

Cross-Cultural Analysis of the EORTC QLQ-C30



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Aims of the Cross-Cultural Analysis (CCA) project

- 1. Are there cultural or linguistic differences in the way each item of the QLQ-C30 is answered?**
- 2. Do different cultures place different emphasis on each aspect of quality of life?**
- 3. Update of Reference Values Manual**



Datasets received

Type of study	No. of studies	No. of patients
EORTC studies	54	13,144
Other studies	71	26,268
Total	125	39,412



Amount of data available by translation

German	9,434	Italian	876
English	6,242	Korean	501
Norwegian	4,873	Polish	420
Dutch	4,557	Chinese (Taiwan)	345
French	3,210	Turkish	255
Danish	2,543	Farsi	167
Sinhala	1,282	Greek	124
Swedish	1,230	Russian	119
Spanish	982	French (Canada)	110
Chinese(Mandarin)	933	Hungarian	104



Differential Item Functioning (DIF) Analyses

- **Used to identify whether an item in a scale of the QLQ-C30 functions differently with respect to:**
 - 1. Translation used**
 - 2. Cultural/geographical grouping**
- **relative to other items in the same scale**



Results of DIF analyses by translation and cultural group

- **Analyses found important response differences by translation and by cultural group**
- **Pattern of results suggested most response differences were more likely to be caused by translation issues, not culture**



Issues with using DIF analyses for short scales (1)

- **DIF analyses originated in educational settings where there are typically 40 items per test**
- **QLQ-C30 has just 2-5 items per scale**



Issues with using DIF analyses for short scales (2)

- Which item in a scale causes the problem? (and which is just “pseudo-DIF”?)
- Is the response difference related to culture or translation?
 - Used interviews with bilingual people
- Performance of DIF methodology?
 - Used computer simulations



Example of translation DIF: Emotional Functioning scale, Swedish v English

		Adj. Log OR	95% CI
Q21	Did you feel tense?	-0.30	(-0.48, -0.13)
Q22	Did you worry?	-0.29	(-0.46, -0.12)
Q23	Did you feel irritable?	-0.32	(-0.50, -0.15)
Q24	Did you feel depressed?	0.84	(0.67, 1.02)



Example of suspected translation DIF (Q24)

- **English:**
 - **Did you feel depressed?**
- **Swedish:**
 - **Har Du känt Dig nedstämd?**
- **All three Swedish interviewees expected higher scores for Swedish because of translation**

