

Further development and use of the Diabetes Treatment Satisfaction Questionnaire for Inpatients (DTSQ-IP) in 58 UK hospitals: British inpatients completing the standard English language version

C.L. Rutter¹, M. Sampson², K. Dhatariya², C. Jones², J. James³, C. Bradley¹

¹ Dept of Psychology, Royal Holloway, Egham, Surrey, UK; ² Department of Diabetes and Endocrinology, Norfolk and Norwich, University Hospital, Norwich, Norfolk, UK; ³ Previously Peterborough District Hospital, now Leicester General Hospital, Leicester, UK.



1. Aim

To evaluate and use the standard English Diabetes Treatment Satisfaction Questionnaire for Inpatients (DTSQ-IP) following updates to broaden its scope to include South Asians.

2. Background

- The Diabetes Treatment Satisfaction Questionnaire (DTSQ)^{1,2} used extensively with outpatients was adapted for use with inpatients (DTSQ-IP) and developed in English in a single-centre study at Norfolk and Norwich University Hospital³.
- The DTSQ-IP has since been updated for use with South Asian communities with linguistically validated versions in 5 South Asian languages: Hindi, Punjabi, Urdu, Gujarati and Bengali and an English for South Asians version.

3. The Revised DTSQ-IP

- The revised standard English DTSQ-IP includes 22 items.
- 17 of the 22 are combined to give an overall treatment satisfaction score
- All 17 items are rated 6 to 0 where 6 = "very satisfied" 0 = "very dissatisfied" ("or similar")**
- Five items, not included in the overall score, are examined separately:
 - Items 2 and 3** concern perceived frequency of hyper- and hypoglycaemia; scored 6 to 0. 6 = "most of the time" 0 = "none of the time"
 - Item 12** elicits the frequency the inpatient eats meals at home that are similar to the meals offered in hospital (scored as items 2 & 3).
 - Items 20a and 20b** elicit patient perception of the number of times they have seen a DISN and how satisfied they were with the time the DISN spent with them (scored 6 - 0 "very satisfied" - "very dissatisfied").

4. Methods

- The revised standard English DTSQ-IP was distributed to British born, English speaking adult inpatients with diabetes by Diabetes Inpatient Specialist Nurses (DISNs) in 58 UK hospitals. (Data collection from South Asians and non-British inpatients is ongoing).
- Participants were asked to complete the DTSQ-IP and general information questionnaire on the day of discharge from hospital.

5. Results

Study Sample: main characteristics

- n = 1319 returned questionnaires
- Men = 742 (56.3%); Women = 574 (43.5%)
- Length of hospital stay in days = 12.7 (mean); 7 (median); 3 (mode)
- Diabetes duration = 16 years (mean)
- Insulin was received for the first time this admission by 20.4%
- Duration of insulin treatment = 13.7 years (mean); 10 years (median)*
- Medical Ward = 67.4%; Surgical ward = 22.9%
- A severe hypoglycaemic episode while in hospital was reported by 25.7%

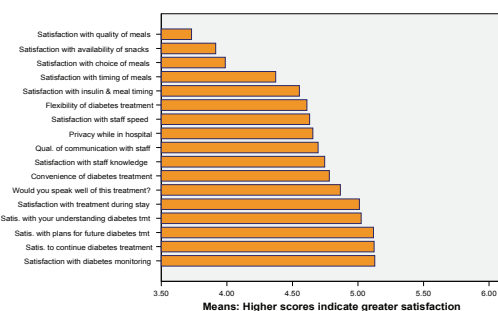
* Data from inpatients not receiving insulin for the first time only

Psychometric Analysis

Principal Components Analysis (PCA) revealed:

- an overall treatment satisfaction scale of 17 items (Cronbach's α coefficient of internal consistency=0.94)
- a 4-item satisfaction with hospital food subscale (α =0.84).

Figure 1: Means for the 17 items included in the overall treatment satisfaction scale



Questionnaire items treated separately

Perceived Frequency of Hyperglycaemia (item 2)

22% of those inpatients completing this item (n=1192) indicated high perceived frequency of hyperglycaemia during their hospital stay (scoring 6 or 5 on the 6-0 scale).

