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in Cancer Control

Canadian population weights for the QLU-C10D: a new cancer-specific preference-based instrument

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Background

- CADTH recommends that general population preferences be used to guide policy through the use of utilities for specific health states
- Utilities for cancer treatments not frequently elicited
  - Dimensions of generic preference-based instruments are considered irrelevant or insensitive

Cancer quality of life

- Cancer-specific QOL instruments often used
  - EORTC QLQ-C30 (functioning, common cancer symptoms)
  - FACT-G (well-being)
- Outputs are not utilities and cannot be used to estimate QALYs
  - No info about strength of preference for particular QOL dimensions
  - No info about the trade-off between QOL and survival

Cancer-specific utilities

- Conduct a mapping exercise
  - Algorithm to convert responses on cancer-specific QOL instrument onto utility scale
- Develop cancer-specific utility instrument
  - Ensure utilities better reflect impact of disease under investigation
  - 2010: Australian NHMRC grant to develop 2 utility instruments based on the QLQ-30 and FACT-G
  - Country-specific valuations have commenced in Europe and North America

Objectives of the presentation

- Describe the process of constructing the QLU-C10D
  - Health state classification system
  - Discrete choice experiment valuation task
- Present the Canadian valuation of the QLU-C10D study
  - Report preliminary utility weights

Development of the QLU-C10D health state classification system

- Secondary analysis of datasets consisting of:
  - 10 countries, >2,000 patients' QLQ-C30 responses
  - Comprehensive range of primary cancer sites, stages, and treatments
- Reduction of dimensions using different psychometric approaches (e.g., confirmatory factor analysis, Rasch analysis)
- Consultation with clinicians and patients

(King et al., Qual Life Res, 2016)

QLU-C10D health state classification system

10 Dimensions	13 items
Physical Functioning	Long walk
	Short walk
Role Functioning	Work and daily activities
Social Functioning	Family life
	Social life
Emotional Functioning	Depressed
Pain	Pain
Fatigue	Feel tired
Sleep disturbance	Sleep
Appetite loss	Appetite
Nausea	Nausea
Constipation/Diarrhea	Constipation
	Diarrhea

4 Levels
No trouble
A little trouble
Quite a bit trouble
Very much trouble

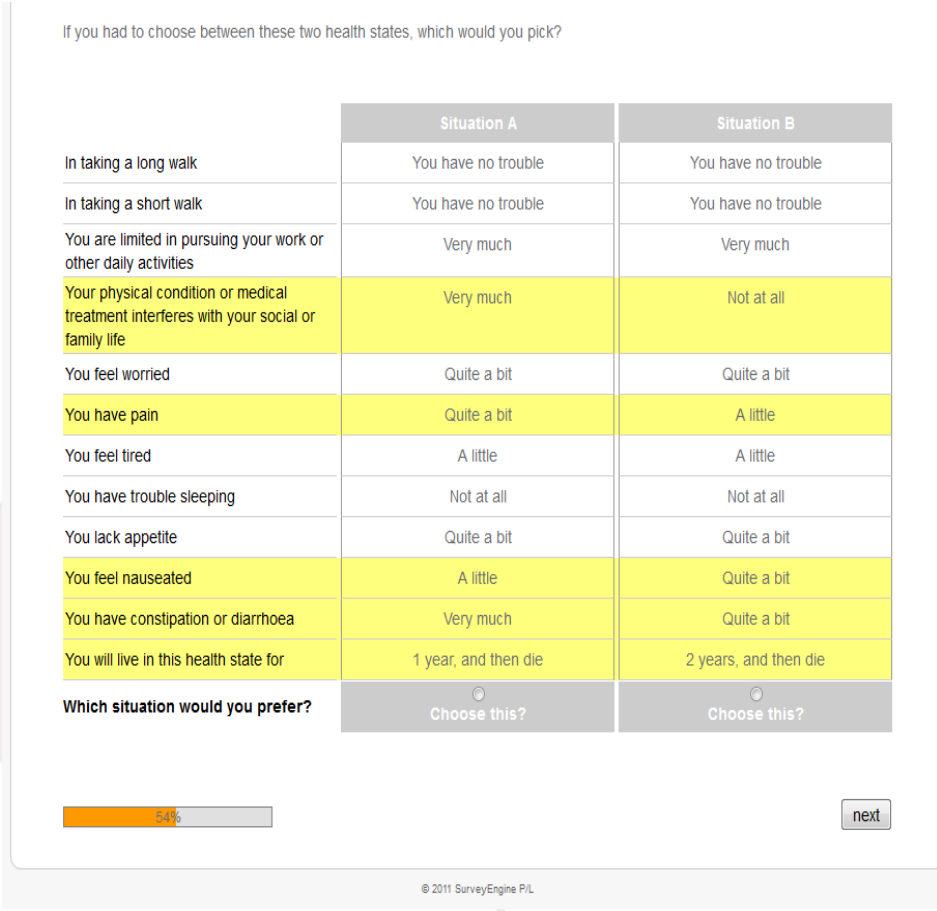
QLU-C10D valued as a discrete choice experiment

