

Cross-Cultural Analysis of the EORTC QLQ-C30



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Aims of the cross-cultural analysis 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 importance on each aspect of QoL?**
- 3. Update of Reference Values Manual**



Assembly of project database

- **Received QLQ-C30 data from:**
 - **EORTC clinical trials/field studies**
 - **Other sources**
- **Studies recoded into standard format**



Data currently available

Type of study	No. of studies	No. of patients
EORTC studies	54	13,144
Other studies	62	22,613
Total	116	35,757



No. of patients available by translation

German	9,434	Korean	501
Dutch	4,873	Polish	420
Norwegian	4,557	Chinese	305
English	4,217	(Taiwanese)	255
French	3,210	Turkish	167
Danish	2,543	Farsi	119
Swedish	1,320	Russian	111
Spanish	982	French (Canadian)	104
Italian	876	Hungarian	100
Chinese	728	Arabic	483
(Mandarin)		Other	



Differential Item Functioning (DIF) Analyses

- Originally used in educational testing
- Can identify whether an item in a scale functions differently relative to other items in the same scale
- DIF analyses conducted by translation of QLQ-C30



Methods

- **Ordinal/binary logistic regression**
 - **Does translation affect response to an item after adjustment for overall scale score?**
 - **Analyses also adjusted for:**
 - **Age**
 - **Gender**
 - **Cancer site**
 - **Stage (no cancer; I-III; IV/metastatic)**
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Interpretation of DIF analyses

- **Because of multiple testing issues use stricter rules to denote moderate to large DIF:**
 - 1. Statistically significant DIF ($p < 0.001$)**
 - 2. Size of DIF coefficient ($|\log \text{ odds ratio}| > 0.64$)**



Possible reasons for DIF

- **Genuine cultural differences**
- **Translation/linguistic differences**
- **Other confounding variables**
- **“Pseudo-DIF” resulting from DIF in another item in the same scale**

