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Diabetes Treatment Satisfaction Questionnaire (Change) in English and German evaluated in insulin glargine trials

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Aims*:* To evaluate the psychometric properties of the DTSQc, a new change version of the widely used DTSQs (status version). The DTSQc is intended to complement the DTSQs with a view to increasing sensitivity to change in the face of baseline ceiling effects commonly observed with status measures of satisfaction.
Methods*:* Two multinational, open-label, randomised-controlled trials (one for patients with Type 1 diabetes and the other for Type 2) compared new, longer-acting insulin glargine with standard NPH basal insulin. The DTSQs was completed at baseline and the DTSQs and DTSQc at final visit by 351 patients from UK, S.Africa, Germany, Austria and Switzerland. Factor structure and reliability were examined separately for English and German questionnaires. On the combined samples, change as directly indicated by DTSQc scores was compared with the change from baseline for the DTSQs (DTSQsDiff) using 3-way analysis of variance to examine effects of Questionnaire, Treatment and Ceiling effects (i.e. baseline scores at/near ceiling).
Results: As expected, unforced factor analysis for the DTSQc showed the six Satisfaction items to load together >0.73 in both languages. Reliability was confirmed (alpha coefficients: English=0.92; German=0.94). Patients scoring at/near ceiling at baseline (30-36) included 49% with Type 1 diabetes and 62% with Type 2. Comparing DTSQc with DTSQsDiff, significant effects of Questionnaire and of Questionnaire x Ceiling interaction ($p<0.001$) were seen in both sets of trial data, together with significant treatment effects favouring insulin glargine ($p<0.001$) and Treatment x Questionnaire interactions ($p<0.019$) in the Type 1 trial.
Conclusions: The DTSQc showed excellent factor structure and reliability and, as expected, greater sensitivity to change than the DTSQs, particularly in patients who reported high levels of satisfaction with treatment at baseline. Thus the DTSQc provides a useful solution to ceiling effects commonly observed with status satisfaction measures.