- DCE is now used more readily in valuation of health states
- DCE elicits individuals' relative preferences:
  - Between 10 QOL dimensions
  - Between 10 QOL dimensions and life expectancy
- DCE presents a number of hypothetical choice sets consisting of two health profiles
  - Respondent indicates their preference

QLU-C10D experimental design

- QLU-C10D has a large number of dimensions
- Efforts to reduce the cognitive complexity:
  - Respondents completed 16 choice sets
  - Only levels of 4/10 QLU-C10D dimensions changed
  - Differing dimension levels between choice sets identified by yellow highlighting

(Norman et al., Qual Life Res, 2016)



If you had to choose between these two health states, which would you pick?

	Situation A	Situation B
In taking a long walk	You have no trouble	You have no trouble
In taking a short walk	You have no trouble	You have no trouble
You are limited in pursuing your work or other daily activities	Very much	Very much
Your physical condition or medical treatment interferes with your social or family life	Very much	Not at all
You feel worried	Quite a bit	Quite a bit
You have pain	Quite a bit	A little
You feel tired	A little	A little
You have trouble sleeping	Not at all	Not at all
You lack appetite	Quite a bit	Quite a bit
You feel nauseated	A little	Quite a bit
You have constipation or diarrhoea	Very much	Quite a bit
You will live in this health state for	1 year, and then die	2 years, and then die
Which situation would you prefer?	Choose this?	Choose this?

54%

next

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Canadian study: sample characteristics (n=1,539)