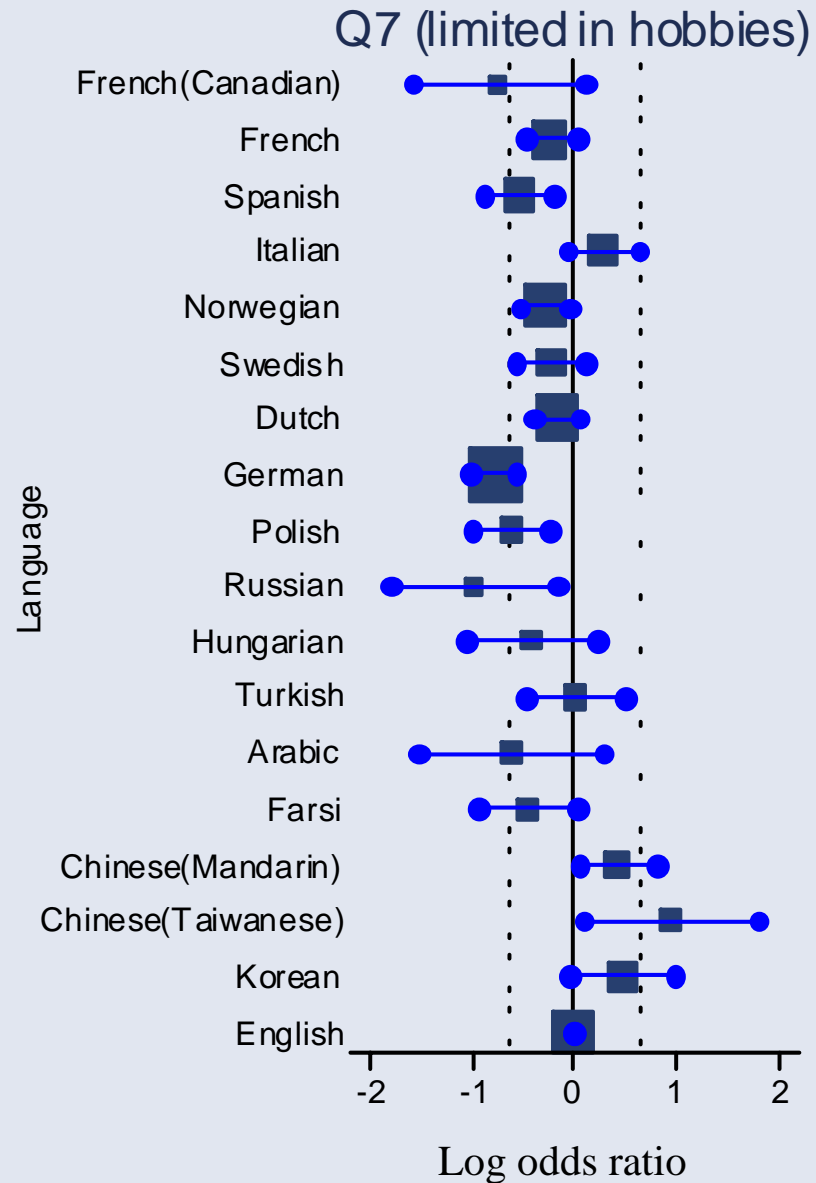
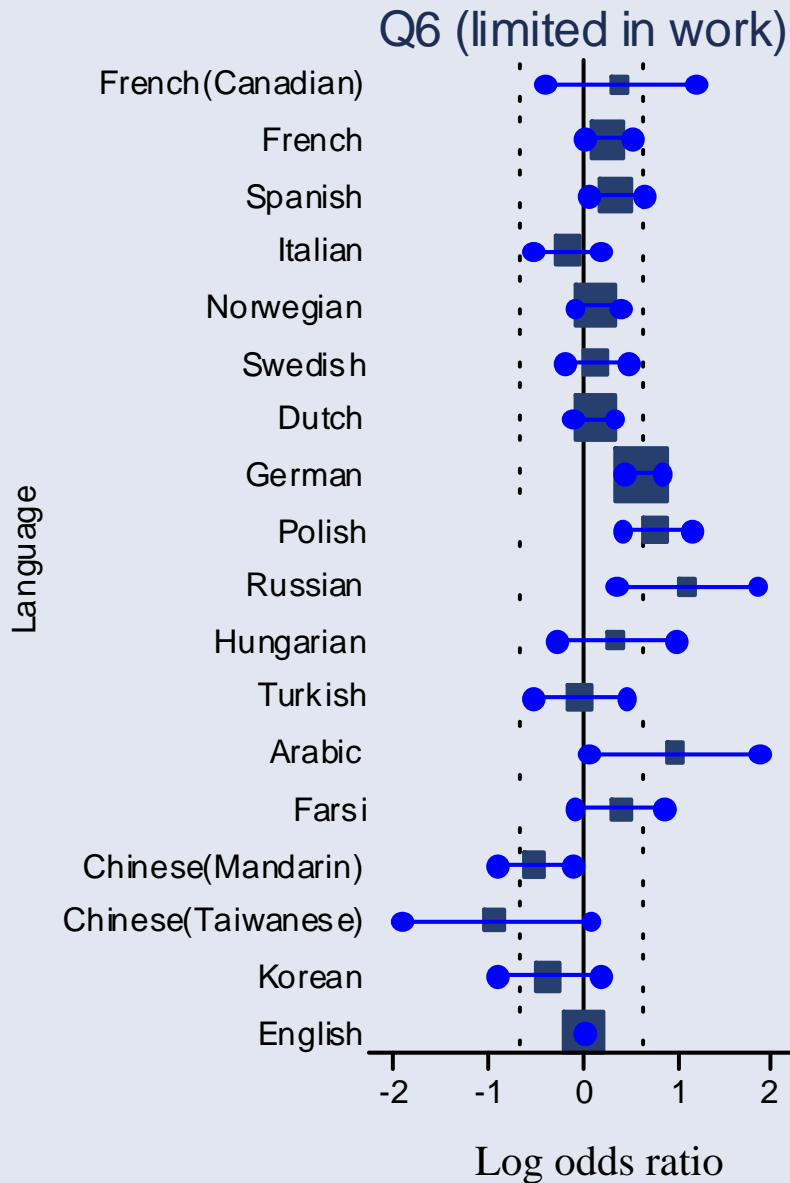