Perceived Frequency of Hypoglycaemia (item 3)

8% of those inpatients completing this item (n=1192) indicated high perceived frequency of hypoglycaemia (scoring 6 or 5 on the 6-0 scale).

Similarity of food (item 12)

25% of inpatient respondents to this item (n=1208) said they would never make similar food choices at home (scoring 0 or 1 on the 6-0 scale).

Number of times inpatients reported seeing DISN.

Of the 972 respondents most reported seeing the DISN once or twice:

1	2	3	4	5
27.9%	29.8%	19.1%	11.2%	11.9%

Satisfaction with the time DISN spent with them.

80% of inpatient respondents to this item (n=987) were very satisfied (scoring 6 or 5 on the 6-0 scale) with the time the DISN spent with them. With 61% optimally satisfied (i.e. scoring a 6).

Overall satisfaction is correlated with satisfaction with the time the DISN spent (Tau-b = 0.40, p<0.0001), meal similarity (Tau-b = 0.39, p<0.0001) and with the number of times they saw the DISN (Tau-b = 0.10, p<0.0001). It is negatively correlated with patient perceived frequency of hyper- (Tau-b = -0.08, p<0.0001) and hypoglycaemia (Tau-b = -0.12, p<0.0001).

DTSQ-IP scale item results

Inpatients were least satisfied with

- quality of food
- access to snacks.
- choice of meals
- timing of meals

They were less satisfied with hospital food (median=4.4, inter-quartile range (IQR)=2.4) than with other aspects of care (median=5.3; IQR=1.5; Wilcoxon signed-ranks p<0.001).

Inpatients were most satisfied

- with monitoring of their diabetes while an inpatient,
- to continue with their present form of treatment
- with plans for diabetes treatment after hospital discharge.

Women were less satisfied than men

(median women=4.8; men=5.1, Mann-Whitney U p<0.001). Patients administering insulin for >6 months (compared to those using insulin for ≤6 months) were less satisfied (median=4.9 versus 5.3, p<0.001).

Multiple Regression to predict DTSQ-IP scale score confirmed a model explaining 51% of the variance in overall satisfaction.

Independent predictors were;

- Being satisfied with the time the DISN spent with them
- Meal similarity between home and hospital
- Being male
- Being diagnosed with diabetes for a shorter time

6. Conclusions

- The 22-item DTSQ-IP is a psychometrically validated tool allowing quantification of inpatient satisfaction / dissatisfaction with diabetes treatment in hospital.
- Particular patient concerns were:
 - ⇒ Hospital food,
 - ⇒ Hyperglycaemia
 - ⇒ Hypoglycaemia
- Women patients were less satisfied than men particularly among patients using insulin > 6 months.
- Patients with longer experience of insulin were less satisfied than those using insulin < / = 6 months perhaps due to their greater knowledge of diabetes treatment.
- Patient satisfaction with the time they spent with the DISN better predicted overall satisfaction than number of DISN visits.

References

- Bradley C & Lewis K. Measures of ...well-being and treatment satisfaction...*Diabetic Med* 7: 445-51, 1990.
- Bradley C. The DTSQ. In: Bradley C, Ed. Handbook of Psychology & Diabetes...Harwood Acad Pub, 1994.
- Sampson M et al. Psychometric validation ...satisfaction questionnaire...*Diabetic Med* 26: 729-35, 2009.

Acknowledgements

The study authors would like to thank:

- ◇ All inpatient respondents
- ◇ All DISNs for handing out questionnaires
- ◇ All staff in the 58 participating hospitals
- ◇ Diabetes UK for funding the DIPSat programme

Enquiries

Corresponding author:

Claire Rutter Health Psychologist DIPSat Study
Royal Holloway, University of London, Egham, Surrey,
TW20 0EX, UK.

E-mail: claire.rutter@rhul.ac.uk

Access to DTSQ-IP

Claire Bradley PhD, Professor of Health Psychology
Royal Holloway, University of London
Egham, Surrey, TW20 0EX, UK.
E-mail: c.bradley@rhul.ac.uk

or visit www.healthpsychologyresearch.com