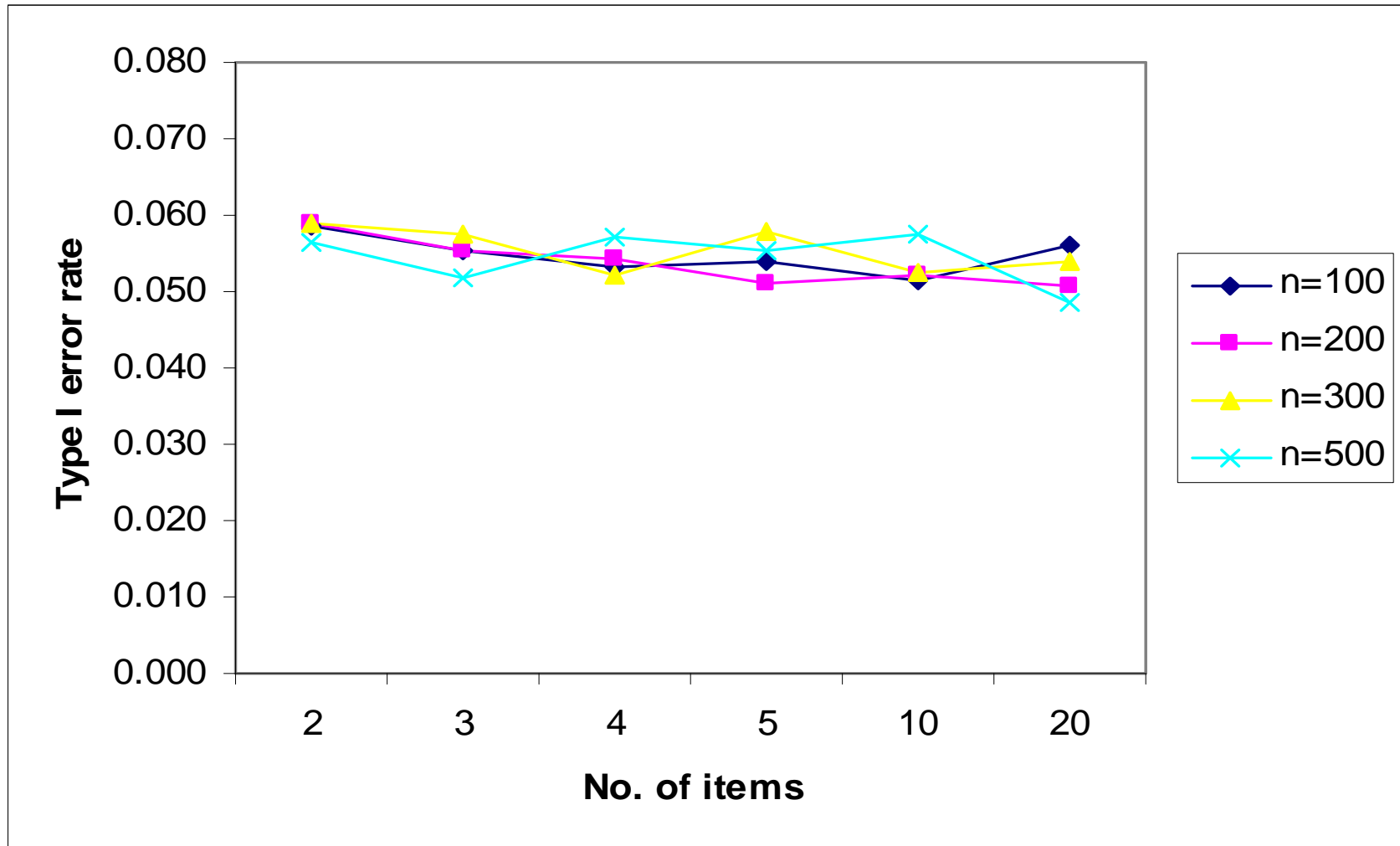


Performance of DIF method for short scales

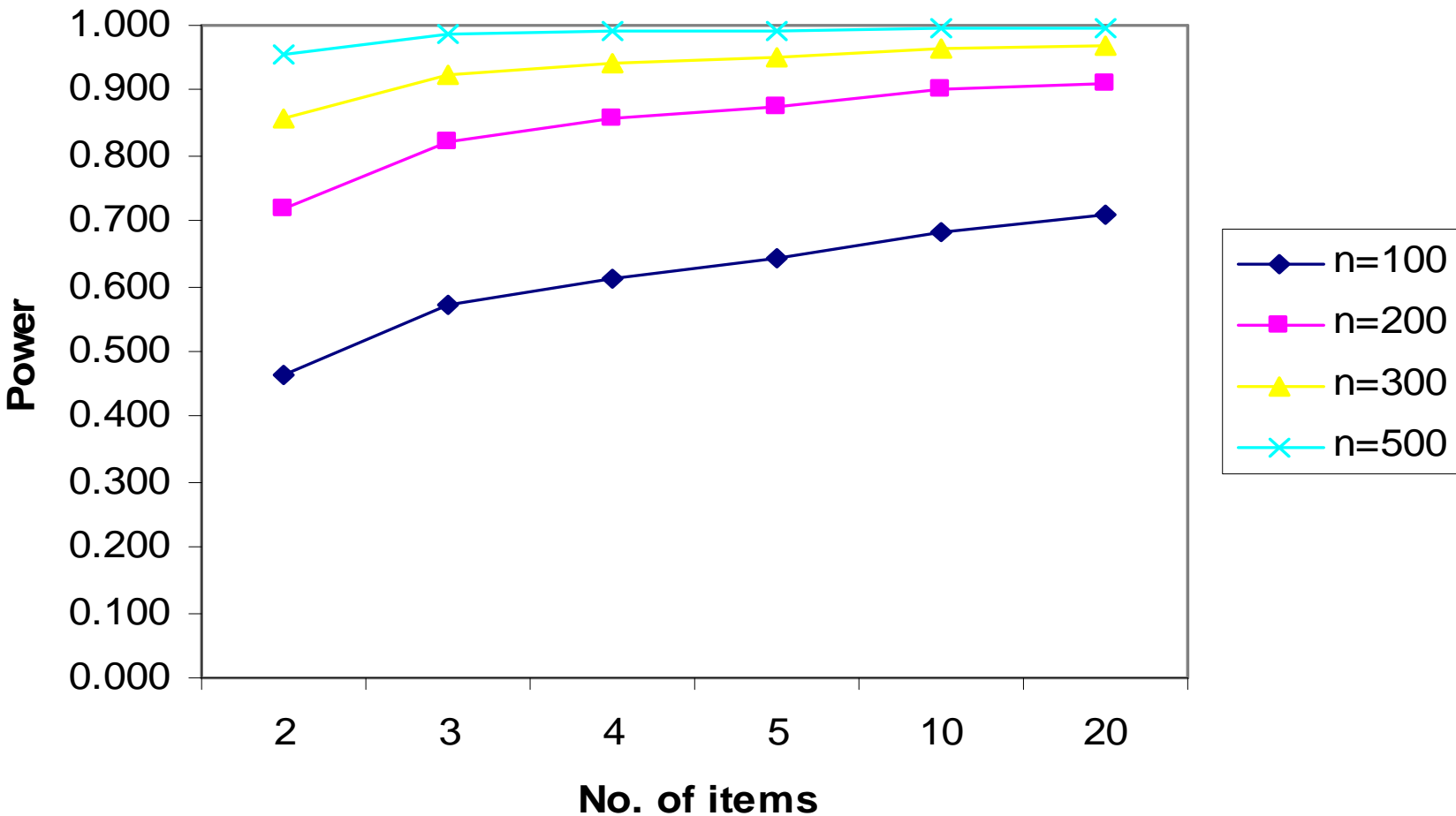
- **Generated 10,000 simulated datasets using parameters from CCA database with:**
 1. **DIF deliberately introduced**
 2. **No DIF introduced**
 - **Conducted DIF analyses using ordinal logistic regression**
 - **Evaluated performance of method**
 1. **Power (1-Type II error)**
 2. **Type I error**
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Performance of DIF method: Type I error rate