Interviews

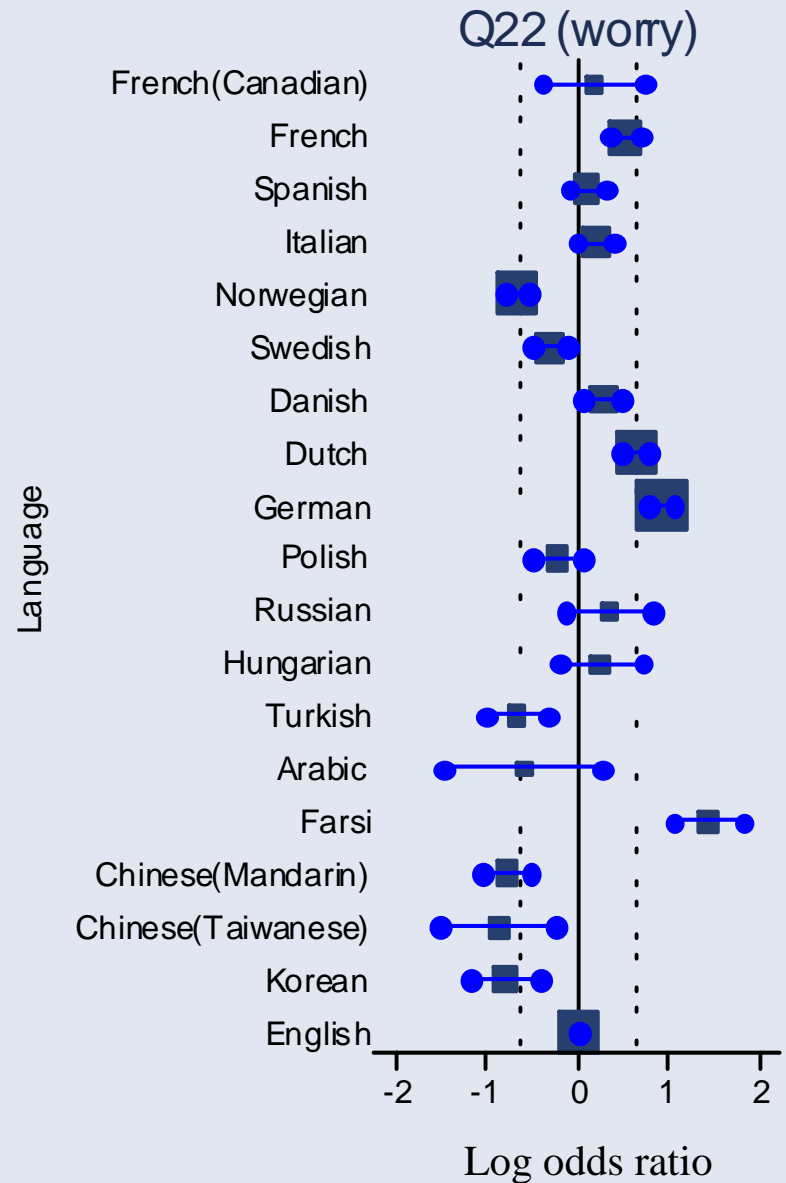
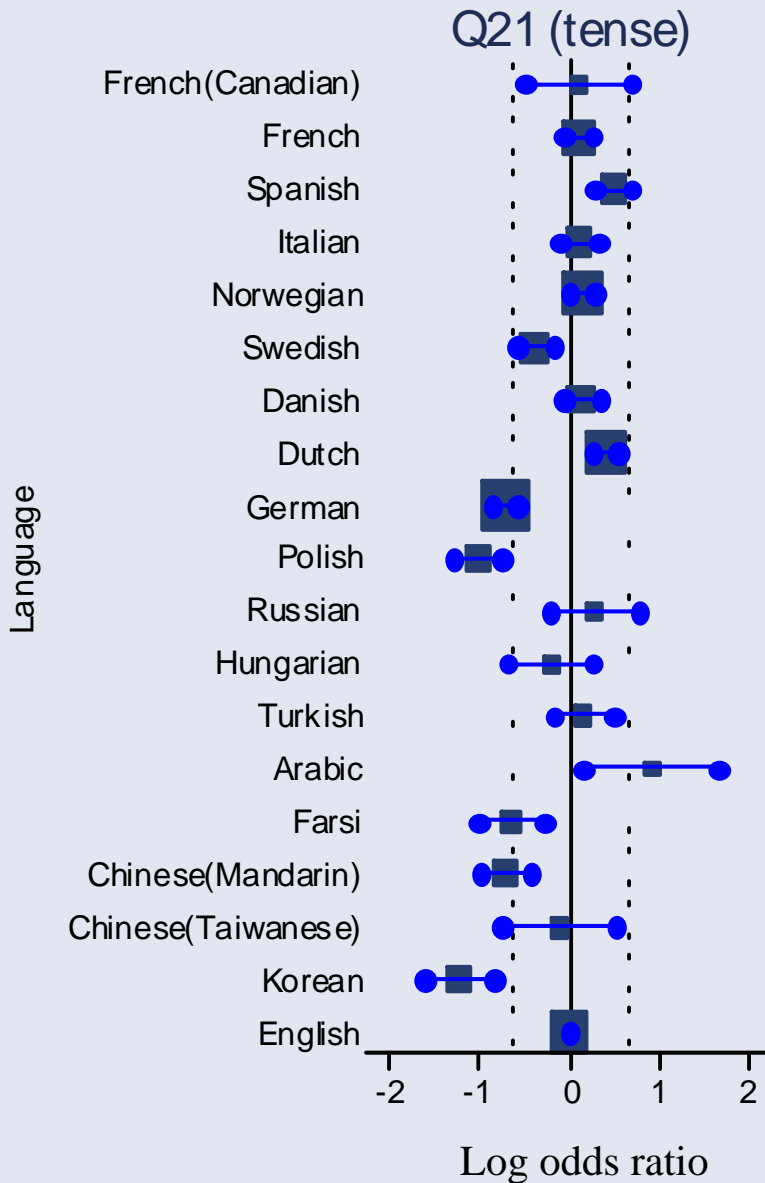
- **Conducting structured interviews with bilingual people**
 - **help determine whether DIF is due to translation or cultural issues**
