

# Cross-Cultural Analysis of the EORTC QLQ-C30



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# **Aims of the cross-cultural analysis project**

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- 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

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

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# Amount of data available by translation

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

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# Differential Item Functioning (DIF) Analyses

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- **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**



# Paper 1: DIF analyses by translation

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- Examined 13 translations with data available for >200 respondents
- Found at least one significant DIF effect for every translation
- In a small number of cases specific translation reason identified from interviews with bilingual people



# Paper 2: DIF analyses by cultural grouping

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- UK/North America/Australia give similar results
- Some differences between UK and rest of Europe (e.g. for pain scale)
- Eastern Europe shows some striking differences (e.g. for role functioning scale)
- East Asian countries give consistent results to each other; often very different response patterns to Europe



# Paper 3: Scale-level cultural analyses

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- **Linear regression model**
  - **Dependent variable:**
    - **QL2 (overall QoL scale score)**
  - **Independent variables:**
    - **Functional scale scores (PF2, RF2, EF, CF, SF) plus fatigue (FA) and pain (PA)**
    - **Geographic groups**
    - **Scale score/geographic group interactions**
    - **Covariates (adjustment factors)**
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# Geographical Groupings

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<b>Grouping</b>	<b>Total respondents</b>
<b>UK (reference)</b>	<b>1637</b>
<b>Scandinavia</b>	<b>3095</b>
<b>North Central Europe</b>	<b>9816</b>
<b>South West Europe</b>	<b>2386</b>
<b>Eastern Europe</b>	<b>528</b>
<b>Islamic Countries</b>	<b>439</b>
<b>South Asia</b>	<b>1025</b>
<b>East Asia</b>	<b>1428</b>
<b>Australasia</b>	<b>180</b>
<b>North America</b>	<b>1082</b>
<b>Latin America</b>	<b>127</b>

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# Significant interations:

$p < 0.001$  (**+++**, **- -**);  $p < 0.05$  (**+**, **-**)

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	Scand- inavia	N Centr Europe	South Europe	East Europe	Islamic	South Asia	East Asia	Austr- alasia	North America	Latin America
<b>PF2</b>	<b>- -</b>				<b>- -</b>					
<b>RF2</b>	<b>+</b>			<b>-</b>	<b>+++</b>					
<b>EF</b>	<b>+</b>				<b>+</b>					<b>-</b>
<b>CF</b>						<b>+++</b>	<b>-</b>			<b>+++</b>
<b>SF</b>					<b>- -</b>			<b>+</b>		<b>+</b>
<b>FA</b>		<b>- -</b>	<b>-</b>	<b>-</b>		<b>-</b>		<b>-</b>		
<b>PA</b>	<b>+</b>	<b>+</b>		<b>+</b>	<b>-</b>					

# Practical impact of regression analyses

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- Largest interaction coefficient was for CF scale/Latin America
  - If a treatment increases CF by 15 points [a “moderate” change, Osoba et al. (1998)] then our results imply QL2 scale would increase by 4.65 points more for Latin Americans than for those from UK
  - Compare with Osoba et al. (1998) [5-10 points change in QL2 is “a little” change] and King (1996) [2 points is a “small” change]
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# Summary: regression analyses

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- **Differences identified in emphasis placed by different cultural groups on aspects of their QoL**
- **Differences are relatively small, however, and unlikely to affect clinical trials stratified by centre**



# Reference Values Manual

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- **We are updating the EORTC QLQ-C30 Reference Values Manual (previously published in 1998) using CCA project data**
- **Would like to hear views of users about content and layout of new manual**



# Uses of reference data

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- **Study Design**
  - **Sample size calculations**
- **Analysis/interpretation**
  - **Comparing groups of patients**
  - **Comparing an individual's scores with typical scores**



# Current format of Reference Values

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- **Separate sections by cancer site**
  - **Some are presented separately by stage of disease**
    - **Characteristics of sample (dataset, version used, age, gender)**
    - **Bar charts for each scale**
    - **Bar charts for each item**
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# Suggestions so far - for discussion

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- Tables instead of bar charts except for overall sample
- Focus on scales not items
- Give more than just mean and %
- Give summary correlation matrices
- Include module data
- Both paper and electronic manual
- Use follow-up data?
- Interactive use of database?



# Amount of available baseline data by module

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<b>Lung module</b>	<b>2703</b>
<b>Head &amp; neck module</b>	<b>2165</b>
<b>Breast module</b>	<b>1005</b>
<b>Oesophageal module</b>	<b>566</b>
<b>Prostate module</b>	<b>441</b>
<b>Ovarian module</b>	<b>265</b>
<b>Gastric module</b>	<b>254</b>



# Future work of CCA project

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- **DIF analyses of change in QoL**
- **Practical impact of DIF analyses**
- **Translation of response categories**
- **Review of DIF applied to QoL settings**
- **Performance of DIF analyses in short scales (simulations)**



# Contributors (1)

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- 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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