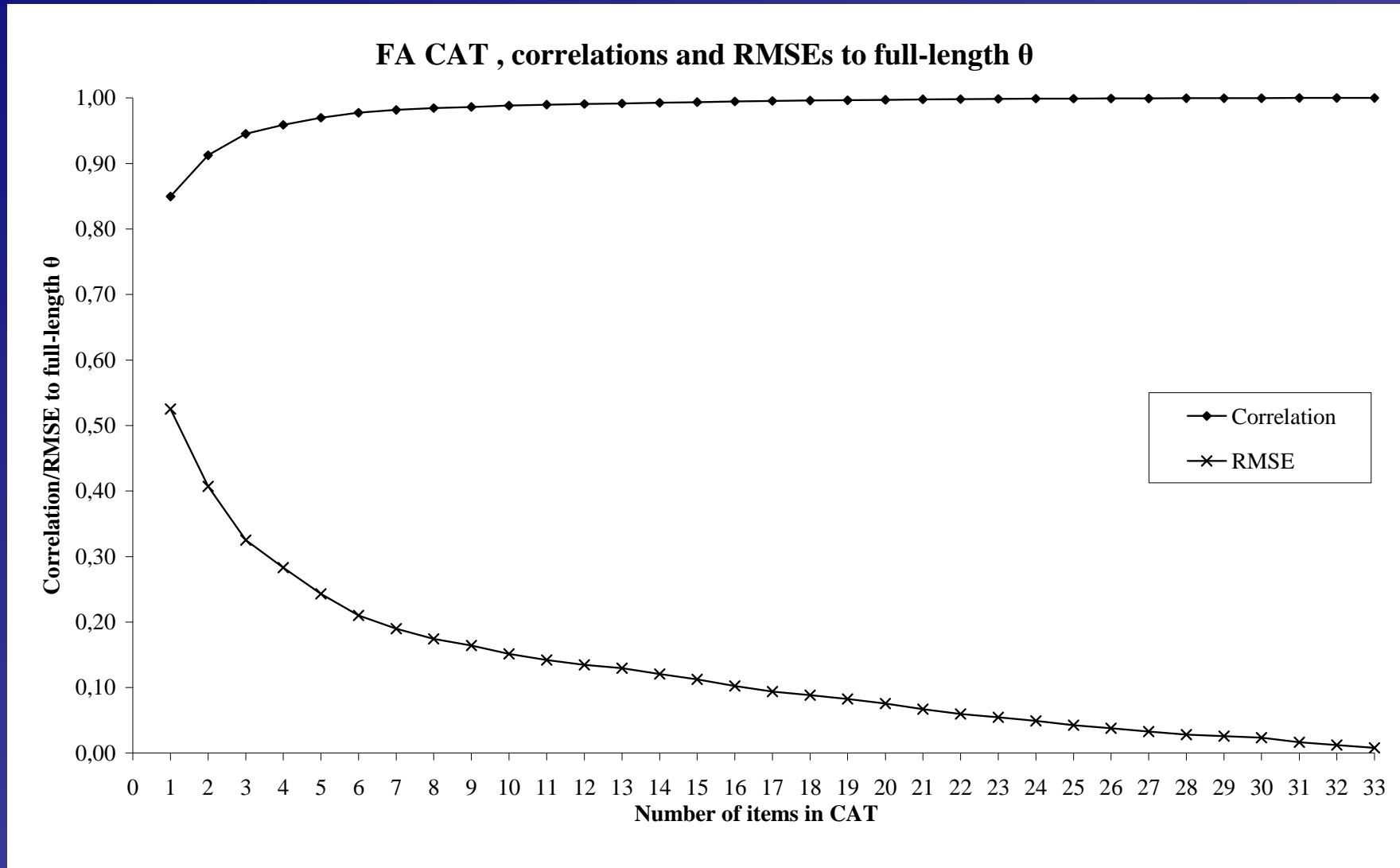
# Precision



# Precision



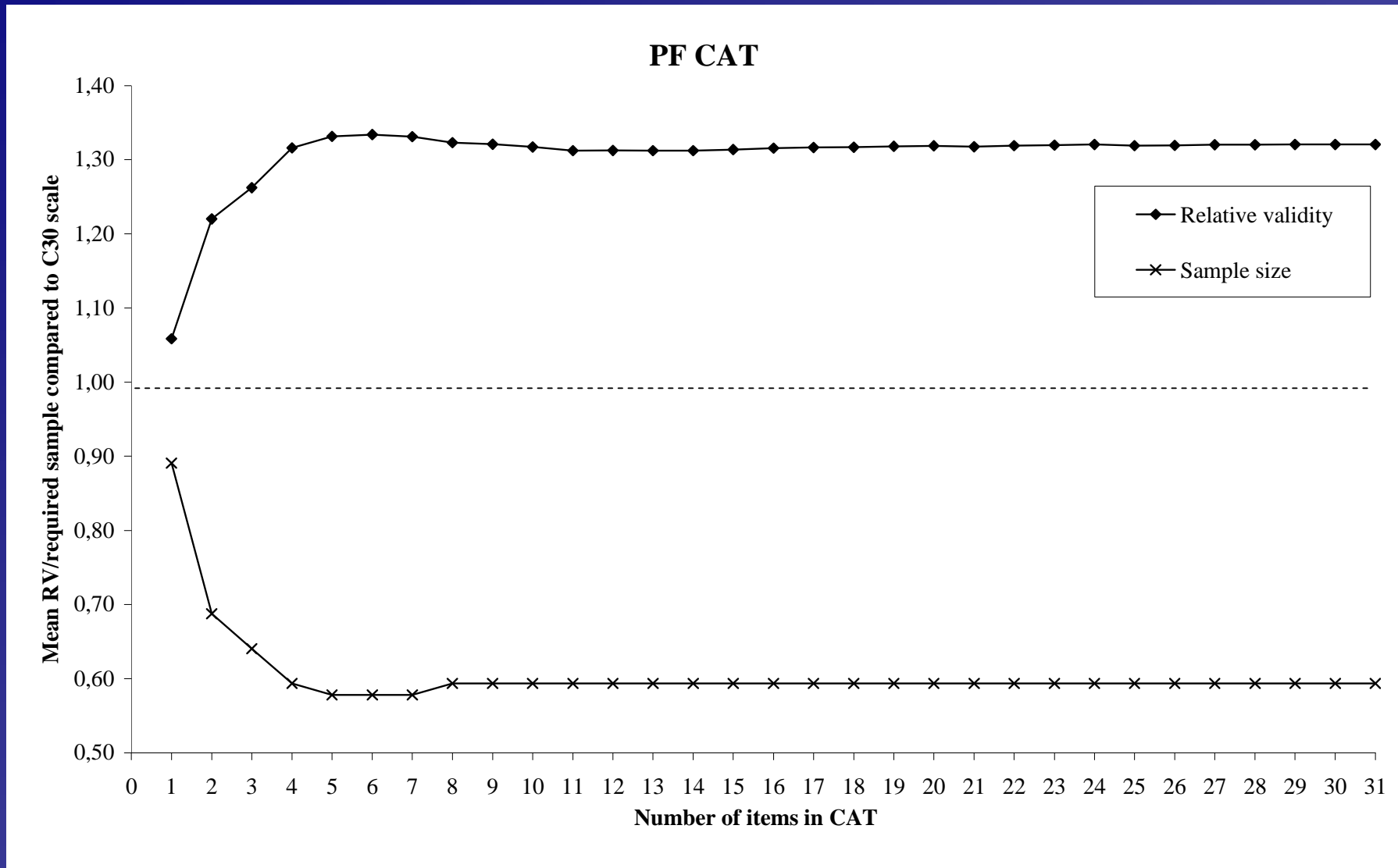
# Precision



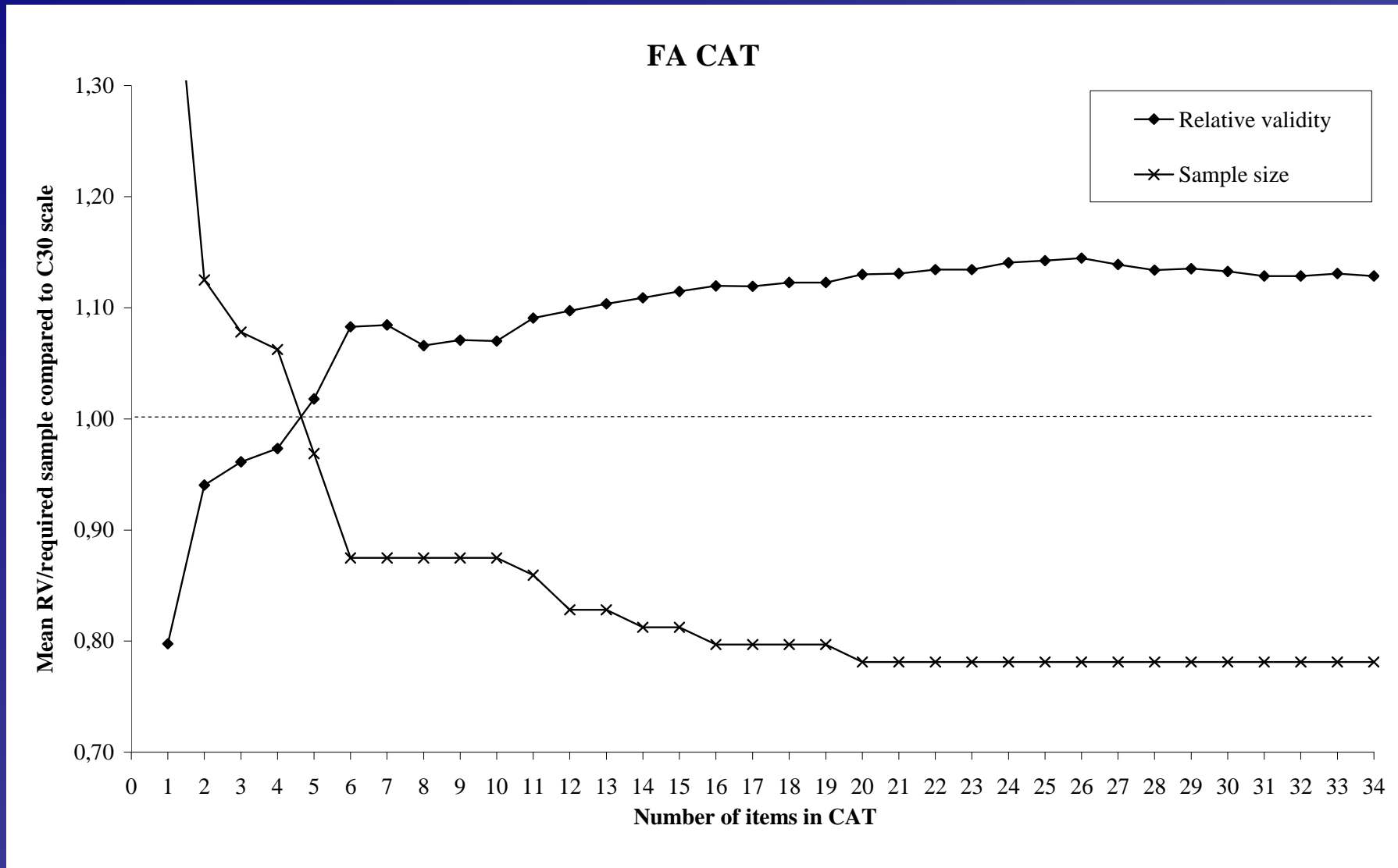
# Power, methods

- Simulated CATs asking 1, 2,..., all-1 items using collected responses *and* using simulated responses
- Collected data: “real” data, but did not know if expected group differences were true
- Simulated data: artificial data, but knew and controlled group differences
- Used known groups validation: Compared power to detect group differences, relative validity (RV).  $RV > 1$  indicated CAT more power

# Power, results



# Power, results



# Power, results

Simulated data, average findings