 - **Used to generate hypotheses**
 - **Quantitative and qualitative data collected**
 - **>40 interviews conducted so far**
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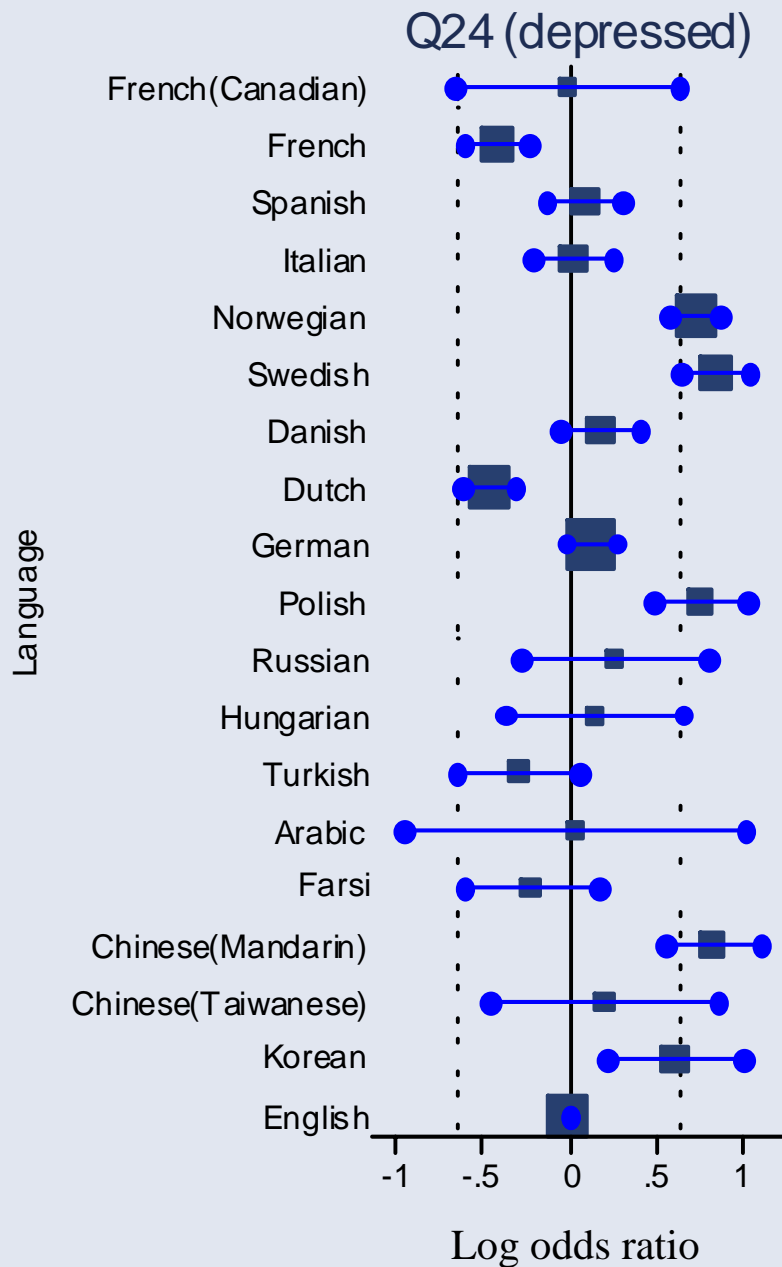
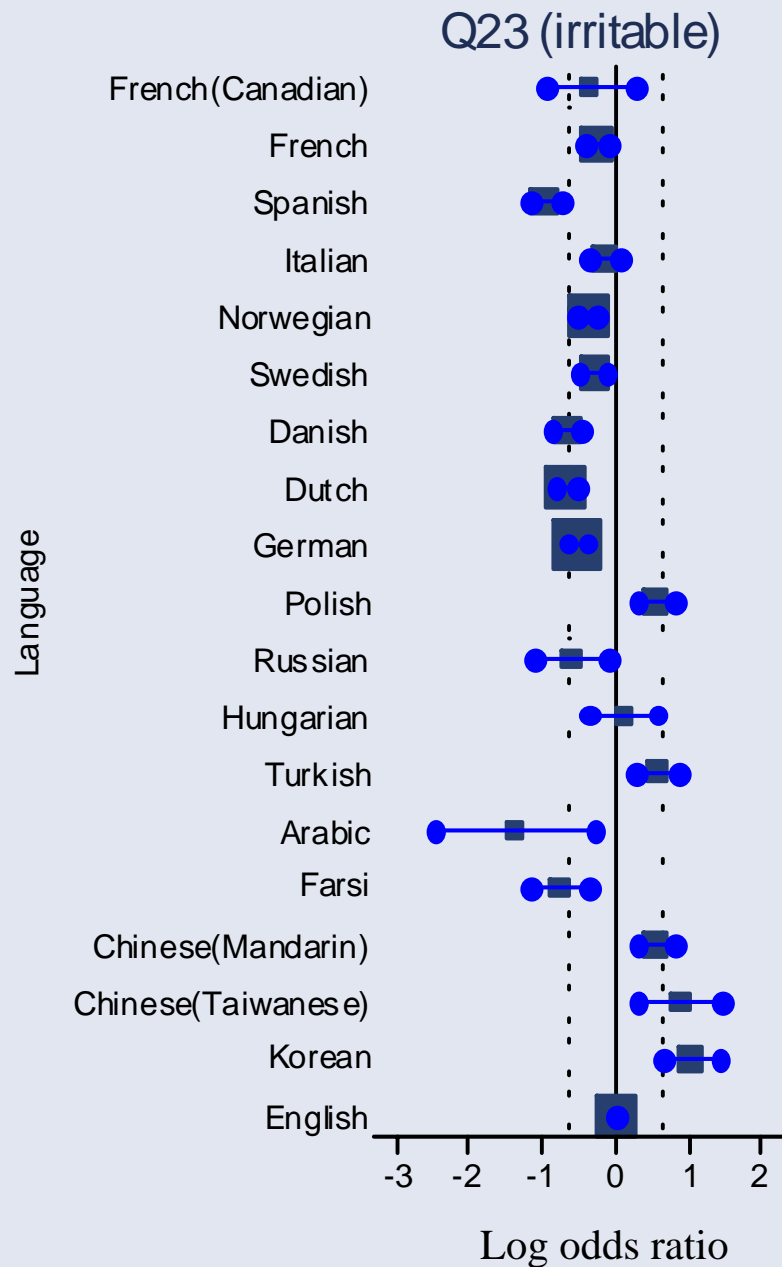


