

Q-to-survey design



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Outline

- Overview of Initial Study
- Q-to-Survey (Q2S) Approaches
- Selection of statements
 - Selection rules
 - Statements
- Q2S1 – Q2S5
 - Design
 - Issues

Overview of Initial Study

- Q2S approaches are derived from the factor solution of an existing Q study
 - Relative value of life extensions for people with terminal illnesses
- 3 factors identified and described in our initial Q survey:
 - Viewpoint 1: **A population perspective – value for money, no special cases**
 - Viewpoint 2 : **Life is precious – valuing life-extension and patient choice**
 - Viewpoint 3: **Valuing wider benefits and opportunity cost – the quality of life and death**
- Correlation - High correlation between F1 and F3

Correlations between factors			
	F1	F2	F3
F1	1		
F2	-0.05	1	
F3	0.68	0.09	1

Overview of Q2S Approaches

Q2S Approach	Survey Approach	Measurement Technique
1 – Individual Item Likert Scale	18 Selected Statements	Likert Scale
2 – Q Block	18 Selected Statements	Ranking
3 – Abbreviated Factor Descriptions	Short Factor Descriptions	Likert Scale/Choice
4 – ‘Mini’ Q	18 Selected Statements	Ranking
5 – Pairwise Choices	23 Selected Statements	Choice

Selection of statements

- Original Q study = 49 statements, 3 factors
- How to best represent our 3 factors from a smaller number of statements?
- **Selection rules:**
 - Statement should be **salient** and **distinguishing** for at least one factor (Baker *et al.* 2010)
 - Select an equal number of statements per factor
 - Select positive and negative statements (equal numbers per factor)

Selection rules

- Salient statements
 - Q Grid: -5 to +5 for 49 statements
 - Salient if positioned +/-3 or above = 20 statements per factor
- Distinguishing statements
 - Distinguishing statements tables (all statements $p < 0.05$)
- Salient and distinguishing
 - F1 = 12 statements / F2 = 18 statements / F3 = 10 statements
- Issues
 - High correlation between F1 and F3
 - Statements can be salient and distinguishing for more than one factor e.g. #40 is **-3/+1/-4**
 - For some statements, even though they are distinguishing, the difference in factor scores can be small e.g. #8 is **+4/+5/+5**

Statements

- **Salience**
 - All but one statement (F3)
 - #25 is -3 / -1 / +2
 - But difference in factor score is >2
- **Distinguishing:**
 - Not a large difference in factor scores between all selected statements
 - 6 statements selected with a difference in factor score of only 2 (2 for F1 / 1 for F2 / 3 for F3)
- 18 statements selected from the original 49
 - 6 per factor
 - 4 positive and 2 negative statements for each factor

Q2S1 - Issues

- No clear guidance on the **number of statements** for use in the survey and on **how to select** the **appropriate statements** from the Q-set
- Agreement/disagreement with individual statements compared to positioning statements relative to a lot of other statements
- Are statements related to same factor, for example F1 statements, scored in same way or different way?
 - Reliability analysis e.g. Cronbach's alpha
- Likert scale
 - Burden low
 - Not required to distinguish between the statements

Q2S2 – Q Block

- Talbott's Q block (Talbott, 1963)
- Same 18 statements organised into 6 blocks of 3 statements (1 statement per factor)
 - 4 agree blocks (all positive statements) and 2 disagree blocks (all negative statements)
 - Organised approximately according to salience
- Rank order statements according to level of agreement/disagreement

Looking at these three statements in the table below, place them in order of **agreement**.

Drag your choices onto the numbered boxes with box 1 being the one you most agree with

1

2

3



Treatments that are very costly in relation to their health benefits should be withheld.



We all have the right to life.



At the end of their life, patients should be cared for at home with a better quality of life rather than have aggressive and expensive treatments that will only extend life for a short period of time.