	<b>C30 sum scale</b>	<b>CAT 3 items</b>	<b>CAT 5 items</b>	<b>CAT 10 items</b>	<b>CAT All items</b>
<b>Power</b>	56.3%	59.8%	60.7%	61.7%	61.7%
<b>RV</b>	1.00	1.09	1.12	1.13	1.14
<b>Sample requirement</b>	100%	85%	80%	78%	78%

# Conclusions

- PF & FA CATs seemed precise and efficient. Precise estimates for majority of patients with 3-5 items
- All evaluations indicated increased power using CAT with +5 items
- Savings in sample size depended on settings, but all evaluation indicated savings of +20% using CATs with +5 items
- Using CAT future studies may be carried out with fewer patients, and hence faster

# Publications

- **Published:**

- Petersen et al. (2010). Development of CAT for the EORTC QLQ-C30 dimensions - General approach and initial results for PF. EJC 46, 1352-1358
- Petersen et al. (2010). Development of CAT for the EORTC QLQ-C30 PF dimension. QLR 20(4) 479-490
- Giesinger et al. (2011) Cross-cultural development of an item list for CAT of fatigue in oncological patients. HQLO 9(19)

# Publications

- **Submitted:**

- Petersen et al. Psychometric evaluation of the EORTC CAT fatigue item pool. QLR

- **In preparation:**

- Petersen et al. Measurement properties of the EORTC CATs for measuring physical functioning and fatigue

# Thank you!

Any comments/questions to  
the project please contact us:

[mgro0001@bbh.regionh.dk](mailto:mgro0001@bbh.regionh.dk) /

[mpet0009@bbh.regionh.dk](mailto:mpet0009@bbh.regionh.dk)