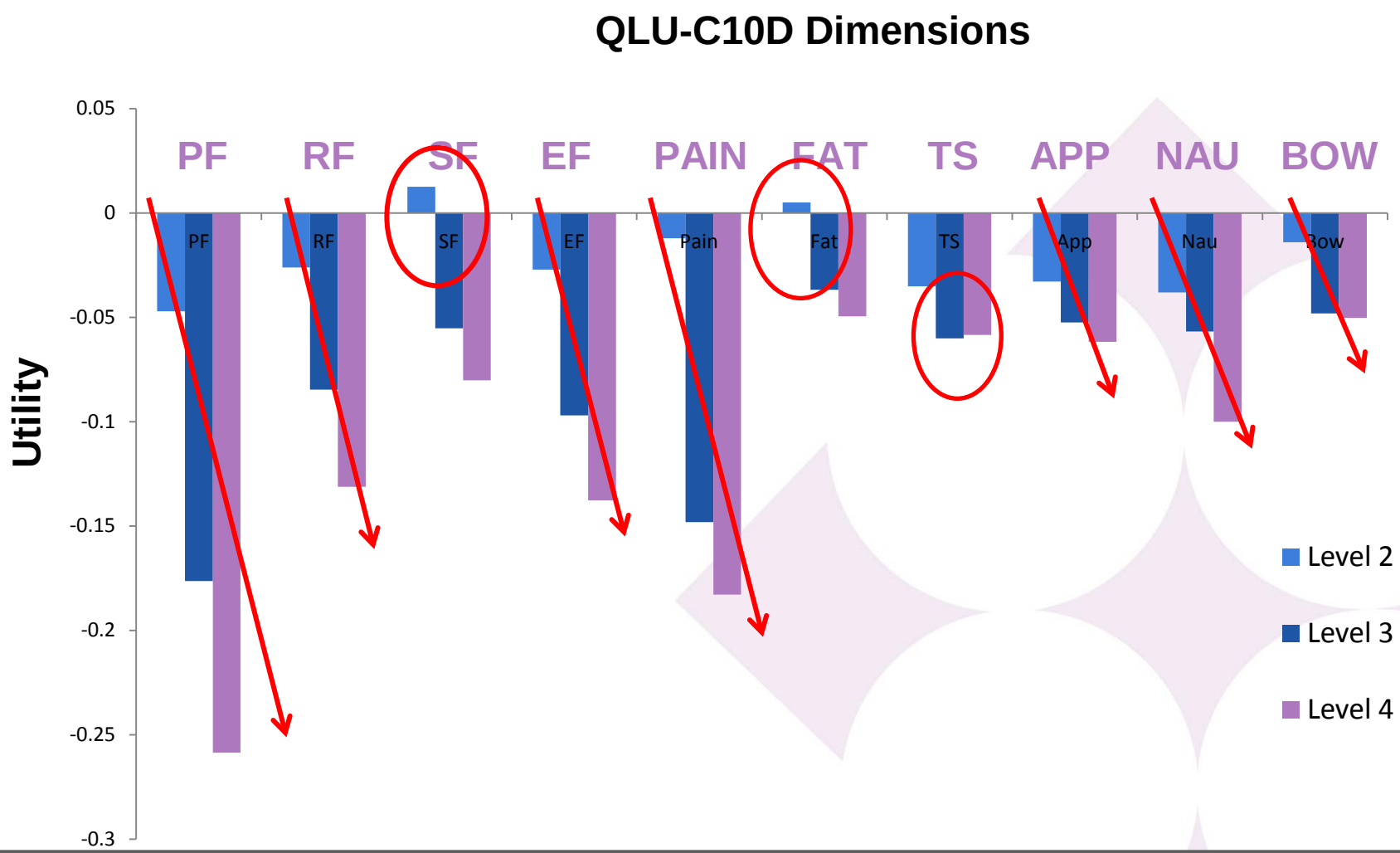
Characteristics	Sample (%)	Population (%)
Gender		
Male	747 (48.5)	48.3
Female	788 (51.2)	51.6
Other	4 (0.3)	0
Age (years)		
18-29	280 (18.2)	19.8
30-39	273 (17.8)	17.1
40-49	265 (17.2)	21.2
50-59	314 (20.4)	18.0
60-69	263 (17.1)	11.4
70 or older	144 (9.4)	12.5
Geographical location		
West (AB, BC, SK, MB)	418 (27.1)	31.6
ON	617 (40.1)	38.5
QC	381 (24.8)	22.9
Atlantic (NB, NF, NS, PEI)	119 (5.7)	6.6
Territories (YK, NWT, NU)	4 (0.3)	0.3
Primary language spoken at home		
English	1128 (73.3)	58.0
French	368 (23.9)	22.1
Other	43 (2.8)	19.9
Language survey completed in		
English	1194 (77.6)	
French	345 (22.4)	