Role functioning (version 2) (RF2) (adjusted)

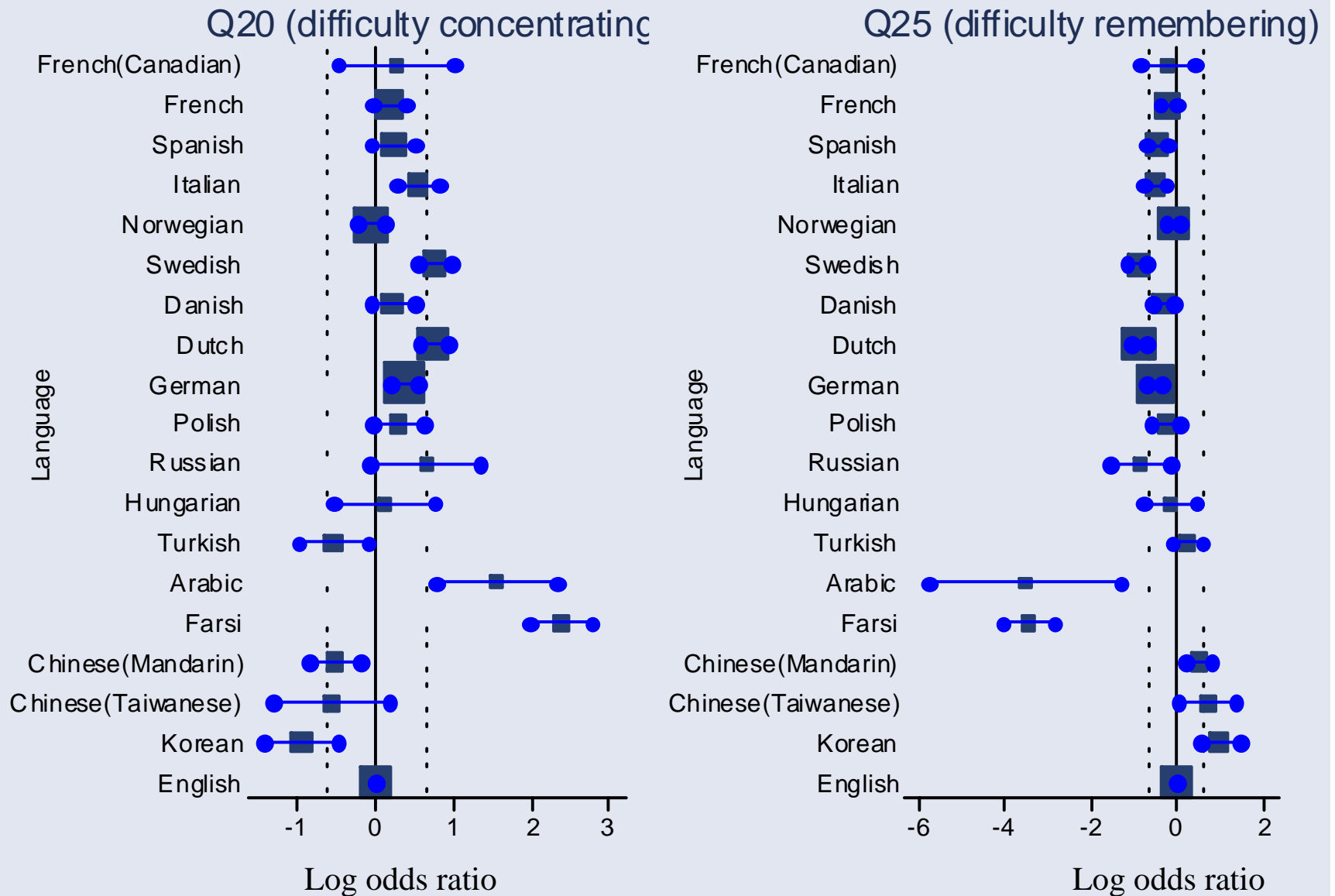


Emotional functioning (EF) (adjusted)

