

The Cross-Cultural Analysis (CCA) Project



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Aims of the CCA project

- 1. Assessment of the cross-cultural validity of the EORTC QLQ-C30**
- 2. Update of Reference Values Manual**
- 3. Investigation of the factor structure of the EORTC QLQ-C30**



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



CCA Project Publications (1)

1. **Differential item functioning (DIF) analyses of EORTC QLQ-C30 items by translation**
 - **Published (Quality of Life Research 2006;15:1103-1115)**
2. **DIF analyses of EORTC QLQ-C30 items by cultural group**
 - **Published (Quality of Life Research 2007;16:115-129)**
3. **Scale-level cultural analyses**
 - **Published online (J Clin Epi)**
4. **Performance of DIF analyses in short scales (simulation study)**
 - **Accepted (J Clin Epi)**
5. **Literature review of DIF for HRQoL instruments**
 - **Drafted (about to submit to Quality of Life Research)**



CCA project Publications (2)

6. **DIF analyses of change in quality of life**
 - **Analysis completed**
 7. **Practical impact of DIF analyses**
 - **First draft only**
 8. **Translation of EORTC QLQ-C30 response categories**
 - **Not started**
 9. **EORTC QLQ-C30 Reference Values**
 - **Completed (now in press)**
 10. **Factor structure of EORTC QLQ-C30 (Neil Aaronson/
Chad Gundy)**
 - **Permissions received from collaborators**
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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
- Parallel interviews with bilingual people used to distinguish linguistic/cultural response patterns
- Previously only baseline (pre-treatment) data were used



Available data by type of assessment

No. of respondents

Baseline (pre-treatment plus general population) **30,106**

On-treatment **16,794**

Off-treatment **6,069**



Definitions of on-treatment / off-treatment

- **On-treatment: closest assessment to end of cancer treatment**
- **Off-treatment: at least three months since stopping treatment but no more than 12 months since start of treatment**



New analyses

- **Repeated DIF analyses for:**
 - **On-treatment data**
 - **Off-treatment data**
 - **Change from baseline to on-treatment**
 - **Change from baseline to off-treatment**
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Limitations with analyses of follow-up data

- **Much fewer data available than for baseline**
 - **Insufficient data from outside Western Europe: only translation analyses possible**
 - **“On-treatment” covers diverse treatments but only general treatment categories recorded (e.g. chemotherapy)**
 - **Exact timing of treatments not recorded**
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Research questions

- **Are there item response differences by translation for patients on/off treatment?**
- **Are response patterns to QLQ-C30 items the same for baseline/ on-treatment/ off-treatment assessments?**
- **Are there international differences in the change in quality of life items over time?**



Results: on-treatment DIF analyses

- Evidence of differential item response patterns for:
 - Danish (SF scale)
 - Dutch (PF scale)
 - French (PF scale)
 - German (RF, EF, SF, PA scales)
 - Italian (SF, FA scales)
 - Norwegian (EF, FA, PA scales)
 - Spanish (PF, RF, EF, FA scales)