p=0.8

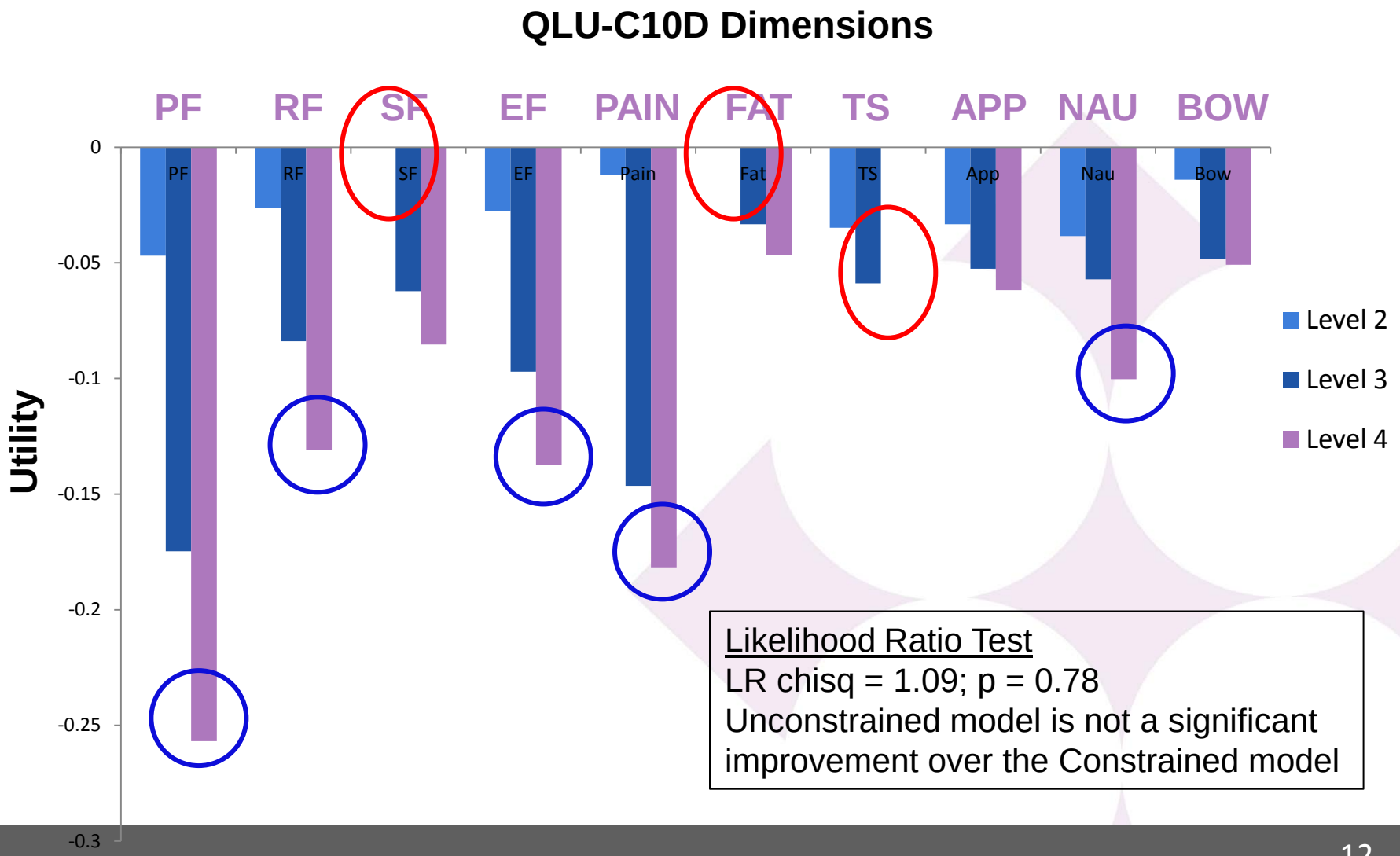
p<0.05

p<0.05

Conditional logit results: unconstrained



Conditional logit results: constrained



Likelihood Ratio Test
LR chisq = 1.09; p = 0.78
Unconstrained model is not a significant improvement over the Constrained model

Calculating QLU-C10D scores

- QLU-C10D cannot be used as a stand alone measure
  - Individual-level QLQ-C30 responses are needed to convert into QLU-C10D levels
- Calculation of an individual's utility score:

$$(QLU\text{-}C10D)_i = 1 - \Sigma w_d (QLU\text{-}C10D)_{di}$$

- Utility range: 1 (best) to -0.11 (PITS)

Conclusions

- Availability of the QLU-C10D utility weights will facilitate CUA for cancer interventions
  - It can be applied to data collected with the QLQ-C30, prospectively and retrospectively
- QLU-C10D more sensitive than generic measures
  - Captures cancer-sensitive symptoms (e.g., nausea, bowel problems, and appetite)

Future work

- Collect more respondents to ensure sample matches population (e.g., sex, age, geography)
- Apply QLU-C10D utility weights to cancer-specific QOL responses
  - Assess the performance of the QLU-C10D utilities
- Determine Canadian population weights for the FACTU-8D

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Further questions? Please contact:
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