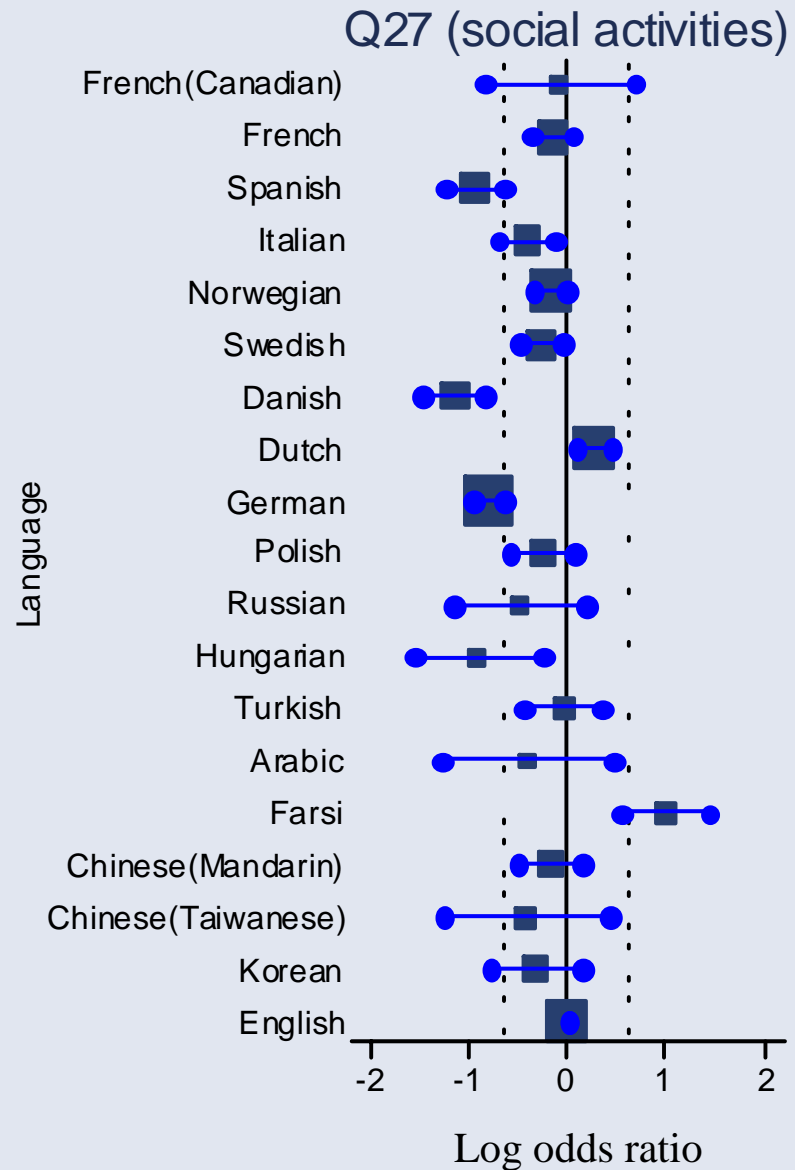
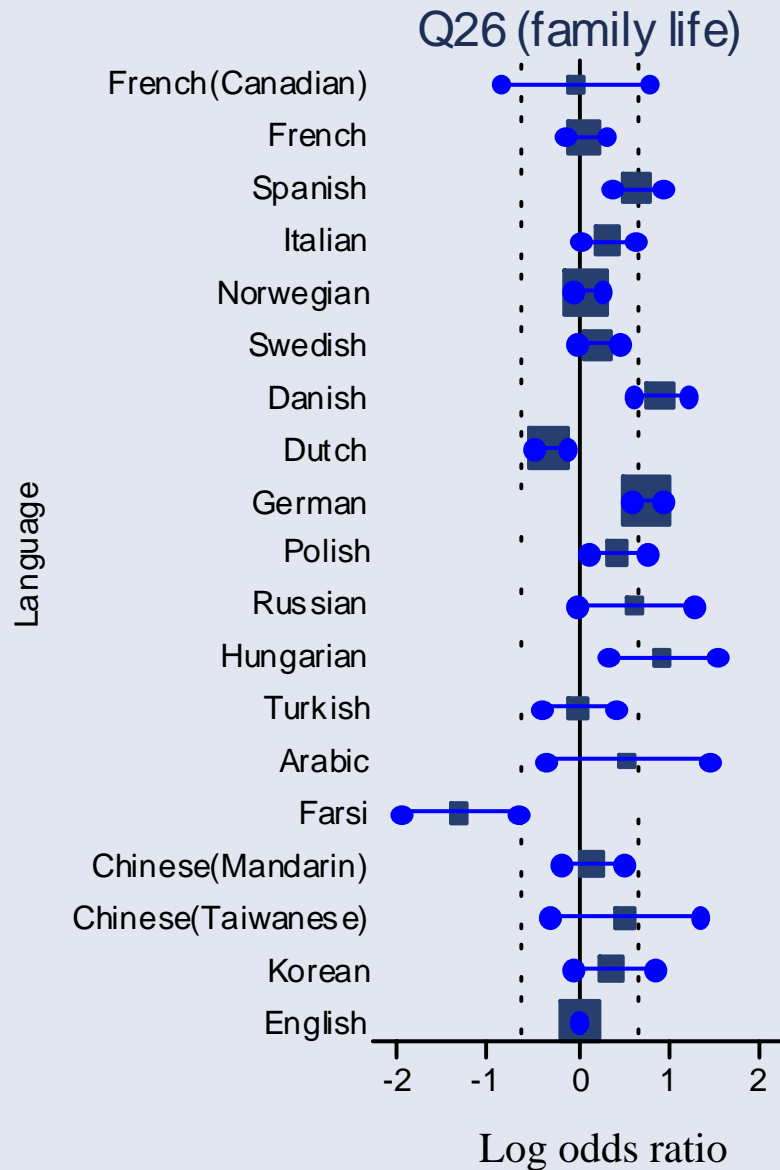




