

Caire P.¹, Plowright R.², Conway K.³, Bradley C.²

¹ Mapi Institute, Lyon, France; ² Health Psychology Research Ltd and Department of Psychology, Royal Holloway, University of London, UK; ³ Mapi Research Trust, Lyon, France

The DTSQ (Bradley & Lewis 1990, Bradley 1994) is an 8-item questionnaire designed to assess patients' satisfaction with their diabetes treatment, comprising six Satisfaction questions, plus two items about perceived frequency of hyper- and hypoglycemia. Each of the eight items is scored on a scale of 0-6. The six Satisfaction items (1,4,5,6,7,8) can be summed to produce a Treatment Satisfaction score. The DTSQs was originally developed in the UK in the early 1980s. It has been used extensively in clinical trials and in routine clinical audit and has been translated into more than 100 language versions (including several English adaptations).

Objectives

- To review existing English versions of the Status version of the DTSQ (DTSQs), which were developed using a standard adjusted linguistic validation methodology (Acquadro et al. 2004);
- To identify differences between the original UK English version and other English versions, and where possible describe the types of differences.

Methods

- Collection of the existing English versions;
- Analysis of the differences; and coding of the differences as cultural, lexical, and grammatical.

Results

- Ten English versions are available for the following countries: Australia (AU), Canada (CA), Hong Kong (HK), India (IN), Malaysia (MY), New Zealand (NZ), Philippines (PH), Singapore (SG), South Africa (ZA), and USA (US).
- Three versions were identical to the original: HK, SG and US. Title, items 1, 6, 7, 8 and the response choices (RC) of items 1 to 4, 6 and 8 did not change across all 10 versions. Table 1 provides an overview of each unchanged item and response category.
- In decreasing order of frequency, the numbers of changes were observed as follows: PH (8) (the only country here colonized by the US rather than by Britain), IN (5), MY (4), NZ (3), AU, CA, ZA (2). All changes were either requested or validated by the patients during cognitive debriefing. Changes were mostly grammatical or lexical.
- Table 2 displays, for each of the 7 countries, all the changes made to the original. For each English version, changes made to the original UK English version of the DTSQs are indicated in blue or with red brackets **[]** when words were deleted.
- The most problematic item across all versions was Item 5 (*flexibility*) (for 6 countries: AU, CA, IN, MY, NZ, PH), then items 2 and 3 (*perceived frequency of hyper- and hypoglycaemia*) and 4 (*convenience*).
 - For items 4 and 5, AU and CA shared the same grammatical change (replacement of "have been finding" by "have found"), as well as IN and NZ (deletion of the infinitive "to be"). In PH, the adjective "adjustable" was added in Item 5 to clarify the meaning of "flexible".
 - In MY, item 5 was completely reworded as the patients understood it backwards. This is likely to be because their treatment regimens are not at all flexible, so they automatically react by thinking of the reality (i.e. their flexibility in adapting themselves to the treatment).

Conclusion

Observed differences relate to history, evolution of language and treatment differences across countries, and confirm the importance of careful review and, where necessary, development of specific English versions of PRO measures for different English-speaking countries. Patients are key in determining which changes should be implemented or to confirm that the original English version is appropriate and can be kept unchanged in a target English-speaking country.

References

Bradley C and Lewis KS (1990) Measures of psychological well-being and treatment satisfaction developed from the responses of people with tablet-treated diabetes. *Diabetic Medicine* 7, 445-451.

Bradley C (1994) The Diabetes Treatment Satisfaction Questionnaire: DTSQ. In Bradley C (Ed) (1994) *Handbook of Psychology and Diabetes: a guide to psychological measurement in diabetes research and practice*. Chur, Switzerland: Harwood Academic Publishers.

Acquadro C, Conway C, Giroudet C, Mear I (2004) *Linguistic Validation Manual for Patient-Reported Outcomes (PRO) Instruments*. Lyon, France: MAPI Research Institute.

