

# 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



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## 1. Aim

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

## 2. Background

- The Diabetes Treatment Satisfaction Questionnaire (DTSQ)<sup>1,2</sup> used extensively with outpatients was adapted for use with inpatients (DTSQ-IP)<sup>3</sup> at Norfolk and Norwich University Hospital and published in Diabetic Medicine (2009).
- The DTSQ-IP has since been further 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 Asian version.

## 3. The Revised DTSQ-IP

- The revised standard English DTSQ-IP presents 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"
- Five items not involved in the overall score are examined separately:
  - Items 2 and 3 concern perceived frequency of hyper- and hypoglycaemia are scored 6 to 0. 6 = "most of the time" 0 = "none of the time"
  - Item 12 ascertains 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").

## 6. Conclusions

- The 22-item DTSQ-IP is a psychometrically validated tool allowing quantification of inpatients' experiences of diabetes treatment satisfaction.
- Hospital food, hyperglycaemia and hypoglycaemia were particular concerns.

## 4. Methods

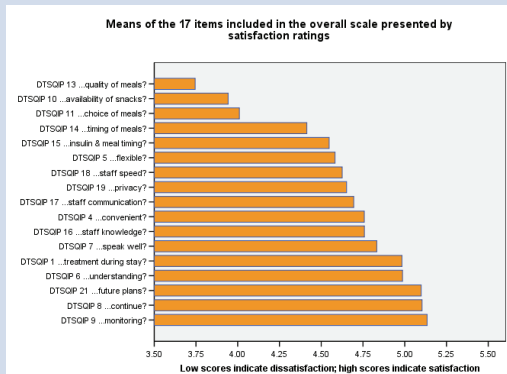
- The revised standard English DTSQ-IP was distributed to British born, English speaking adult inpatients with diabetes by Diabetes Inpatient Specialist Nurses (DISNs) in 58 UK hospitals.
- Participants completed the DTSQ-IP and general information questionnaire before discharge.

### Study Sample: main characteristics

- N = 1319 returned questionnaires
- Men = 742 (56.3%); Women = 574 (43.5%)
- Length of hospital stay = 12.7 (mean); 7 (median); 3 (mode)
- Diabetes duration = 16 years (mean)
- Insulin received for the first time this admission = 20.4%
- Duration of insulin treatment = 13.7 years (mean) 10 years (median)\*
- Medical Ward = 67.4%; Surgical ward = 22.9%
- Reported a severe hypoglycaemic episode = 25.7%
- \* Data from inpatients not receiving insulin for the first time

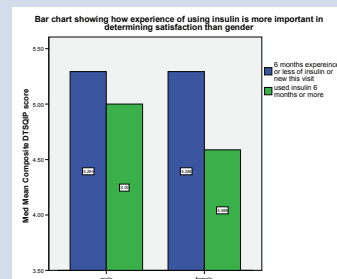
## 5. Results & Discussion

Principal Components Analysis on N=977 inpatients confirmed an overall treatment satisfaction scale for (17 DTSQ-IP items; Cronbach's  $\alpha=0.94$ ), and identified a hospital food satisfaction subscale (4 items;  $\alpha=0.84$ ).



Women were less satisfied than men overall (Median women=4.8; men=5.1, Mann-Whitney U  $p<0.001$ ) and with hospital food (Median women=4.2; men=4.6;  $p<0.001$ ). Patients administering insulin for  $\geq 6$  months (compared to those using insulin for  $<6$  months) were less satisfied overall (Median=4.9 versus 5.3;  $p<0.001$ ) and with hospital food (Median=4.2 versus 4.8;  $p<0.001$ ). However when we examine these variables in more detail we can see that those newer to insulin are more satisfied regardless of gender, whereas for those inpatients with  $\geq 6$  months experience of injecting women are more dissatisfied than men.

Inpatients identified quality, choice and timing of meals and access to snacks as the major contributors to dissatisfaction. 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  $p<0.001$ ). They were most satisfied with the monitoring of their diabetes while an inpatient, and with continuing their present form of treatment and future plans.



- Perceived Frequency of Hyperglycaemia (item 2)**  
35% indicated high perceived frequency of hyperglycaemia during their inpatient stay (scoring 6-4 on the 6-0 scale).
- Perceived Frequency of Hypoglycaemia (item 3)**  
13% high perceived frequency of hypoglycaemia (scoring 6-4 on the 6-0 scale).
- Similarity of food (item 12)**  
22.7% saying they would never make similar food choices at home
- Time spent and satisfaction with DISN (items 20a & 20b)**  
30% reported seeing the DISN twice throughout their stay.  
89% of inpatients were satisfied (including 61% optimally satisfied -scoring a 6) with the time the DISN spent.

## References

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## 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 DIPsSat programme

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## Access to DTSQ-IP

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