Performance of DIF method: Power



What is the practical impact of the DIF analyses?

- Examined scenario of clinical trial conducted in Norway assuming translation DIF exists for only one of the three items in the Fatigue scale
 - This DIF effect would result in overall Fatigue scale scores 6 points higher than if trial conducted in UK (assuming equal fatigue levels in each country)
 - This corresponds to a small but clinically important difference (King, 1996; Osoba et al., 1998)
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Reference Values Manual

- **Using CCA project data we have updated the EORTC QLQ-C30 Reference Values Manual (previously published in 1998)**
- **Still not too late to hear your views about the format**



Reference Values format (1)

- Reference data for 72 subgroups (old manual had 30) usually representing cancer sites
- If sufficient data available: three subgroups per site:
 1. All patients
 2. Stage I-III
 3. Stage IV/recurrent/metastatic
- Each must have data for >100 respondents
- Current version of QLQ-C30 scales only (but can include data from all four versions)



Reference Values format (2)

- **Three pages for each subgroup:**
 - 1.Characteristics of sample/ scale summary**
 - 2.Tabulation of QLQ-C30 scales**
 - 3.Tabulation of QLQ-C30 items**
 - **Graphs only for overall sample of cancer patients and for general population sample**
 - **Module data will be included**
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Data for seven modules will be included

Module	N
Lung	2703
Head & neck	2165
Breast	1005
Oesophageal	566
Prostate	441
Ovarian	265
Gastric	254



Publications

- **Translation DIF analyses**
 - Quality of Life Research 2006;15:1103-1115
- **Cultural DIF analyses**
 - Quality of Life Research 2007;16:115-129
- **Scale-level cultural analyses**
 - Journal of Clinical Epidemiology (submitted)



Future work of CCA project

1. **DIF analyses of change in QoL**
2. **Translation of response categories**
3. **Practical impact of DIF analyses**
4. **Review of DIF applied to QoL settings**
 - Drafted as thesis chapter
5. **Performance of DIF analyses in short scales (simulations)**
 - Drafted as thesis chapter



Contributors (1)

- We acknowledge the support of EORTC groups (contributed 54 studies)
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