Q2S2 – Issues

- No clear guidance on **how to group statements** into blocks and on **how many blocks** should be constructed
 - Different compositions of same subset of statements could influence responses
- Statements viewed in relative isolation (as compared to positioning of statements in relation to others in a Q set)
- Condition of instruction (COI)
 - Different for negative statements

Q2S3 – Abbreviated factor descriptions

- Use of factor descriptions from Q study; does not rely on 18 statements
- Each factor description is abbreviated
- Rate level of agreement to each description
 - Likert Scale (1 to 7, very unlike my point of view to very much like my point of view)
 - Tiebreak question

POINT OF VIEW C:

NHS spending should aim to get the best value for money in terms of quality of life and life extension. Life for terminally ill patients should not be extended 'for the sake of it' but - depending on patients' quality of life - treatments that extend life may be more valuable than treatments for other patients. Additional time can allow patients to make their peace and prepare for a 'good death'. More value should be placed on the benefits of treatments for the terminally ill than for other patients if they have not had their 'fair innings' in life. However, the cost and benefits of treatments should be considered, and treatments that are very costly in relation to health benefits should be withheld. Patients do not have an automatic right to any available treatment but they do have the right to refuse treatment. At the end of life patients might grasp at any hope but that is not a good reason to provide costly treatment providing short extensions to life.

This is ...

1 - Very unlike my point of view



7 - Very much like my point of view

Q2S3 - Issues

- Factors evaluated as a whole
 - Short descriptions to reflect original content
- If a viewpoint overlooked then low scores for the three factors returned
- Likert scale
 - Burden low
- Tiebreak question
 - Interesting?
 - Is +6/+6/+1 the same as +3/+3/+1?

Q2S4 – ‘Mini’ Q

- Same 18 statements
- Grid -4 to +4
- Use of Q sorting techniques

MOST DISAGREE								MOST AGREE			
-4	-3	-2	-1	0	1	2	3	4			
I would place more value on end-of-life treatments than	A year of life is of equal value for everyone.	Treatments that are very costly in relation to their health benefits	We all have the right to life.	End-of-life drugs are not a cure, they are life-prolonging.	We should spend proportionately more on patients	All human life is precious.	You can't put a price on life.	I wouldn't want my life to be extended just for the sake of it			
		The health system should be about getting the greatest	It is not worthwhile devoting more and more NHS	Patients at the end of life will grasp any slightest hope	We should support an individual patient's choice	Treatments should be directed towards people who					
			It is wrong to raise hopes and expectations by making a special	To extend life in a way that is beneficial to the patient is morally	if a life-extending treatment for terminally ill patients is						
				At the end of their life, patients should be cared for at home with							

This is the statement you most agreed with. Why do you agree strongly with this statement? Why is it important to you?

I wouldn't want my life to be extended just for the sake of it - just keeping breathing is not life.

Q2S4 – Issues

- Reflects Q methodology
- All statements viewed and placed in relation to each other
- Allows for ties between the ranking of statements
- No clear guidance on the **number of statements** to use and on **how to select** the **appropriate statements** from the Q-set
- ‘Mini Q’ but not Q methodology?
 - Statements not selected in same way as Q study e.g. not representative of concourse
- How to score? Use ranking scores or factor analysis

Q2S5 – Pairwise Choices

- Assign to a factor based on paired choices
- Different statements utilised
- Descending array of differences table
- Different statements used – 23 statements

- 2 stage pairwise choice:
 - 1st stage: to assess if respondent is F2 or not F2 (5 questions)
 - **Positive F2** statements v **Negative F2** statements e.g. +1/+5/0 v 0/-3/0
 - 2nd stage: to assess if respondent is F1 or F3 (8 questions)
 - **Positive F1**; Neutral F3 v **Negative F1**; Neutral F3 (3 questions) e.g. +3/-2/0 v -3/3/-1
 - **Positive F3**; Neutral F1 v **Negative F3**; Neutral F1 (3 questions) e.g. 0/+4/3 v 0/0/-4
 - Positive Distinguishing F1 v Positive Distinguishing F3 (2 questions) e.g. +4/0/+1 v 2/-3/+4

- COI: choose statement **agree with most** or if don't agree with either chose **'neither'**

Q2S5 - Issues

- No guidance on how to select statements
- Correlation issue underpins whole design
 - High correlation between F1 and F3 stimulated Q2S5 design
 - 2 stage approach to pairwise choice
 - Approach dependent on results of initial Q study
- Limited pool of statements, especially for F1 and F3
 - Some statements reused
 - Distance between F1 and F3 scores small e.g. #41 **+3/0/+5** is a F3 positive distinguishing statement

Overall Issues

- Statement selection
 - Rules v pragmatism
- What are (dis)advantages of the different approaches?
 - Separate statements v factor as a whole
 - Ranking v rating v choice
- Approaches designed to allow scores for each person on each factor
 - Provides information about factor association from which we can look at membership
- What should we do?
 - Match respondent to a single factor
 - Look at strength of association with all factors