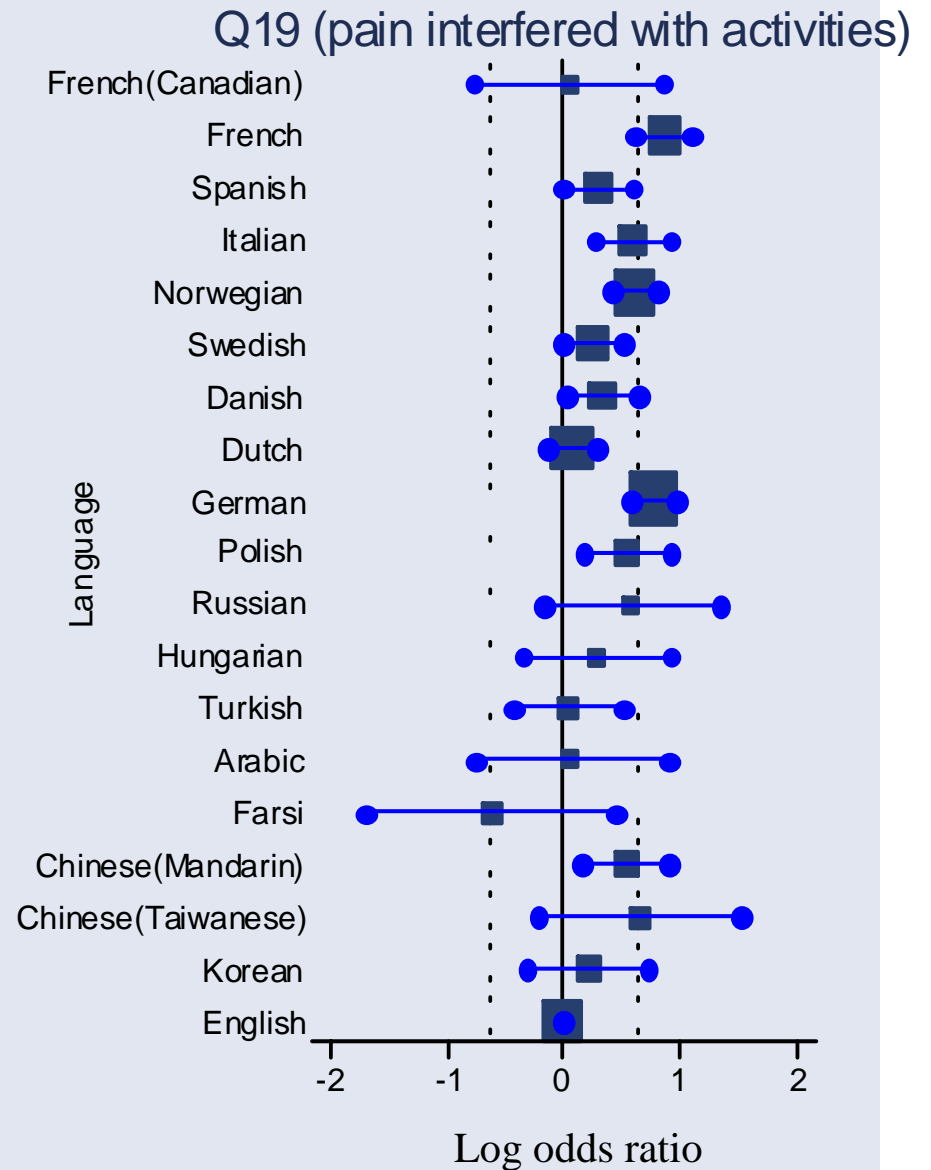
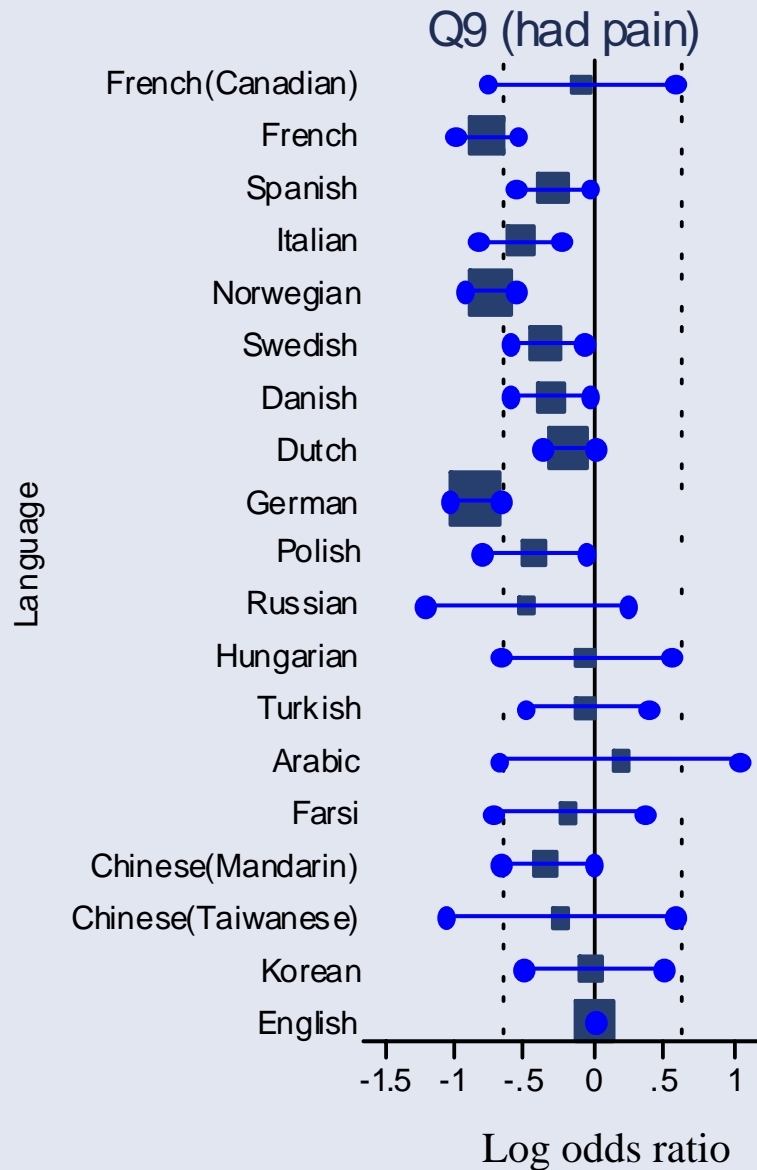
Cognitive functioning (CF) (adjusted)