Results: off-treatment DIF analyses

- Evidence of differential item response patterns for:
 - Danish (SF scale)
 - Dutch (EF, CF scales)
 - French (RF, PA scales)
 - German (RF, EF, SF, PA scales)
 - Norwegian (FA, PA scales)
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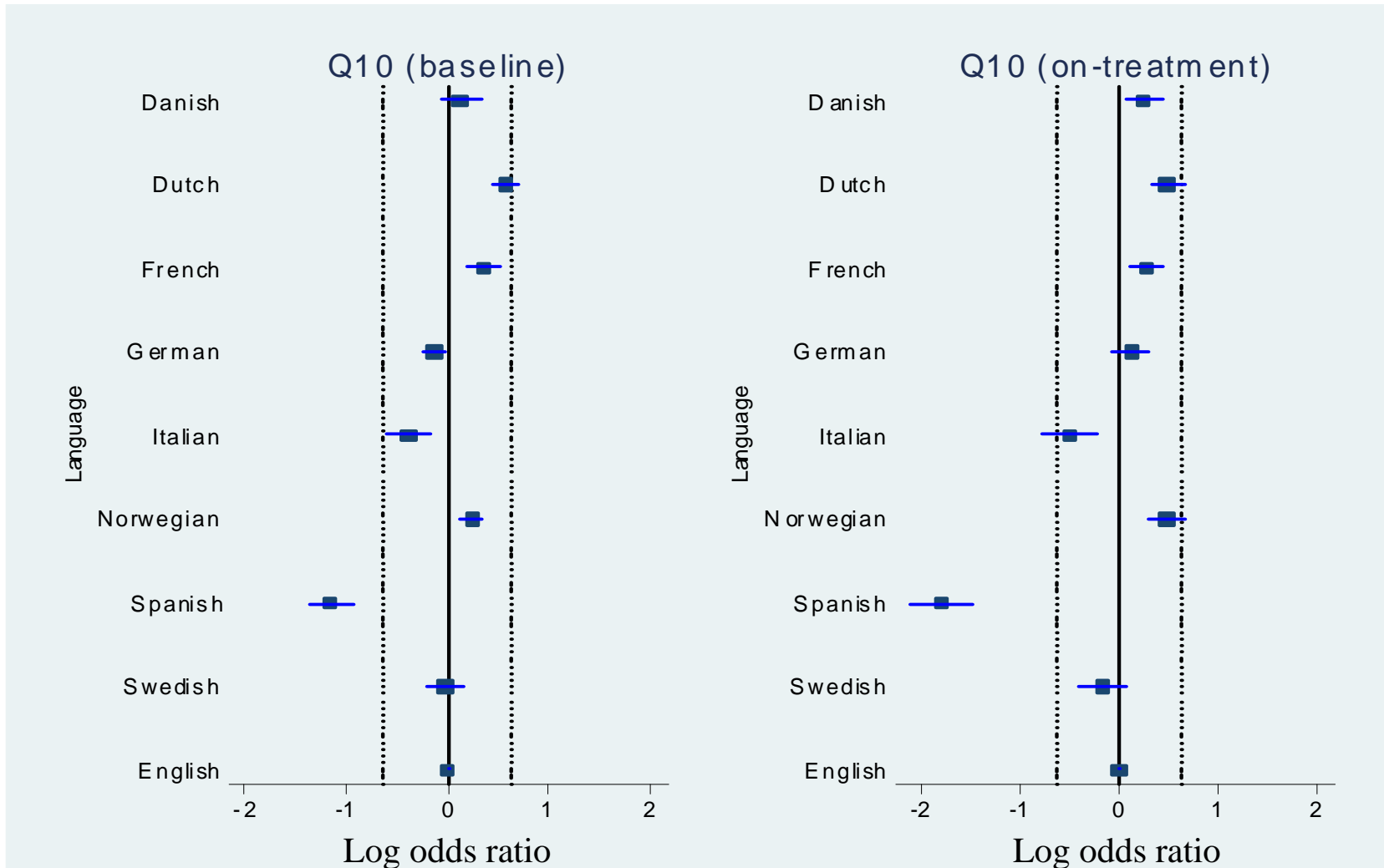


Comparison of DIF results at three time points

- **Baseline/ on-treatment/ off treatment assessments generally give very similar response patterns**
- **Small number of exceptions, e.g. Nausea and Vomiting scale**



DIF analyses for Q10 (Did you need to rest?)



Example of suspected translation DIF (Q10)

- **English:**
 - **Did you need to rest?**
- **Spanish:**
 - **¿Necesitó parar para descansar?**
- **Two bilingual interviewees expected relatively lower scores for Spanish because of the translation**



Change: baseline to on-treatment

- **Few statistically significant differences between translations identified:**
 - **Spanish (Physical Functioning scale)**
 - **Swedish (Nausea and Vomiting scale)**



Future work (1): Practical impact of DIF analyses

- **Examine scenarios to assess the practical impact of DIF analyses on clinical trials**
- **Work so far suggests this corresponds to a small but clinically important difference**



Future work (2): Assessment of response category translations

- **The following response categories occur in 28 of 30 items of the EORTC QLQ-C30 (and also in modules):**
 - **Not at all**
 - **A little**
 - **Quite a bit**
 - **Very much**
- **Lack of translation equivalence has the potential to bias results of all items**



Contributors (1)

- We acknowledge the support of EORTC groups (contributed 54 studies)
 - Members of the Quality of Life Cross-Cultural Meta-Analysis Group:
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