Contacts

Address for correspondence:
Patricia Caire, MAPI Institute, 27 rue de la Villette, 69003 Lyon, France. pcaire@mapigroup.com

Access to the DTSQ © Professor Clare Bradley. Website:
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Table 1. DTSQs Items and Response Categories (RC) left unchanged across all countries

Language	Title	Item 1	RC Item 1	RC Item 2	RC Item 3	RC Item 4	Item 6	RC Item 6	Item 7	Item 8	RC Item 8
EN UK Original	Diabetes Treatment Satisfaction Questionnaire: DTSQs	How satisfied are you with your current treatment?	Very satisfied	Most of the time	Most of the time	Very convenient	How satisfied are you with your understanding of your diabetes?	Very satisfied	Would you recommend this form of treatment to someone else with your kind of diabetes?	How satisfied would you be to continue with your present form of treatment?	Very satisfied
			Very dissatisfied	None of the time	None of the time	Very inconvenient		Very dissatisfied			Very dissatisfied

Table 2. DTSQs Items and Response Categories (RC) in the Original English and as modified in 7 countries

Language	Instructions beginning	Item 2	Item 3	Item 4	Item 5	RC Item 5	Item 7	Instructions End	# / type of changes for each country
EN UK Original for reference	The following questions are concerned with the treatment for your diabetes (including insulin, tablets and/or diet) and your experience over the past few weeks Please answer each question by circling a number on each of the scales	How often have you felt that your blood sugars have been unacceptably high recently?	How often have you felt that your blood sugars have been unacceptably low recently?	How convenient have you been finding your treatment to be recently?	How flexible have you been finding your treatment to be recently?	Very flexible Very inflexible	Yes, I would definitely recommend the treatment No, I would definitely not recommend the treatment	Please make sure that you have circled one number on each of the scales	
EN Australia	Same as UK	Same as UK	Same as UK	How convenient have you found your treatment to be recently?	How flexible have you found your treatment to be recently?	Same as UK	Same as UK	Same as UK	2 / Grammatical: change of tense/aspect
EN Canada	Same as UK	Same as UK	Same as UK	How convenient have you found your treatment to be recently?	How flexible have you found your treatment to be recently?	Same as UK	Same as UK	Same as UK	2 / Grammatical: change of tense/aspect
EN South Africa	Same as UK	How often have you felt that your blood sugar levels have been unacceptably high recently?	How often have you felt that your blood sugar levels have been unacceptably high recently?	Same as UK	Same as UK	Same as UK	Same as UK	Same as UK	2 / Lexical: addition of <i>levels</i> to be locally equivalent
EN New Zealand	The following questions are concerned with the treatment of your diabetes (including insulin, tablets and/or diet) and your experience over the past few weeks	Same as UK	Same as UK	How convenient have you been finding your treatment [] recently?	How flexible have you been finding your treatment [] recently?	Same as UK	Same as UK	Same as UK	3 / Grammatical: use of <i>of</i> instead of <i>for</i> corresponding to stricter usage in NZ than UK (more relaxed), and deletion of <i>to be</i> (not needed)
EN Malaysia	Same as UK	How often have you felt that your blood sugar has been unacceptably high recently?	How often have you felt that your blood sugar has been unacceptably low recently?	Same as UK	How satisfied are you with the extent to which your treatment fits in with your daily life?	Very satisfied Very dissatisfied	Same as UK	Same as UK	4 2 / Lexical and Grammatical (items 2 and 3): change of word to singular requiring a grammatical change to the verb. 1 / Lexical/Semantic (item 5): primarily a change of words, emphasising a different part of the concept for greater clarity. 1 / Lexical/Semantic (RC item 5): change of words to fit restructure of item 5.
EN India	Please answer each question by circling a number on every scale	How often have you felt that your blood sugar has been unacceptably high recently?	How often have you felt that your blood sugar has been unacceptably low recently?	How convenient have you been finding your treatment [] recently?	How flexible have you been finding your treatment [] recently?	Same as UK	Same as UK	Same as UK	5 1 / Lexical (instructions): change of words (<i>every scale</i>). 2 / Lexical and Grammatical (items 2 and 3): change of word to singular requiring a grammatical change to the verb. 2 / Grammatical (items 4 and 5): deletion of <i>to be</i> (not needed).
EN Philippines	The following questions are about the treatment for your diabetes (including insulin, tablets and/or diet) and your experience over the past few weeks Please answer each question by encircling a number on each of the scales	How often have you felt that your blood sugar levels have been unacceptably high recently?	How often have you felt that your blood sugar levels have been unacceptably low recently?	Same as UK	How flexible (adjustable) have you been finding your treatment to be recently?	Very flexible (adjustable) Very inflexible (adjustable)	Yes, I would surely recommend the treatment No, I would surely not recommend the treatment	Please make sure that you have encircled one number on each of the scales	8 / Lexical: change of words (<i>about, encircling, surely, encircled</i>), addition of words (<i>levels and adjustable</i>) to be locally equivalent and for sake of clarity
# of changes/Item or RC	4	4	4	4	6	2	1	1	