Social functioning (SF) (adjusted)



Pain (PA) (adjusted)



Summary: DIF analyses

- **Most translations showed similar response patterns**
- **Some DIF effects found but not always clear whether cultural or linguistic**
- **DIF has potential to bias results of international trials**



Summary: Possible translation DIF (Q4)

- **English:**
 - **Do you need to stay in bed or a chair during the day?**
- **Swedish:**
 - **Måste Du sitta eller ligga på dagarna?**
- **Adjusted Log OR (PF): 0.65 (0.12, 1.18)**
- **Log OR (PF2): 1.21 (0.99, 1.44)**



Summary: Possible translation DIF (Q22)

- **English:**
 - **Did you worry?**
- **Norwegian:**
 - **Har du vært engstelig?**
- **Adjusted Log OR: -0.67 (-0.80, -0.53)**



Summary: Possible translation DIF (Q24)

- **English:**
 - **Did you feel depressed?**
- **Swedish:**
 - **Har Du känt Dig nedstämd?**
- **Adjusted Log OR: 0.85 (0.65, 1.04)**



Summary: Possible translation DIF (Q27)

- **English:**
 - Has your physical condition or medical treatment interfered with your social life?
 - **German:**
 - Hat Ihr körperlicher Zustand oder Ihre medizinische Behandlung Ihr Zusammensein oder Ihre gemeinsamen Unternehmungen mit anderen Menschen beeinträchtigt ?
 - **Adjusted Log OR: -0.81 (-0.97, -0.65)**
-



Summary: Cultural DIF

- **No clear occurrences (cultural differences suggested by at least 2 interviewees) identified**
- **But East Asian translations often showed similar results**



Translation of response categories

- **Bilingual interviewees also asked to compare English and translated versions of response categories:**
 - **Not at all, A little, Quite a bit, Very much**
- **This issue may complicate search for cultural differences for each item**



Mean scores (0-100 Visual Analogue Scale)

	English (n=32)	German (n=4)	Russian (n=2)
Not at all	0.8	0.3	0.0
A little	23.8	16.5	15.0
Quite a bit	60.7	49.3	71.0
Very much	91.0	93.5	95.5



Future plans

- **More detailed DIF analyses**
 - **Repeat analyses for:**
 - **Change in QoL (from baseline to on-treatment)**
 - **Site specific modules**
 - **Relative importance of each QoL component (Structural Equation Modelling)**
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Contributors (1)

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